4 OBSERVATIONS, RESULT & DISCUSSION

We devised a genetic algorithm which will take media bandwidth, alternate routes/path bandwidth and total load on network as input parameters and will provide an optimal output.

4.1 Encoding Scheme for Contents on Server

Here we are assuming n servers and m contents. Each content is divided as:

Xa ,Ya…….Za

Xb,Yb…….Zb

....

....

.Xm, Ym……..Zm

Figure 29: Contents Distribution on Servers
4.2 ENCODING FOR OTHER SOLUTION

There can be many solutions for dividing the contents. Here I am taking representation for two solutions. One was above and second is here.

Figure 30: One Solution Representation From Many Solutions For Content Distribution

4.3 CROSSOVER OPERATOR REPRESENTATION

Crossover is the process of taking two parent solutions and producing from them a child. After the selection (reproduction) process, the population is enriched with better individuals.

4.3.1 Single point crossover

The traditional genetic algorithm uses single point crossover, where the two mating chromosomes are cut once at corresponding points and the sections after the cuts exchanged.
4.3.2 Two point crossover

In two-point crossover, two crossover points are chosen and the contents between these points are exchanged between two mated parents.

4.3.3 Multi-point crossover (N-Point crossover)

There are two ways in this crossover. One is even number of cross-sites and the other odd number of cross-sites. In the case of even number of cross-sites, cross-sites are selected randomly around a circle and information is exchanged. In the case of odd
number of cross-sites, a different cross-point is always assumed at the string beginning.

4.3.4 Crossover in content distribution

Here I am showing only one point crossover. In my implementation however I have considered all. In this we will see first fragmented content from both solutions will remain same. Rest will interchange.

Figure 33: Before Crossover

Figure 34: After One Point Crossover
4.4 MUTATION OPERATOR

After crossover, the strings are subjected to mutation. Mutation prevents the algorithm to be trapped in a local minimum. Mutation plays the role of recovering the lost genetic materials as well as for randomly disturbing genetic information. Mutations can be done in following ways.

4.4.1 Flipping

Flipping of a bit involves changing 0 to 1 and 1 to 0 based on a mutation chromosome generated. The Fig. 35 explains mutation-flipping concept. A parent is considered and a mutation chromosome is randomly generated. For a 1 in mutation chromosome, the corresponding bit in parent chromosome is flipped (0 to 1 and 1 to 0) and child chromosome is produced. In the above case, there occurs 1 at 3 places of mutation chromosome, the corresponding bits in parent chromosome are flipped and child is generated.

<table>
<thead>
<tr>
<th>Parent</th>
<th>1 0 1 1 0 1 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutation chromosome</td>
<td>1 0 0 0 1 0 0 1</td>
</tr>
<tr>
<td>Child</td>
<td>0 0 1 1 1 0 0 1</td>
</tr>
</tbody>
</table>

Figure 35: Mutation flipping

4.4.2 Interchanging

Two random positions of the string are chosen and the bits corresponding to those positions are interchanged. This is shown in Figure 36.

<table>
<thead>
<tr>
<th>Parent</th>
<th>1 0 1 1 0 1 0 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child</td>
<td>1 1 1 1 0 0 1</td>
</tr>
</tbody>
</table>

Figure 36 : Interchanging
4.4.3 Reversing

A random position is chosen and the bits next to that position are reversed and child chromosome is produced.

4.4.4 Mutation probabilities

The important parameter in the mutation technique is the mutation probability (Pm). The mutation probability decides how often parts of chromosome will be mutated. If there is no mutation, offspring are generated immediately after crossover (or directly copied) without any change. If mutation is performed, one or more parts of a chromosome are changed. If mutation probability is 100%, whole chromosome is changed, if it is 0%, nothing is changed. Mutation generally prevents the GA from falling into local extremes. Mutation should not occur very often, because then GA will in fact change to random search.

4.4.5 Replacement

Replacement is the last stage of any breeding cycle. Two parents are drawn from a fixed size population and they breed two children.

4.4.6 Mutation in content distribution

In my implementation I have taken mutation probability. I did hard code for probability. We can change the probably percentage according to our requirement.

Generate any random number.

1. If
2. Random number ≤ probability chosen
3. Then
4. \( X_a - (X_a \times \text{random} / 100) \)

5. Else

6. \( Y_a + (X_a \times \text{random}/100) \)

4.5 RESULT

I have done implementation in C++ with standard template library. I used Linux as an operating system. Using virtual machine I made content servers. Here is the sample of input–output of my coding.

**Inputs:**

Enter Total content: 8

Enter quality of each content: 100 120 60 90 150 70 80 95

Enter Total servers: 4

Enter BW of each server: 180 70 160 40

Enter Total Generation: 20

Enter cross over point: 1

Enter mutation Probability (prob*100): 0.2

4.5.1 **Output with crossover one operator**

Generation 1

Delay 0.458565 Sol No => 0

Load on Server


Load on Server

Load on Server
Load on Server
Delay0.464256 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.468712 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.488316 Sol No => 3
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.493244 Sol No => 4
Load on Server
(0): Content: 0: amount: 52: Content: 1: amount: 6: Content: 2: amount: 1.8: Content: 3: amount: 0.95
Load on Server
Load on Server
Load on Server
Delay 0.500694 Sol No=> 5
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 33.6; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 16.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 3.6; Content: 2: amount: 5.4; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
*********** GENERATION2***********************
Delay 0.420461 Sol No=> 0
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 0;
Load on Server (2): amount:2: amount:15.6: amount:16.8: amount:52.2: amount:112.5: amount:31.5: amount:12.8: amount:64.6
Delay 0.458565 Sol No=> 1

Load on Server (2): amount:2: amount:15.6: amount:16.8: amount:52.2: amount:112.5: amount:31.5: amount:12.8: amount:64.6
Delay 0.464256 Sol No=> 2

Load on Server (0): amount:3: amount:19.2: amount:43.8: amount:2.7: amount:28.5: amount:2.1: amount:30.4: amount:2.85
Load on Server (3):
Content:0:amount:18:Content:1:amount:0:Content:2:amount:10.2:Content:3:amount:9:
Content:4:amount:36:Content:5:amount:1.4:Content:6:amount:16.8:Content:7:amount:
16.15
Delay:0.494704 Sol No=> 3
Load on Server (0):
Load on Server (1):
Content:0:amount:31:Content:1:amount:25.2:Content:2:amount:45:Content:3:amount:76.5:
Load on Server (2):
Content:0:amount:16:Content:1:amount:25.2:Content:2:amount:1.8:Content:3:amount:
1.8:Content:4:amount:18:Content:5:amount:18.9:Content:6:amount:4.8:Content:7:
amount:27.55
Load on Server (3):
Content:0:amount:6:Content:1:amount:21.6:Content:2:amount:3:Content:3:amount:
23.75
Delay:0.523411 Sol No=> 4
Load on Server (0):
Content:0:amount:6:Content:1:amount:1.2:Content:2:amount:9.6:Content:3:amount:
10.8:Content:4:amount:63:Content:5:amount:7:Content:6:amount:2.4:Content:7:amount:
0.95
Load on Server (1):
Content:0:amount:17:Content:1:amount:100.8:Content:2:amount:9.6:Content:3:amount:
amount:0.95
Load on Server (2):
Content:0:amount:71:Content:1:amount:18:Content:2:amount:34.2:Content:3:amount:
111
Load on Server
Delay 0.535536 Sol No=> 5
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server (2):
Content:0:amount:2:
Content:1:amount:37.2:
Content:2:amount:1.8:
Content:3:amount:65.7:
Content:4:amount:24:
Content:5:amount:2.1:
Content:6:amount:8:
Content:7:amount:8.55

Load on Server (3):
Content:0:amount:6:
Content:1:amount:0:
Content:2:amount:10.2:
Content:3:amount:9:
Content:4:amount:36:
Content:5:amount:1.4:
Content:6:amount:16.8:
Content:7:amount:16.15

*********** GENERATION3***********
Delay0.409344 Sol No=> 0

Load on Server (0):
Content:0:amount:47:
Content:1:amount:19.2:
Content:2:amount:43.8:
Content:3:amount:2.7:
Content:4:amount:28.5:
Content:5:amount:2.1:
Content:6:amount:30.4:
Content:7:amount:2.85

Load on Server (1):
Content:0:amount:31:
Content:1:amount:63.6:
Content:2:amount:4.2:
Content:3:amount:12.6:
Content:4:amount:61.5:
Content:5:amount:64.4:
Content:6:amount:24.8:
Content:7:amount:67.45

Load on Server (2):
Content:0:amount:16:
Content:1:amount:37.2:
Content:2:amount:1.8:
Content:3:amount:65.7:
Content:4:amount:24:
Content:5:amount:2.1:
Content:6:amount:8:
Content:7:amount:8.55

Load on Server (3):
Content:0:amount:6:
Content:1:amount:0:
Content:2:amount:10.2:
Content:3:amount:9:
Content:4:amount:36:
Content:5:amount:1.4:
Content:6:amount:16.8:
Content:7:amount:16.15

Delay0.420461 Sol No=> 1

Load on Server (0):
Content:0:amount:63:
Content:1:amount:19.2:
Content:2:amount:43.8:
Content:3:amount:2.7:
Content:4:amount:28.5:
Content:5:amount:2.1:
Content:6:amount:30.4:
Content:7:amount:2.85

Load on Server (1):
Content:0:amount:29:
Content:1:amount:63.6:
Content:2:amount:4.2:
Content:3:amount:8.2:amount:28.5:
Content:5:amount:2.1:
Content:6:amount:30.4:
Content:7:amount:2.85

113
114

Load on Server (1):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12.6</td>
</tr>
<tr>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>2</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>6</td>
<td>16.8</td>
</tr>
<tr>
<td>7</td>
<td>16.15</td>
</tr>
</tbody>
</table>

Delay 0.458565 Sol No => 2

Load on Server (0):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>1</td>
<td>4.8</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>3</td>
<td>11.7</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>16.8</td>
</tr>
<tr>
<td>6</td>
<td>0.8</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
</tr>
</tbody>
</table>

Load on Server (1):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>1</td>
<td>96</td>
</tr>
<tr>
<td>2</td>
<td>33.6</td>
</tr>
<tr>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Load on Server (2):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>15.6</td>
</tr>
<tr>
<td>2</td>
<td>16.8</td>
</tr>
<tr>
<td>3</td>
<td>52.2</td>
</tr>
<tr>
<td>4</td>
<td>112.5</td>
</tr>
<tr>
<td>5</td>
<td>31.5</td>
</tr>
<tr>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>7</td>
<td>64.6</td>
</tr>
</tbody>
</table>

Load on Server (3):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td>3</td>
<td>24.3</td>
</tr>
<tr>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>18.2</td>
</tr>
<tr>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Delay 0.527719 Sol No => 3

Load on Server (0):

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>2</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>18.2</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>12.35</td>
</tr>
</tbody>
</table>
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 25.2; Content: 2: amount: 45; Content: 3: amount: 76.5; Content: 4: amount: 78; Content: 5: amount: 39.9; Content: 6: amount: 7.2; Content: 7: amount: 31.35
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 25.2; Content: 2: amount: 1.8; Content: 3: amount: 1.8; Content: 4: amount: 18; Content: 5: amount: 18.9; Content: 6: amount: 4.8; Content: 7: amount: 27.55
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 21.6; Content: 2: amount: 3; Content: 3: amount: 7.2; Content: 4: amount: 24; Content: 5: amount: 5.6; Content: 6: amount: 52; Content: 7: amount: 23.75
Best Solution Server Load Distribution
Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

********** GENERATION4***************

Delay: 0.409344 Sol No=> 0
Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: a
Delay 0.420461 Sol No => 1
Delay 0.448046 Sol No => 2
Load on Server

Load on Server

Load on Server

Delay0.454816 Sol No=> 3

Load on Server

Load on Server

Load on Server

Load on Server
Delay 0.510681 Sol No=> 4
Load on Server
Load on Server
Load on Server
Delay 0.53708 Sol No=> 5
Load on Server
Load on Server
Load on Server
Load on Server
(3):Content:0:amount:18.34:Content:1:amount:3.756:Content:2:amount:5.568:Content
Best Solution Server Load Distribution

Load on Server

Load on Server

Load on Server

Load on Server

*********** GENERATION5***********

Delay 0.409344 Sol No=> 0

Load on Server

Load on Server

Load on Server
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay: 0.420461 Sol No=> 1
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 12.6; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay: 0.451762 Sol No=> 2
Load on Server
(0): Content: 0: amount: 56.7; Content: 1: amount: 17.088; Content: 2: amount: 38.982; Content: 3: amount: 2.403; Content: 4: amount: 25.365; Content: 5: amount: 1.869; Content: 6: amount: 27.056; Content: 7: amount: 2.5365
Load on Server
(1): Content: 0: amount: 35.3; Content: 1: amount: 65.712; Content: 2: amount: 9.018; Content: 3: amount: 12.897; Content: 4: amount: 64.635; Content: 5: amount: 64.631; Content: 6: amount: 28.144; Content: 7: amount: 67.7635
Load on Server
(2): Content: 0: amount: 1.8; Content: 1: amount: 33.108; Content: 2: amount: 1.602; Content: 120
3: amount: 58.473
Content: 4: amount: 21.36
Content: 5: amount: 1.869
Content: 6: amount: 7.12
Content: 7: amount: 7.6095

Load on Server
(3): Content: 0: amount: 6.2
Content: 1: amount: 4.092
Content: 2: amount: 10.398
Content: 3: amount: 16.227
Content: 4: amount: 38.64
Content: 5: amount: 1.631
Content: 6: amount: 17.68
Content: 7: amount: 17.0905

Delay 0.471348 Sol No=> 3

Load on Server
(0): Content: 0: amount: 39.7385
Content: 1: amount: 16.416
Content: 2: amount: 37.449
Content: 3: amount: 2.3085
Content: 4: amount: 24.3675
Content: 5: amount: 1.7955
Content: 6: amount: 25.992
Content: 7: amount: 2.43675

Load on Server
(1): Content: 0: amount: 38.2615
Content: 1: amount: 66.384
Content: 2: amount: 10.551
Content: 3: amount: 12.9915
Content: 4: amount: 65.6325
Content: 5: amount: 64.7045
Content: 6: amount: 29.208
Content: 7: amount: 67.8633

Load on Server
(2): Content: 0: amount: 13.528
Content: 1: amount: 31.806
Content: 2: amount: 1.539
Content: 3: amount: 56.1735
Content: 4: amount: 20.52
Content: 5: amount: 1.7955
Content: 6: amount: 6.84
Content: 7: amount: 7.31025

Load on Server
(3): Content: 0: amount: 8.472
Content: 1: amount: 5.394
Content: 2: amount: 10.461
Content: 3: amount: 18.5265
Content: 4: amount: 39.48
Content: 5: amount: 1.7045
Content: 6: amount: 17.96
Content: 7: amount: 17.3897

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 47
Content: 1: amount: 19.2
Content: 2: amount: 43.8
Content: 3: amount: 2.7
Content: 4: amount: 28.5
Content: 5: amount: 2.1
Content: 6: amount: 30.4
Content: 7: amount: 2.85

Load on Server
(1): Content: 0: amount: 31
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 12.6
Content: 4: amount: 61.5
Content: 5: amount: 64.4
Content: 6: amount: 24.8
Content: 7: amount: 67.45
Load on Server
Load on Server
*********** GENERATION6***********************
Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
Load on Server
123
Load on Server
Load on Server
Load on Server
Delay0.495391 Sol No=> 4
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
(0):Content:0:amount:47:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:a
Load on Server
Load on Server
Load on Server
*********** GENERATION7***********************
Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
125
Load on Server
Load on Server
Load on Server
Load on Server

Delay0.502126 Sol No=> 2

Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.516473 Sol No=> 3

Load on Server

Load on Server
(1): Content: 0: amount: 44.372; Content: 1: amount: 68.4461; Content: 2: amount: 13.2815; Content: 3: amount: 13.2815; Content: 4: amount: 68.6934; Content: 5: amount: 64.93; Content: 6: amount: 32.473; Content: 7: amount: 68.1693

Load on Server
(2): Content: 0: amount: 1.512; Content: 1: amount: 27.8107; Content: 2: amount: 1.34568; Content: 3: amount: 49.1173; Content: 4: amount: 17.9424; Content: 5: amount: 1.56996; Content: 6: amount: 5.9808; Content: 7: amount: 6.39198

Load on Server

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 0

*********** GENERATION8***************

Delay0.409344 Sol No=> 0

Load on Server

Load on Server

Load on Server

Load on Server

Delay0.420461 Sol No=> 1

Load on Server

Load on Server

Load on Server
Load on Server
Delay: 0.501978 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay: 0.516618 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server

*********** GENERATION9***********

Delay0.409344 Sol No => 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.502126 Sol No=> 2
Load on Server
Load on Server
Best Solution Server Load Distribution

Load on Server

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution

Load on Server
Load on Server
Load on Server
Load on Server
*********** GENERATION10******************
Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
(0):Content:0:amount:63:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:a
Load on Server
(1): Content: 0: amount: 29.0
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 12.6
Content: 4: amount: 61.5
Content: 5: amount: 64.4
Content: 6: amount: 24.8
Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 2.0
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 65.7
Content: 4: amount: 24.0
Content: 5: amount: 2.1
Content: 6: amount: 8.0
Content: 7: amount: 8.55

Load on Server
(3): Content: 0: amount: 6.0
Content: 1: amount: 0.0
Content: 2: amount: 10.2
Content: 3: amount: 9.0
Content: 4: amount: 36.0
Content: 5: amount: 1.4
Content: 6: amount: 16.8
Content: 7: amount: 16.15

Delay 0.501978 Sol No => 2

Load on Server
(0): Content: 0: amount: 47.628
Content: 1: amount: 15.1027
Content: 2: amount: 34.4531
Content: 3: amount: 21.12382
Content: 4: amount: 22.4181
Content: 5: amount: 1.65186
Content: 6: amount: 23.9126
Content: 7: amount: 2.24181

Load on Server
(1): Content: 0: amount: 44.372
Content: 1: amount: 67.6973
Content: 2: amount: 13.5469
Content: 3: amount: 13.1762
Content: 4: amount: 67.5819
Content: 5: amount: 64.8481
Content: 6: amount: 31.2874
Content: 7: amount: 68.0582

Load on Server
(2): Content: 0: amount: 1.512
Content: 1: amount: 29.2615
Content: 2: amount: 1.41588
Content: 3: amount: 51.6796
Content: 4: amount: 18.8784
Content: 5: amount: 1.65186
Content: 6: amount: 6.2928
Content: 7: amount: 6.72543

Load on Server
(3): Content: 0: amount: 6.488
Content: 1: amount: 7.93848
Content: 2: amount: 10.5841
Content: 3: amount: 23.0204
Content: 4: amount: 41.1216
Content: 5: amount: 1.84814
Content: 6: amount: 18.5072
Content: 7: amount: 17.9746

Delay 0.516618 Sol No => 3
Load on Server

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution
Load on Server

Load on Server

Load on Server

Load on Server
*********** GENERATION11***************

Delay 0.409344 Sol No=> 0
Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

Delay 0.420461 Sol No=> 1
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 10.2; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay 0.502126 Sol No => 2
Load on Server
(0): Content: 0: amount: 36.5594; Content: 1: amount: 15.1027; Content: 2: amount: 34.4531; Content: 3: amount: 2.12382; Content: 4: amount: 22.4181; Content: 5: amount: 1.65186; Content: 6: amount: 23.9126; Content: 7: amount: 2.24181

Load on Server

Load on Server

Delay 0.516473 Sol No => 3
Load on Server
(0): Content: 0: amount: 47.628; Content: 1: amount: 14.3539; Content: 2: amount: 32.7449; Content: 3: amount: 2.01852; Content: 4: amount: 21.3066; Content: 5: amount: 1.56996; Content: 6: amount: 22.727; Content: 7: amount: 2.13066

Load on Server
(1): Content: 0: amount: 44.372; Content: 1: amount: 68.4461; Content: 2: amount: 15.2551; Content: 3: amount: 13.2815; Content: 4: amount: 68.6934; Content: 5: amount: 64.93; Content: 6: amount: 32.473; Content: 7: amount: 68.1693

Load on Server
(2): Content: 0: amount: 1.512; Content: 1: amount: 27.8107; Content: 2: amount: 1.34568; Content: 3: amount: 49.1173; Content: 4: amount: 17.9424; Content: 5: amount: 1.56996; Content: 6: amount: 5.9808; Content: 7: amount: 6.39198
Best Solution Server Load Distribution

Load on Server (3):
Content: 0: amount: 6.488
Content: 1: amount: 9.38928
Content: 2: amount: 10.6543
Content: 3: amount: 25.5827
Content: 4: amount: 42.0576
Content: 5: amount: 1.93004
Content: 6: amount: 18.8192
Content: 7: amount: 18.308

Load on Server (0):
Content: 0: amount: 47
Content: 1: amount: 19.2
Content: 2: amount: 43.8
Content: 3: amount: 2.7
Content: 4: amount: 28.5
Content: 5: amount: 2.1
Content: 6: amount: 30.4
Content: 7: amount: 2.85

Load on Server (1):
Content: 0: amount: 31
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 12.6
Content: 4: amount: 61.5
Content: 5: amount: 64.4
Content: 6: amount: 24.8
Content: 7: amount: 67.45

Load on Server (2):
Content: 0: amount: 16
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 65.7
Content: 4: amount: 24
Content: 5: amount: 2.1
Content: 6: amount: 8
Content: 7: amount: 8.55

Load on Server (3):
Content: 0: amount: 6
Content: 1: amount: 0
Content: 2: amount: 10.2
Content: 3: amount: 9
Content: 4: amount: 36
Content: 5: amount: 1.4
Content: 6: amount: 16.8
Content: 7: amount: 16.15

*********** GENERATION12***************

Delay 0.409344 Sol No=> 0

Load on Server (0):
Content: 0: amount: 47
Content: 1: amount: 19.2
Content: 2: amount: 43.8
Content: 3: amount: 2.7
Content: 4: amount: 28.5
Content: 5: amount: 2.1
Content: 6: amount: 30.4
Content: 7: amount: 2.85

Load on Server (1):
Content: 0: amount: 31
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 12.6
Content: 4: amount: 61.5
Content: 5: amount: 64.4
Content: 6: amount: 24.8
Content: 7: amount: 67.45

Load on Server (2):
Content: 0: amount: 16
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 65.7
Content: 4: amount: 24
Content: 5: amount: 2.1
Content: 6: amount: 8
Content: 7: amount: 8.55

***** GENERATION12***************
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay 0.420461 Sol No=> 1

Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay 0.501978 Sol No=> 2

Load on Server
(0): Content: 0: amount: 47.628; Content: 1: amount: 15.1027; Content: 2: amount: 34.4531; Content: 3: amount: 2.12382; Content: 4: amount: 22.4181; Content: 5: amount: 1.65186; Content: 6: amount: 23.9126; Content: 7: amount: 2.24181

Load on Server


Delay 0.516618 Sol No => 3


Best Solution Server Load Distribution


Best Solution Server Load Distribution


Best Solution Server Load Distribution
Load on Server

Load on Server

*********** GENERATION13***************

Delay 0.409344 Sol No => 0

Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.420461 Sol No => 1

Load on Server
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

Delay: 0.502126 Sol No=> 2

Load on Server
(0): Content: 0: amount: 36.5594; Content: 1: amount: 15.1027; Content: 2: amount: 34.4531; Content: 3: amount: 2.12382; Content: 4: amount: 22.4181; Content: 5: amount: 1.65186; Content: 6: amount: 23.9126; Content: 7: amount: 2.24181

Load on Server

Load on Server

Load on Server

Delay: 0.516473 Sol No=> 3

Load on Server
(0): Content: 0: amount: 47.628; Content: 1: amount: 14.3539; Content: 2: amount: 32.7449;

Best Solution Server Load Distribution


************ GENERATION14************

Delay 0.409344 Sol No=> 0
Load on Server

Load on Server

Load on Server

Load on Server

Delay: 0.420461 Sol No => 1

Load on Server

Load on Server

Load on Server

Load on Server

144
Delay 0.501978 Sol No=> 2

Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.516618 Sol No=> 3

Load on Server

Load on Server

Load on Server

Load on Server
Best Solution Server Load Distribution

Load on Server

(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server

(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server

(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server

(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

*********** GENERATION15***************

Delay 0.409344 Sol No=> 0

Load on Server

(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server

(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server

(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server

Delay:0.420461 Sol No=> 1

Load on Server


Load on Server


Load on Server


Load on Server

Delay:0.463832 Sol No=> 2

Load on Server


Load on Server


Load on Server

Load on Server (3): Content: 0: amount: 8.08; Content: 1: amount: 4.836; Content: 2: amount: 10.434; Content: 3: amount: 17.541; Content: 4: amount: 39.12; Content: 5: amount: 1.673; Content: 6: amount: 17.84; Content: 7: amount: 17.2615
Delay 0.502126 Sol No => 3

Load on Server (0): Content: 0: amount: 36.5594; Content: 1: amount: 15.1027; Content: 2: amount: 34.4531; Content: 3: amount: 2.12382; Content: 4: amount: 22.4181; Content: 5: amount: 1.65186; Content: 6: amount: 23.9126; Content: 7: amount: 2.24181


Delay 0.516473 Sol No => 4

Load on Server (0): Content: 0: amount: 47.628; Content: 1: amount: 14.3539; Content: 2: amount: 32.7449; Content: 3: amount: 2.01852; Content: 4: amount: 21.3066; Content: 5: amount: 1.56996; Content: 6: amount: 22.727; Content: 7: amount: 2.13066

Load on Server (1): Content: 0: amount: 44.372; Content: 1: amount: 68.4461; Content: 2: amount: 15.2551; Content: 3: amount: 13.2815; Content: 4: amount: 68.6934; Content: 5: amount: 64.93; Content: 6: amount: 32.473; Content: 7: amount: 68.1693
Load on Server

Load on Server

Best Solution Server Load Distribution
Load on Server

Load on Server

Load on Server

Load on Server

*********** GENERATION16************

Delay 0.409344 Sol No=> 0

Load on Server

Load on Server
Load on Server
Delay0.471136 Sol No=> 2
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.471136 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.49482 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
(0): Content:0:amount:47:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:a
mount:2.7:Content:4:amount:28.5:Content:5:amount:2.1:Content:6:amount:30.4:Content:
load:amount:2.85
Load on Server
12.6:Content:4:amount:61.5:Content:5:amount:64.4:Content:6:amount:24.8:Content:
load:amount:67.45
Load on Server
(2):Content:0:amount:16:Content:1:amount:37.2:Content:2:amount:1.8:Content:3:amount:
65.7:Content:4:amount:24:Content:5:amount:2.1:Content:6:amount:8:Content:7:amount:
8.55
Load on Server
16.15
*********** GENERATION17*********************
Delay0.409344 Sol No=> 0
Load on Server
(0):Content:0:amount:47:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:amount:
2.7:Content:4:amount:28.5:Content:5:amount:2.1:Content:6:amount:30.4:Content:
load:amount:2.85
Load on Server
12.6:Content:4:amount:61.5:Content:5:amount:64.4:Content:6:amount:24.8:Content:
load:amount:67.45
Load on Server
(2):Content:0:amount:16:Content:1:amount:37.2:Content:2:amount:1.8:Content:3:amount:
65.7:Content:4:amount:24:Content:5:amount:2.1:Content:6:amount:8:Content:7:amount:
8.55
Load on Server
16.15
Delay0.420461 Sol No=> 1
152
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.463832 Sol No => 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.502126 Sol No => 3

Load on Server
(0): Content: 0: amount: 36.5594; Content: 1: amount: 15.1027; Content: 2: amount: 34.4531; Content: 3: amount: 2.12382; Content: 4: amount: 22.4181; Content: 5: amount: 1.65186; Content: 6: amount: 23.9126; Content: 7: amount: 2.24181

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 16; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount:

*********** GENERATION18***********

Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.434443 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.471136 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
mount:6.96:Content:7:amount:7.4385
Load on Server
mount:17.84:Content:7:amount:17.2615
Delay0.49482 Sol No=> 4
Load on Server
(0):Content:0:amount:40.89:Content:1:amount:15.1027:Content:2:amount:34.4531:C
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
(0):Content:0:amount:47:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:a
mount:2.7:Content:4:amount:28.5:Content:5:amount:2.1:Content:6:amount:30.4:Cont
ent:7:amount:2.85
Load on Server
ount:12.6:Content:4:amount:61.5:Content:5:amount:64.4:Content:6:amount:24.8:Cont
ent:7:amount:67.45

157
Load on Server
Load on Server
*********** GENERATION19**************************
Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.456738 Sol No => 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.484325 Sol No => 3
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.497708 Sol No=> 4
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
*********** GENERATION20***************
Delay0.409344 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.420461 Sol No=> 1
161
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.475315 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server

162
Delay 0.500885 Sol No => 3

Load on Server
(0): Content: 0: amount: 47.0106; Content: 1: amount: 15.2006; Content: 2: amount: 34.6765; Content: 3: amount: 2.13759; Content: 4: amount: 22.5634; Content: 5: amount: 2.25634

Load on Server
(1): Content: 0: amount: 44.9894; Content: 1: amount: 15.2006; Content: 2: amount: 34.6765; Content: 3: amount: 2.13759; Content: 4: amount: 22.5634; Content: 5: amount: 2.25634

Load on Server
(2): Content: 0: amount: 19.2; Content: 1: amount: 43.8; Content: 2: amount: 2.7; Content: 3: amount: 28.5; Content: 4: amount: 2.1; Content: 5: amount: 30.4; Content: 6: amount: 2.85

Load on Server
(3): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Best Solution Server Load Distribution
Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server
(2): Content: 0: amount: 19.2; Content: 1: amount: 43.8; Content: 2: amount: 2.7; Content: 3: amount: 28.5; Content: 4: amount: 2.1; Content: 5: amount: 30.4; Content: 6: amount: 2.85

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 8.55
4.5.2 Output with crossover point two operator

Enter Total content: 8
Enter quality of each content: 100 120 60 90 150 70 80 95
Enter Total servers: 4
Enter BW of each server: 180 70 160 40
Enter Total Generation: 20
Enter cross over point: 2
Enter mutation Probability (prob*100): 0.2

Generation 1
Delay 0.458565 Sol No=> 0
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 33.6; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 16.8; Content: 3: amount: 16.15
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.468712 Sol No=> 2
Load on Server
Load on Server

165
Load on Server
Load on Server
Delay0.488316 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.493244 Sol No=> 4
Load on Server
Load on Server
Load on Server (2): Content: 0: amount: 17; Content: 1: amount: 62.4; Content: 2: amount: 13.8; Content: 3: amount: 3.6; Content: 4: amount: 61.5; Content: 5: amount: 2.8; Content: 6: amount: 33.6; Content: 7: amount: 0.95

Load on Server (3): Content: 0: amount: 9; Content: 1: amount: 18; Content: 2: amount: 36; Content: 3: amount: 0.9; Content: 4: amount: 1.5; Content: 5: amount: 0.7; Content: 6: amount: 4.8; Content: 7: amount: 0.95

Delay 0.500694 Sol No => 5

Load on Server (0): Content: 0: amount: 16; Content: 1: amount: 7.2; Content: 2: amount: 14.4; Content: 3: amount: 0.9; Content: 4: amount: 13.5; Content: 5: amount: 3.5; Content: 6: amount: 36.8; Content: 7: amount: 16.15

Load on Server (1): Content: 0: amount: 10; Content: 1: amount: 105.6; Content: 2: amount: 4.2; Content: 3: amount: 71.1; Content: 4: amount: 22.5; Content: 5: amount: 46.2; Content: 6: amount: 5.6; Content: 7: amount: 60.8

Load on Server (2): Content: 0: amount: 45; Content: 1: amount: 2.4; Content: 2: amount: 37.2; Content: 3: amount: 10.8; Content: 4: amount: 111; Content: 5: amount: 15.4; Content: 6: amount: 0; Content: 7: amount: 18.05

Load on Server (3): Content: 0: amount: 29; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount: 7.2; Content: 4: amount: 3; Content: 5: amount: 4.9; Content: 6: amount: 37.6; Content: 7: amount: 0

Best Solution Server Load Distribution

Load on Server (0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content 0: amount</th>
<th>Content 1: amount</th>
<th>Content 2: amount</th>
<th>Content 3: amount</th>
<th>Content 4: amount</th>
<th>Content 5: amount</th>
<th>Content 6: amount</th>
<th>Content 7: amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>29</td>
<td>96</td>
<td>33.6</td>
<td>1.8</td>
<td>9</td>
<td>3.5</td>
<td>64</td>
<td>8.55</td>
</tr>
<tr>
<td>(2)</td>
<td>2</td>
<td>15.6</td>
<td>16.8</td>
<td>52.2</td>
<td>112.5</td>
<td>31.5</td>
<td>12.8</td>
<td>64.6</td>
</tr>
<tr>
<td>(3)</td>
<td>6</td>
<td>3.6</td>
<td>5.4</td>
<td>24.3</td>
<td>1.5</td>
<td>18.2</td>
<td>2.4</td>
<td>2.85</td>
</tr>
</tbody>
</table>

************ GENERATION2**************

Delay 0.442094 Sol No => 0

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content 0: amount</th>
<th>Content 1: amount</th>
<th>Content 2: amount</th>
<th>Content 3: amount</th>
<th>Content 4: amount</th>
<th>Content 5: amount</th>
<th>Content 6: amount</th>
<th>Content 7: amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>63</td>
<td>4.8</td>
<td>43.8</td>
<td>2.7</td>
<td>28.5</td>
<td>2.1</td>
<td>30.4</td>
<td>2.85</td>
</tr>
<tr>
<td>(1)</td>
<td>29</td>
<td>96</td>
<td>4.2</td>
<td>12.6</td>
<td>61.5</td>
<td>64.4</td>
<td>24.8</td>
<td>67.45</td>
</tr>
<tr>
<td>(2)</td>
<td>2</td>
<td>15.6</td>
<td>1.8</td>
<td>65.7</td>
<td>24</td>
<td>2.1</td>
<td>8</td>
<td>8.55</td>
</tr>
<tr>
<td>(3)</td>
<td>6</td>
<td>3.6</td>
<td>10.2</td>
<td>9</td>
<td>36</td>
<td>1.4</td>
<td>16.8</td>
<td>16.15</td>
</tr>
</tbody>
</table>

Delay 0.458565 Sol No => 1

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content 0: amount</th>
<th>Content 1: amount</th>
<th>Content 2: amount</th>
<th>Content 3: amount</th>
<th>Content 4: amount</th>
<th>Content 5: amount</th>
<th>Content 6: amount</th>
<th>Content 7: amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>63</td>
<td>4.8</td>
<td>4.2</td>
<td>3.6</td>
<td>10.2</td>
<td>1.4</td>
<td>16.8</td>
<td>16.15</td>
</tr>
</tbody>
</table>
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 33.6; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 16.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 3.6; Content: 2: amount: 5.4; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
Delay: 0.464256 Sol No => 2
Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
Delay: 0.47215 Sol No => 3
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay 0.518479 Sol No=&gt; 4</td>
<td></td>
</tr>
</tbody>
</table>
Delay0.55307 Sol No=> 5

Load on Server

|--------|---------------------|----------------------|-----------------------|----------------------|---------------------|---------------------|---------------------|-----------------------|

Load on Server

|--------|---------------------|------------------------|---------------------|-----------------------|---------------------|---------------------|---------------------|-----------------------|

Load on Server

|--------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|

Load on Server

|--------|-------------------|------------------|------------------|-------------------|------------------|------------------|------------------|------------------|

Best Solution Server Load Distribution

Load on Server

|--------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|

Load on Server

|--------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|

Load on Server

|--------|-------------------|---------------------|------------------|-------------------|------------------|------------------|------------------|------------------|

Load on Server

Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.458565 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.508406 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server


Best Solution Server Load Distribution

Load on Server


Load on Server


Load on Server


Load on Server


*********** GENERATION 4 *******************

Delay 0.427187 Sol No => 0

Load on Server


Load on Server

Load on Server
Load on Server
Delay0.442094 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.452142 Sol No=> 2
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Server</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12.897</td>
</tr>
<tr>
<td>1</td>
<td>64.635</td>
</tr>
<tr>
<td>2</td>
<td>64.631</td>
</tr>
<tr>
<td>3</td>
<td>28.144</td>
</tr>
<tr>
<td>4</td>
<td>67.7635</td>
</tr>
</tbody>
</table>

Load on Server

(2): Content: 

<table>
<thead>
<tr>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

Delay: 0.45331
Sol No: 3

Load on Server

(3): Content: 

<table>
<thead>
<tr>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

Delay: 0.483375
Sol No: 4

Load on Server

(0): Content: 

<table>
<thead>
<tr>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>6</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>
Load on Server
Load on Server
Load on Server
Delay 0.52031 Sol No=> 5
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server

(1): Amount 17: Content 1: Amount 25.2: Content 2: Amount 4.2: Content 3: Amount 12.6: Content 4: Amount 61.5: Content 5: Amount 64.4: Content 6: Amount 24.8: Content 7: Amount 67.45

Load on Server

(2): Amount 71: Content 1: Amount 25.2: Content 2: Amount 1.8: Content 3: Amount 65.7: Content 4: Amount 24: Content 5: Amount 2.1: Content 6: Amount 8: Content 7: Amount 8.55

Load on Server


*********** GENERATION5*********************

Delay 0.427187 Sol No=> 0

Load on Server

(0): Amount 6: Content 1: Amount 48: Content 2: Amount 43.8: Content 3: Amount 2.7: Content 4: Amount 28.5: Content 5: Amount 2.1: Content 6: Amount 30.4: Content 7: Amount 2.85

Load on Server

(1): Amount 17: Content 1: Amount 25.2: Content 2: Amount 4.2: Content 3: Amount 12.6: Content 4: Amount 61.5: Content 5: Amount 64.4: Content 6: Amount 24.8: Content 7: Amount 67.45

Load on Server

(2): Amount 71: Content 1: Amount 25.2: Content 2: Amount 1.8: Content 3: Amount 65.7: Content 4: Amount 24: Content 5: Amount 2.1: Content 6: Amount 8: Content 7: Amount 8.55

Load on Server


Delay 0.442094 Sol No=> 1

178
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.484721 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay: 0.499955
Sol No => 3

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>56.8575</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4.332</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>37.0329</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2.28285</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>24.0968</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1.77555</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>25.7032</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>2.40967</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>35.1425</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>96.468</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10.9671</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>13.0171</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>65.9033</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>64.7245</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>29.4968</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>67.8903</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1.805</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>14.079</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.5219</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>55.5493</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>20.292</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1.77555</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6.764</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7.22902</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>6.195</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5.121</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10.4781</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>19.1507</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>39.708</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1.72445</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>18.036</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>17.471</td>
</tr>
</tbody>
</table>

Best Solution Server Load Distribution

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>30.4</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>12.6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>61.5</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>64.4</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>24.8</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>67.45</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>65.7</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>8.55</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th></th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>21.6</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
81

********** GENERATION6***************

Delay 0.427187 Sol No => 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.442094 Sol No => 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.457233 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.45971 Sol No=> 3
Load on Server
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Server</th>
<th>Load</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.8</td>
<td>38.4</td>
</tr>
<tr>
<td>1</td>
<td>18.2</td>
<td>34.8</td>
</tr>
<tr>
<td>2</td>
<td>12.96</td>
<td>13.14</td>
</tr>
<tr>
<td>3</td>
<td>61.5</td>
<td>64.4</td>
</tr>
<tr>
<td>4</td>
<td>64.82</td>
<td>30.88</td>
</tr>
<tr>
<td>5</td>
<td>1.68</td>
<td>1.68</td>
</tr>
<tr>
<td>6</td>
<td>24.32</td>
<td>24.32</td>
</tr>
<tr>
<td>7</td>
<td>2.28</td>
<td>2.28</td>
</tr>
</tbody>
</table>

Best Solution Server Load Distribution

<table>
<thead>
<tr>
<th>Server</th>
<th>Load</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>1</td>
<td>17</td>
<td>25.2</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
<td>4.2</td>
</tr>
<tr>
<td>3</td>
<td>12.6</td>
<td>25.2</td>
</tr>
<tr>
<td>4</td>
<td>61.5</td>
<td>61.5</td>
</tr>
<tr>
<td>5</td>
<td>64.4</td>
<td>64.4</td>
</tr>
<tr>
<td>6</td>
<td>24.8</td>
<td>24.8</td>
</tr>
<tr>
<td>7</td>
<td>67.45</td>
<td>67.45</td>
</tr>
</tbody>
</table>
Load on Server
Load on Server
*********** GENERATION7***********************
Delay0.427187 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.442094 Sol No=> 1
Load on Server
Load on Server
Load on Server

(1): Content: 0: amount: 18.5144
Content: 1: amount: 37.3152
Content: 2: amount: 11.5392
Content: 3: amount: 68.7816
Content: 4: amount: 39.726
Content: 5: amount: 38.514
Content: 6: amount: 10.8848
Content: 7: amount: 1.1419

Load on Server

(2): Content: 0: amount: 53.0796
Content: 1: amount: 18.8395
Content: 2: amount: 27.2916
Content: 3: amount: 0.7182
Content: 4: amount: 31.122
Content: 5: amount: 1.6758
Content: 6: amount: 32.5584
Content: 7: amount: 69.7452

Load on Server

(3): Content: 0: amount: 23.9204
Content: 1: amount: 27.9605
Content: 2: amount: 13.5084
Content: 3: amount: 11.8818
Content: 4: amount: 28.878
Content: 5: amount: 24.2242
Content: 6: amount: 34.6416
Content: 7: amount: 23.3548

Delay: 0.528405 Sol No: 3

Load on Server

(0): Content: 0: amount: 52.3089
Content: 1: amount: 3.98544
Content: 2: amount: 34.0703
Content: 3: amount: 2.10022
Content: 4: amount: 22.169
Content: 5: amount: 1.63351
Content: 6: amount: 23.6469
Content: 7: amount: 2.2169
Load on Server
6: amount: 31.5531: Content: 7: amount: 68.0831
Load on Server
Content: 3: amount: 51.1054: Content: 4: amount: 18.6686: Content: 5: amount: 1.63351: Content:
Load on Server
Content: 3: amount: 23.5946: Content: 4: amount: 41.3314: Content: 5: amount: 1.86649: Content:

Best Solution Server Load Distribution
Load on Server
(0): Content: 0: amount: 6: Content: 1: amount: 48: Content: 2: amount: 43.8: Content: 3: amount:
Load on Server
12.6: Content: 4: amount: 61.5: Content: 5: amount: 64.4: Content: 6: amount: 24.8: Content: 7: amount: 67.45
Load on Server
(2): Content: 0: amount: 71: Content: 1: amount: 25.2: Content: 2: amount: 1.8: Content: 3: amount:
Load on Server

********** GENERATION8***************
Delay 0.427187 Sol No => 0
Load on Server


Delay 0.442094 Sol No => 1


Delay 0.480434 Sol No => 2
Load on Server
(0):Content:0:amount:52.3089:Content:1:amount:3.98544:Content:2:amount:7.6608:
Content:3:amount:8.6184:Content:4:amount:50.274:Content:5:amount:5.586:Content:
6:amount:1.9152:Content:7:amount:0.7581
Load on Server
Load on Server
Load on Server
t:6:amount:34.6416:Content:7:amount:23.3548
Delay 0.482368 Sol No=> 3
Load on Server
(0):Content:0:amount:4.4856:Content:1:amount:35.8848:Content:2:amount:34.0703:
Load on Server
t:6:amount:31.5531:Content:7:amount:68.0831
Load on Server
Load on Server
Best Solution Server Load Distribution

Load on Server

Load on Server

Load on Server

Load on Server

********* GENERATION9***************

Delay0.427187 Sol No=> 0

Load on Server

Load on Server

Load on Server

Load on Server
Load on Server

Load on Server

Load on Server

Load on Server

Delay0.510822 Sol No=> 2

Load on Server

Load on Server

Load on Server
Delay 0.528405 Sol No => 3


Best Solution Server Load Distribution


Load on Server (2): Content: 0: amount: 71, Content: 1: amount: 25.2, Content: 2: amount: 1.8, Content: 3: am
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 21.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
*************** GENERATION 10 *********************
Delay 0.442094 Sol No=> 1
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45
Load on Server
Load on Server
Delay 0.480434 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.482368 Sol No=> 3
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>0:6</td>
<td>48:2</td>
</tr>
<tr>
<td></td>
<td>1:48:2</td>
<td>43.8:2</td>
</tr>
<tr>
<td></td>
<td>2:6:2</td>
<td>43.8:2</td>
</tr>
<tr>
<td></td>
<td>3:12.7:2</td>
<td>28.5:2</td>
</tr>
<tr>
<td></td>
<td>4:28.5:2</td>
<td>2.7:2</td>
</tr>
<tr>
<td></td>
<td>5:7:2</td>
<td>30.4:2</td>
</tr>
<tr>
<td></td>
<td>6:7:2</td>
<td>2.85:2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>0:17:1</td>
<td>25.2:2</td>
</tr>
<tr>
<td></td>
<td>1:25.2:2</td>
<td>4.2:2</td>
</tr>
<tr>
<td></td>
<td>2:12.6:2</td>
<td>25.2:2</td>
</tr>
<tr>
<td></td>
<td>3:61.5:2</td>
<td>12.6:2</td>
</tr>
<tr>
<td></td>
<td>4:61.5:2</td>
<td>12.6:2</td>
</tr>
<tr>
<td></td>
<td>5:64.4:2</td>
<td>61.5:2</td>
</tr>
<tr>
<td></td>
<td>6:24.8:2</td>
<td>64.4:2</td>
</tr>
<tr>
<td></td>
<td>7:67.45:2</td>
<td>8:2.85</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>0:71:1</td>
<td>25.2:2</td>
</tr>
<tr>
<td></td>
<td>1:25.2:2</td>
<td>1.8:2</td>
</tr>
<tr>
<td></td>
<td>2:65.7:2</td>
<td>25.2:2</td>
</tr>
<tr>
<td></td>
<td>3:24:2</td>
<td>65.7:2</td>
</tr>
<tr>
<td></td>
<td>4:24:2</td>
<td>36:2</td>
</tr>
<tr>
<td></td>
<td>5:1.4:2</td>
<td>24:2</td>
</tr>
<tr>
<td></td>
<td>6:16.8:2</td>
<td>36:2</td>
</tr>
<tr>
<td></td>
<td>7:16.15:2</td>
<td>1.4:2</td>
</tr>
</tbody>
</table>

*********** GENERATION11***********

Delay0.427187 Sol No=> 0

Load on Server


*********** GENERATION11***********

Delay0.427187 Sol No=> 0

Load on Server

Load on Server (1): Content: 0: amount: 17; Content: 1: amount: 25.2; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server (2): Content: 0: amount: 71; Content: 1: amount: 25.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server (3): Content: 0: amount: 6; Content: 1: amount: 21.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

Delay 0.442094 Sol No => 1

Load on Server (0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 43.8; Content: 3: amount: 2.7; Content: 4: amount: 28.5; Content: 5: amount: 2.1; Content: 6: amount: 30.4; Content: 7: amount: 2.85

Load on Server (1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server (2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server (3): Content: 0: amount: 6; Content: 1: amount: 3.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

Delay 0.510822 Sol No => 2

Load on Server (0): Content: 0: amount: 4.4856; Content: 1: amount: 35.8848; Content: 2: amount: 7.6608; C

Load on Server

Load on Server

Load on Server

Delay0.528405 Sol No=> 3

Load on Server

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

************ GENERATION12**************

Delay0.427187 Sol No=> 0

|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.442094 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.480434 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
6:amount:34.6416:Content:7:amount:23.3548
Delay0.482368 Sol No=> 3
Load on Server
(0):Content:0:amount:4.4856:Content:1:amount:35.8848:Content:2:amount:34.0703:
Content:3:amount:2.10022:Content:4:amount:22.169:Content:5:amount:1.63351:Content:
6:amount:23.6469:Content:7:amount:2.2169
Load on Server
6:amount:31.5531:Content:7:amount:68.0831
Load on Server
Content:3:amount:51.1054:Content:4:amount:18.6686:Content:5:amount:1.63351:Content:
Load on Server
Content:3:amount:23.5946:Content:4:amount:41.3314:Content:5:amount:1.86649:Content:
Best Solution Server Load Distribution
Load on Server
(0):Content:0:amount:6:Content:1:amount:48:Content:2:amount:43.8:Content:3:amount:
2.7:Content:4:amount:28.5:Content:5:amount:2.1:Content:6:amount:30.4:Content:7:
amount:2.85
Load on Server
12.6:Content:4:amount:61.5:Content:5:amount:64.4:Content:6:amount:24.8:Content:
7:amount:67.45
Load on Server
(2):Content:0:amount:71:Content:1:amount:25.2:Content:2:amount:1.8:Content:3:amount:
Load on Server

********** Generation13******************
Delay 0.427187 Sol No=> 0

Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.442094 Sol No=> 1

Load on Server

Load on Server
Load on Server
Load on Server
Delay0.510822 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.528405 Sol No=> 3
Load on Server
Load on Server
Load on Server


Load on Server


Best Solution Server Load Distribution

Load on Server


Load on Server


Load on Server


*********** GENERATION14***********

Delay: 0.427187 Sol No=> 0

Load on Server

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay</td>
<td>0.442094 Sol No=&gt; 1</td>
</tr>
<tr>
<td>Delay</td>
<td>0.480434 Sol No=&gt; 2</td>
</tr>
</tbody>
</table>
| Load on Server | (0):Content:0:amount:52.3089:Content:1:amount:3.98544:Content:2:amount:7.6608:

Load on Server

Load on Server

Load on Server

Delay0.482368 Sol No=> 3

Load on Server

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution
Load on Server

Load on Server

Load on Server

Load on Server

********** GENERATION15***************

Delay: 0.427187 Sol No=> 0

Load on Server

Load on Server

Load on Server

Load on Server

205
<table>
<thead>
<tr>
<th>Load on Server (0)</th>
<th>Content:0:amount:63</th>
<th>Content:1:amount:4.8</th>
<th>Content:2:amount:43.8</th>
<th>Content:3:amount:2.7</th>
<th>Content:4:amount:28.5</th>
<th>Content:5:amount:2.1</th>
<th>Content:6:amount:30.4</th>
<th>Content:7:amount:2.85</th>
</tr>
</thead>
</table>

Delay 0.442094 Sol No=> 1

|--------------------|---------------------|----------------------|-----------------------|----------------------|-----------------------|---------------------|---------------------|---------------------|

206
Load on Server
(3):Content:0:amount:15.23;Content:1:amount:24.876;Content:2:amount:10.434;Content:3:amount:17.541;Content:4:amount:39.12;Content:5:amount:1.673;Content:6:amount:17.84;Content:7:amount:17.2615
Delay0.510822 Sol No=> 3
Load on Server
(0):Content:0:amount:4.4856;Content:1:amount:35.8848;Content:2:amount:7.6608;Content:3:amount:8.6184;Content:4:amount:50.274;Content:5:amount:5.586;Content:6:amount:1.9152;Content:7:amount:0.7581
Load on Server
Load on Server
(2):Content:0:amount:53.0796;Content:1:amount:18.8395;Content:2:amount:27.2916;Content:3:amount:0.7182;Content:4:amount:31.122;Content:5:amount:1.6758;Content:6:amount:32.5584;Content:7:amount:69.7452
Load on Server
Delay0.528405 Sol No=> 4
Load on Server
(0):Content:0:amount:52.3089;Content:1:amount:3.98544;Content:2:amount:34.0703;Content:3:amount:2.10022;Content:4:amount:22.169;Content:5:amount:1.63351;Content:6:amount:23.6469;Content:7:amount:2.2169
Load on Server
Load on Server
(2):Content:0:amount:1.6606;Content:1:amount:12.9527;Content:2:amount:1.40015:
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
********** GENERATION16**********
Delay0.427187 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.442094 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.463649 Sol No=> 2
Load on Server
Load on Server
Load on Server (2):
Load on Server (3):
Delay 0.503902 Sol No => 3
Load on Server (0):
Load on Server (1):
Best Solution Server Load Distribution
Load on Server (2):
Load on Server (3):
Best Solution Server Load Distribution
Load on Server (0):
Load on Server (1): Content: 0: amount: 17; Content: 1: amount: 25.2; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server (2): Content: 0: amount: 71; Content: 1: amount: 25.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server (3): Content: 0: amount: 6; Content: 1: amount: 21.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

*********** GENERATION17**********************

Delay 0.442094 Sol No => 1

Load on Server (0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 43.8; Content: 3: amount: 28.5; Content: 4: amount: 2.1; Content: 5: amount: 30.4; Content: 6: amount: 2.85; Content: 7: amount: 2.85

Load on Server (1): Content: 0: amount: 17; Content: 1: amount: 25.2; Content: 2: amount: 4.2; Content: 3: amount: 12.6; Content: 4: amount: 61.5; Content: 5: amount: 64.4; Content: 6: amount: 24.8; Content: 7: amount: 67.45

Load on Server (2): Content: 0: amount: 71; Content: 1: amount: 25.2; Content: 2: amount: 1.8; Content: 3: amount: 65.7; Content: 4: amount: 24; Content: 5: amount: 2.1; Content: 6: amount: 8; Content: 7: amount: 8.55

Load on Server (3): Content: 0: amount: 6; Content: 1: amount: 21.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15

Delay 0.427187 Sol No => 0

Load on Server (0): Content: 0: amount: 6; Content: 1: amount: 21.6; Content: 2: amount: 10.2; Content: 3: amount: 9; Content: 4: amount: 36; Content: 5: amount: 1.4; Content: 6: amount: 16.8; Content: 7: amount: 16.15
<table>
<thead>
<tr>
<th>Load on Server (1)</th>
<th>Content 0</th>
<th>Amount: 29</th>
<th>Content 1</th>
<th>Amount: 96</th>
<th>Content 2</th>
<th>Amount: 4.2</th>
<th>Content 3</th>
<th>Amount: 12.6</th>
<th>Content 4</th>
<th>Amount: 61.5</th>
<th>Content 5</th>
<th>Amount: 64.4</th>
<th>Content 6</th>
<th>Amount: 24.8</th>
<th>Content 7</th>
<th>Amount: 67.45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load on Server (2)</td>
<td>Content 0</td>
<td>Amount: 2</td>
<td>Content 1</td>
<td>Amount: 15.6</td>
<td>Content 2</td>
<td>Amount: 1.8</td>
<td>Content 3</td>
<td>Amount: 65.7</td>
<td>Content 4</td>
<td>Amount: 24</td>
<td>Content 5</td>
<td>Amount: 2.1</td>
<td>Content 6</td>
<td>Amount: 8</td>
<td>Content 7</td>
<td>Amount: 8.55</td>
</tr>
<tr>
<td>Delay 0.45688 Sol No =&gt; 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load on Server (3)</td>
<td>Content 0</td>
<td>Amount: 6</td>
<td>Content 1</td>
<td>Amount: 3.6</td>
<td>Content 2</td>
<td>Amount: 10.2</td>
<td>Content 3</td>
<td>Amount: 9</td>
<td>Content 4</td>
<td>Amount: 36</td>
<td>Content 5</td>
<td>Amount: 1.4</td>
<td>Content 6</td>
<td>Amount: 16.8</td>
<td>Content 7</td>
<td>Amount: 16.15</td>
</tr>
<tr>
<td>Load on Server (0)</td>
<td>Content 0</td>
<td>Amount: 5.22</td>
<td>Content 1</td>
<td>Amount: 41.76</td>
<td>Content 2</td>
<td>Amount: 38.106</td>
<td>Content 3</td>
<td>Amount: 2.349</td>
<td>Content 4</td>
<td>Amount: 24.795</td>
<td>Content 5</td>
<td>Amount: 1.827</td>
<td>Content 6</td>
<td>Amount: 26.448</td>
<td>Content 7</td>
<td>Amount: 2.4795</td>
</tr>
<tr>
<td>Load on Server (1)</td>
<td>Content 0</td>
<td>Amount: 17.78</td>
<td>Content 1</td>
<td>Amount: 31.44</td>
<td>Content 2</td>
<td>Amount: 9.894</td>
<td>Content 3</td>
<td>Amount: 12.951</td>
<td>Content 4</td>
<td>Amount: 65.205</td>
<td>Content 5</td>
<td>Amount: 64.673</td>
<td>Content 6</td>
<td>Amount: 28.752</td>
<td>Content 7</td>
<td>Amount: 67.8205</td>
</tr>
<tr>
<td>Load on Server (2)</td>
<td>Content 0</td>
<td>Amount: 61.77</td>
<td>Content 1</td>
<td>Amount: 21.924</td>
<td>Content 2</td>
<td>Amount: 1.566</td>
<td>Content 3</td>
<td>Amount: 57.159</td>
<td>Content 4</td>
<td>Amount: 20.88</td>
<td>Content 5</td>
<td>Amount: 1.827</td>
<td>Content 6</td>
<td>Amount: 6.96</td>
<td>Content 7</td>
<td>Amount: 7.4385</td>
</tr>
<tr>
<td>Load on Server (3)</td>
<td>Content 0</td>
<td>Amount: 15.23</td>
<td>Content 1</td>
<td>Amount: 24.876</td>
<td>Content 2</td>
<td>Amount: 10.434</td>
<td>Content 3</td>
<td>Amount: 17.541</td>
<td>Content 4</td>
<td>Amount: 39.12</td>
<td>Content 5</td>
<td>Amount: 1.673</td>
<td>Content 6</td>
<td>Amount: 17.84</td>
<td>Content 7</td>
<td>Amount: 17.2615</td>
</tr>
<tr>
<td>Delay 0.510822 Sol No =&gt; 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Delay 0.427187 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.442094 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
(3): Content:0: amount:6: Content:1: amount:3.6: Content:2: amount:10.2: Content:3: amount:3.6:
Delay 0.463649 Sol No=> 2

Load on Server

Load on Server

Load on Server

Delay 0.470984 Sol No=> 3

Load on Server

Load on Server

Load on Server
Load on Server
Delay:0.503902 Sol No=> 4
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Generation</th>
<th>Load on Server</th>
<th>Delay</th>
<th>Sol No</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>65.7</td>
<td>0.427</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>25.2</td>
<td>0.442</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>21.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>21.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Load on Server**

<table>
<thead>
<tr>
<th>Count</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>1</td>
<td>43.8</td>
</tr>
<tr>
<td>2</td>
<td>2.7</td>
</tr>
<tr>
<td>4</td>
<td>28.5</td>
</tr>
<tr>
<td>5</td>
<td>2.1</td>
</tr>
<tr>
<td>6</td>
<td>30.4</td>
</tr>
<tr>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>

**Load on Server**

<table>
<thead>
<tr>
<th>Count</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>25.2</td>
</tr>
<tr>
<td>1</td>
<td>96.0</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>4</td>
<td>61.5</td>
</tr>
<tr>
<td>5</td>
<td>64.4</td>
</tr>
<tr>
<td>6</td>
<td>24.8</td>
</tr>
<tr>
<td>7</td>
<td>67.45</td>
</tr>
</tbody>
</table>

**Load on Server**

<table>
<thead>
<tr>
<th>Count</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>21.6</td>
</tr>
<tr>
<td>1</td>
<td>96.0</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>4</td>
<td>61.5</td>
</tr>
<tr>
<td>5</td>
<td>64.4</td>
</tr>
<tr>
<td>6</td>
<td>24.8</td>
</tr>
<tr>
<td>7</td>
<td>67.45</td>
</tr>
</tbody>
</table>

**Load on Server**

<table>
<thead>
<tr>
<th>Count</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>21.6</td>
</tr>
<tr>
<td>1</td>
<td>96.0</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>4</td>
<td>61.5</td>
</tr>
<tr>
<td>5</td>
<td>64.4</td>
</tr>
<tr>
<td>6</td>
<td>24.8</td>
</tr>
<tr>
<td>7</td>
<td>67.45</td>
</tr>
</tbody>
</table>
Load on Server
Load on Server
Delay0.453471 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.516439 Sol No=> 3
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>51.5592</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>3.92832</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>33.5333</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>2.06712</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>21.8196</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>1.60776</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>23.2742</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>2.18196</td>
</tr>
</tbody>
</table>

**Load on Server (1):**

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>40.4408</td>
</tr>
<tr>
<td>1</td>
<td>96.8717</td>
</tr>
<tr>
<td>2</td>
<td>14.4667</td>
</tr>
<tr>
<td>3</td>
<td>13.2329</td>
</tr>
<tr>
<td>4</td>
<td>68.1804</td>
</tr>
<tr>
<td>5</td>
<td>64.8922</td>
</tr>
<tr>
<td>6</td>
<td>31.9258</td>
</tr>
<tr>
<td>7</td>
<td>68.118</td>
</tr>
</tbody>
</table>

**Load on Server (2):**

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.6368</td>
</tr>
<tr>
<td>1</td>
<td>12.767</td>
</tr>
<tr>
<td>2</td>
<td>1.37808</td>
</tr>
<tr>
<td>3</td>
<td>50.2999</td>
</tr>
<tr>
<td>4</td>
<td>18.3744</td>
</tr>
<tr>
<td>5</td>
<td>1.60776</td>
</tr>
<tr>
<td>6</td>
<td>6.1248</td>
</tr>
<tr>
<td>7</td>
<td>6.54588</td>
</tr>
</tbody>
</table>

**Load on Server (3):**

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6.3632</td>
</tr>
<tr>
<td>1</td>
<td>6.43296</td>
</tr>
<tr>
<td>2</td>
<td>10.6219</td>
</tr>
<tr>
<td>3</td>
<td>24.4001</td>
</tr>
<tr>
<td>4</td>
<td>41.6256</td>
</tr>
<tr>
<td>5</td>
<td>1.89224</td>
</tr>
<tr>
<td>6</td>
<td>18.6752</td>
</tr>
<tr>
<td>7</td>
<td>18.1541</td>
</tr>
</tbody>
</table>

**Best Solution Server Load Distribution**

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>1</td>
<td>43.8</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>2.7</td>
<td>28.5</td>
</tr>
<tr>
<td>3</td>
<td>2.1</td>
<td>30.4</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>
Load on Server
Load on Server
Load on Server
*********** GENERATION20**************************
Delay0.427187 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.442094 Sol No=> 1
Load on Server
Load on Server

1: Content: 29 amount: 2
   Content: 1 amount: 96
   Content: 2 amount: 4.2
   Content: 3 amount: 12.6
   Content: 4 amount: 61.5
   Content: 5 amount: 64.4
   Content: 6 amount: 24.8
   Content: 7 amount: 67.45

Load on Server

2: Content: 2 amount: 15.6
   Content: 1 amount: 15.6
   Content: 2 amount: 1.8
   Content: 3 amount: 65.7
   Content: 4 amount: 24
   Content: 5 amount: 2.1
   Content: 6 amount: 8
   Content: 7 amount: 8.55

Load on Server

3: Content: 6 amount: 3.6
   Content: 1 amount: 10.2
   Content: 2 amount: 9
   Content: 3 amount: 36
   Content: 4 amount: 1.4
   Content: 5 amount: 16.8
   Content: 6 amount: 16.15

Delay 0.472167 Sol No=> 2

Load on Server

0: Content: 4.4856 amount: 35.8848
   Content: 1 amount: 35.8848
   Content: 2 amount: 35.916
   Content: 3 amount: 2.214
   Content: 4 amount: 23.37
   Content: 5 amount: 1.722
   Content: 6 amount: 24.928
   Content: 7 amount: 2.337

Load on Server

1: Content: 18.5144 amount: 37.3152
   Content: 1 amount: 37.3152
   Content: 2 amount: 12.084
   Content: 3 amount: 13.086
   Content: 4 amount: 66.63
   Content: 5 amount: 64.778
   Content: 6 amount: 30.272
   Content: 7 amount: 67.963

Load on Server

2: Content: 53.0796 amount: 18.8395
   Content: 1 amount: 18.8395
   Content: 2 amount: 1.476
   Content: 3 amount: 53.874
   Content: 4 amount: 19.68
   Content: 5 amount: 1.722
   Content: 6 amount: 6.56
   Content: 7 amount: 7.011

Load on Server

3: Content: 23.9204 amount: 27.9605
   Content: 1 amount: 27.9605
   Content: 2 amount: 10.524
   Content: 3 amount: 20.826
   Content: 4 amount: 40.32
   Content: 5 amount: 1.778
   Content: 6 amount: 18.24
   Content: 7 amount: 17.689

Delay 0.515994 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
4.5.3 Output with crossover point three operator

Enter Total content: 8

Enter quality of each content: 100 120 60 90 150 70 80 95

Enter Total servers: 4

Enter BW of each server: 180 70 160 40

Enter Total Generation: 20

Enter cross over point: 3

Enter mutation Probability (prob*100): 0.2

Generation 1
Delay 0.458565 Sol No=> 0
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 33.6; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 16.8; Content: 3: amount: 1
Load on Server


Delay 0.464256 Sol No => 1

Load on Server


Load on Server


Load on Server


Load on Server


Delay 0.468712 Sol No => 2

Load on Server


Load on Server

Load on Server

Load on Server

Delay 0.488316 s, Sol No => 3

Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.493244 s, Sol No => 4

Load on Server

Load on Server
Load on Server (2):
Content: 0: amount: 17
Content: 1: amount: 62.4
Content: 2: amount: 13.8
Content: 3: amount: 3.6
Content: 4: amount: 61.5
Content: 5: amount: 2.8
Content: 6: amount: 33.6
Content: 7: amount: 0.95
Delay 0.500694 Sol No => 5
Load on Server (3):
Content: 0: amount: 9
Content: 1: amount: 18
Content: 2: amount: 36
Content: 3: amount: 0.9
Content: 4: amount: 1.5
Content: 5: amount: 0.7
Content: 6: amount: 4.8
Content: 7: amount: 0.95
Load on Server (0):
Content: 0: amount: 16
Content: 1: amount: 7.2
Content: 2: amount: 14.4
Content: 3: amount: 0.9
Content: 4: amount: 13.5
Content: 5: amount: 3.5
Content: 6: amount: 36.8
Content: 7: amount: 16.15
Load on Server (1):
Content: 0: amount: 10
Content: 1: amount: 105.6
Content: 2: amount: 4.2
Content: 3: amount: 71.1
Content: 4: amount: 22.5
Content: 5: amount: 46.2
Content: 6: amount: 5.6
Content: 7: amount: 60.8
Load on Server (2):
Content: 0: amount: 45
Content: 1: amount: 2.4
Content: 2: amount: 37.2
Content: 3: amount: 10.8
Content: 4: amount: 111
Content: 5: amount: 15.4
Content: 6: amount: 0
Content: 7: amount: 18.05
Load on Server (3):
Content: 0: amount: 29
Content: 1: amount: 4.8
Content: 2: amount: 4.2
Content: 3: amount: 7.2
Content: 4: amount: 3
Content: 5: amount: 4.9
Content: 6: amount: 37.6
Content: 7: amount: 0
Best Solution Server Load Distribution
Load on Server (0):
Content: 0: amount: 63
Content: 1: amount: 4.8
Content: 2: amount: 4.2
Content: 3: amount: 11.7
Content: 4: amount: 27
Content: 5: amount: 16.8
Content: 6: amount: 0.8
Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 29; Content: 1: amount: 96; Content: 2: amount: 33.6; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 2; Content: 1: amount: 15.6; Content: 2: amount: 16.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6
Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 3.6; Content: 2: amount: 5.4; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
*********** GENERATION2***************
Delay 0.447528 Sol No=> 0
Load on Server
(0): Content: 0: amount: 6; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
Delay 0.458565 Sol No=> 1
Load on Server
(0): Content: 0: amount: 63; Content: 1: amount: 4.8; Content: 2: amount: 4.2; Content: 3: amount
Load on Server (1)
Load on Server (2)
Load on Server (3)

Delay 0.464256 Sol No => 2

Load on Server (0)
Load on Server (1)
Load on Server (2)
Load on Server (3)

Delay 0.478472 Sol No => 3
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.490706 Sol No=> 4
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.491185 Sol No=> 5

Load on Server
(0): Content: 0: amount: 47; Content: 1: amount: 1.2; Content: 2: amount: 9.6; Content: 3: amount: 4.5; Content: 4: amount: 30; Content: 5: amount: 5.6; Content: 6: amount: 16; Content: 7: amount: 12.35

Load on Server
(1): Content: 0: amount: 31; Content: 1: amount: 100.8; Content: 2: amount: 9.6; Content: 3: amount: 76.5; Content: 4: amount: 78; Content: 5: amount: 39.9; Content: 6: amount: 7.2; Content: 7: amount: 31.35

Load on Server
(2): Content: 0: amount: 16; Content: 1: amount: 18; Content: 2: amount: 34.2; Content: 3: amount: 1.8; Content: 4: amount: 18; Content: 5: amount: 18.9; Content: 6: amount: 4.8; Content: 7: amount: 27.55

Load on Server
(3): Content: 0: amount: 6; Content: 1: amount: 0; Content: 2: amount: 6.6; Content: 3: amount: 7.2; Content: 4: amount: 24; Content: 5: amount: 5.6; Content: 6: amount: 52; Content: 7: amount: 23.75

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19

Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55

Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6

Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 12.35

230
**** GENERATION3 ***************

Delay 0.447528 Sol No=> 0

Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.453377 Sol No=> 1

Load on Server

Load on Server

Load on Server
Load on Server
nt:11.7:Content:4:amount:21:Content:5:amount:23.8:Content:6:amount:26.4:Content:
7:amount:5.7
Delay0.458565 Sol No=> 2
Load on Server
(0):Content:0:amount:63:Content:1:amount:4.8:Content:2:amount:4.2:Content:3:amo
unt:11.7:Content:4:amount:27:Content:5:amount:16.8:Content:6:amount:0.8:Content:
7:amount:19
Load on Server
ount:8.55
Load on Server
(2):Content:0:amount:2:Content:1:amount:15.6:Content:2:amount:16.8:Content:3:am
ount:52.2:Content:4:amount:112.5:Content:5:amount:31.5:Content:6:amount:12.8:Co
ntent:7:amount:64.6
Load on Server
(3):Content:0:amount:6:Content:1:amount:3.6:Content:2:amount:5.4:Content:3:amou
nt:24.3:Content:4:amount:1.5:Content:5:amount:18.2:Content:6:amount:2.4:Content:7:
amount:2.85
Delay0.492627 Sol No=> 3
Load on Server
nt:2.7:Content:4:amount:28.5:Content:5:amount:2.1:Content:6:amount:30.4:Content:7:
amount:2.85
Load on Server
unt:12.6:Content:4:amount:61.5:Content:5:amount:64.4:Content:6:amount:24.8:Conte
nt:7:amount:67.45
Load on Server
Load on Server

Best Solution Server Load Distribution
Load on Server

Load on Server

Load on Server

Load on Server

*********** GENERATION4**********************
Delay 0.447528 Sol No => 0
Load on Server
Load on Server
Delay0.453377 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.471891 Sol No=> 2
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount 2.97</td>
<td>Content 11.7</td>
</tr>
<tr>
<td>Amount 5.18</td>
<td>Content 64.08</td>
</tr>
<tr>
<td>Amount 10.45</td>
<td>Content</td>
</tr>
</tbody>
</table>

Load on Server
(2): Amount 30.6 | Content 33.48 | Amount 1.62
Amount 46.98 | Content 101.25 | Amount 28.35
Amount 11.52 | Content 58.14
Delay 0.472537
Sol No => 3

Load on Server
(0): Amount 5.94 | Content 47.52 | Amount 10.098
Amount 11.583 | Content 26.73 | Amount 16.632
Amount 0.792 | Content 18.81

Load on Server
(1): Amount 17.06 | Content 25.68 | Amount 45.102
Amount 1.917 | Content 9.27 | Amount 3.668
Amount 64.008 | Content 8.74

Load on Server
(2): Amount 70.29 | Content 24.948 | Amount 1.782
Amount 51.678 | Content 111.375 | Amount 31.185
Amount 12.672 | Content 63.954
Delay 0.476755
Sol No => 4

Load on Server
(0): Amount 2.67 | Content 17.088 | Amount 38.982
Amount 9.612 | Content 56.07 | Amount 6.23
Amount 2.136 | Content 0.8455

235
Load on Server
Load on Server
Load on Server
Delay0.508797 Sol No=> 5
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
(1): Content: 0, amount: 45; Content: 1, amount: 63.6; Content: 2, amount: 4.2; Content: 3, amount: 1.8; Content: 4, amount: 9; Content: 5, amount: 3.5; Content: 6, amount: 64; Content: 7, amount: 8.55

Load on Server
(2): Content: 0, amount: 34; Content: 1, amount: 37.2; Content: 2, amount: 1.8; Content: 3, amount: 52.2; Content: 4, amount: 112.5; Content: 5, amount: 31.5; Content: 6, amount: 12.8; Content: 7, amount: 64.6

Load on Server
(3): Content: 0, amount: 18; Content: 1, amount: 0; Content: 2, amount: 10.2; Content: 3, amount: 24.3; Content: 4, amount: 1.5; Content: 5, amount: 18.2; Content: 6, amount: 2.4; Content: 7, amount: 2.85

*********** GENERATION 5 ***************

Delay 0.447528 Sol No=> 0

Load on Server
(0): Content: 0, amount: 3; Content: 1, amount: 19.2; Content: 2, amount: 43.8; Content: 3, amount: 11.7; Content: 4, amount: 27; Content: 5, amount: 16.8; Content: 6, amount: 0.8; Content: 7, amount: 19

Load on Server
(1): Content: 0, amount: 45; Content: 1, amount: 63.6; Content: 2, amount: 4.2; Content: 3, amount: 1.8; Content: 4, amount: 9; Content: 5, amount: 3.5; Content: 6, amount: 64; Content: 7, amount: 8.55

Load on Server
(2): Content: 0, amount: 34; Content: 1, amount: 37.2; Content: 2, amount: 1.8; Content: 3, amount: 52.2; Content: 4, amount: 112.5; Content: 5, amount: 31.5; Content: 6, amount: 12.8; Content: 7, amount: 64.6

Load on Server
(3): Content: 0, amount: 18; Content: 1, amount: 0; Content: 2, amount: 10.2; Content: 3, amount: 24.3; Content: 4, amount: 1.5; Content: 5, amount: 18.2; Content: 6, amount: 2.4; Content: 7, amount: 2.85

Delay 0.453377 Sol No=> 1
Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 10.8; Content: 4: amount: 63; Content: 5: amount: 7; Content: 6: amount: 2.4; Content: 7: amount: 0.95
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 66.6; Content: 4: amount: 27; Content: 5: amount: 37.1; Content: 6: amount: 10.4; Content: 7: amount: 0.95
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 0.9; Content: 4: amount: 39; Content: 5: amount: 2.1; Content: 6: amount: 40.8; Content: 7: amount: 87.4
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 11.7; Content: 4: amount: 21; Content: 5: amount: 23.8; Content: 6: amount: 26.4; Content: 7: amount: 5.7
Delay: 0.460561 Sol No: => 2
Load on Server
(0): Content: 0: amount: 2.7; Content: 1: amount: 17.28; Content: 2: amount: 39.42; Content: 3: amount: 11.583; Content: 4: amount: 26.73; Content: 5: amount: 16.632; Content: 6: amount: 0.792; Content: 7: amount: 18.81
Load on Server
(1): Content: 0: amount: 45.3; Content: 1: amount: 65.52; Content: 2: amount: 8.58; Content: 3: amount: 1.917; Content: 4: amount: 9.27; Content: 5: amount: 3.668; Content: 6: amount: 64.008; Content: 7: amount: 8.74
Load on Server
(2): Content: 0: amount: 30.6; Content: 1: amount: 33.48; Content: 2: amount: 1.62; Content: 3: amount: 51.678; Content: 4: amount: 111.375; Content: 5: amount: 31.185; Content: 6: amount: 12.672; Content: 7: amount: 63.954
Load on Server
(3): Content: 0: amount: 21.4; Content: 1: amount: 3.72; Content: 2: amount: 10.38; Content: 3: amount: 24.822; Content: 4: amount: 2.625; Content: 5: amount: 18.515; Content: 6: amount: 2.528; Content: 7: amount: 3.496

238
Delay 0.493123 Sol No=> 3

Load on Server

Load on Server

Load on Server

Best Solution Server Load Distribution

Load on Server

Load on Server

Load on Server

Load on Server

239
****** GENERATION6***************

Delay 0.447528 Sol No=> 0
Load on Server

Load on Server

Load on Server

Load on Server

Delay 0.453377 Sol No=> 1
Load on Server

Load on Server

Load on Server
Load on Server
Delay0.477173 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.477231 Sol No=> 3
Load on Server
Load on Server
Load on Server
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Content:5:amount:18.515</td>
<td>Content:6:amount:2.528</td>
<td>Content:7:amount:3.496</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delay</td>
<td>0.495526</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sol No=&gt; 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content:0:amount:2.4</th>
<th>Content:1:amount:15.36</th>
<th>Content:2:amount:35.04</th>
<th>Content:3:amount:8.64</th>
<th>Content:4:amount:50.4</th>
<th>Content:5:amount:5.6</th>
<th>Content:6:amount:1.92</th>
<th>Content:7:amount:0.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>Content:0:amount:2.4</td>
<td>Content:1:amount:15.36</td>
<td>Content:2:amount:35.04</td>
<td>Content:3:amount:8.64</td>
<td>Content:4:amount:50.4</td>
<td>Content:5:amount:5.6</td>
<td>Content:6:amount:1.92</td>
<td>Content:7:amount:0.76</td>
</tr>
</tbody>
</table>

**Best Solution Server Load Distribution**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>Content:0:amount:3</td>
<td>Content:1:amount:19.2</td>
<td>Content:2:amount:43.8</td>
<td>Content:3:amount:11.7</td>
<td>Content:4:amount:27</td>
<td>Content:5:amount:16.8</td>
<td>Content:6:amount:0.8</td>
<td>Content:7:amount:19</td>
</tr>
</tbody>
</table>

242
Load on Server
Load on Server

********** GENERATION7**********************
Delay0.447528 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.453377 Sol No=> 1
Load on Server
Load on Server
Load on Server (2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 0.9; Content: 4: amount: 39; Content: 5: amount: 2.1; Content: 6: amount: 40.8; Content: 7: amount: 87.4

Load on Server (3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 11.7; Content: 4: amount: 21; Content: 5: amount: 23.8; Content: 6: amount: 26.4; Content: 7: amount: 5.7

Delay 0.478634 Sol No => 2

Load on Server (0): Content: 0: amount: 2.484; Content: 1: amount: 15.8976; Content: 2: amount: 36.2664; Content: 3: amount: 10.6564; Content: 4: amount: 24.5916; Content: 5: amount: 15.3014; Content: 6: amount: 0.72864; Content: 7: amount: 17.3052

Load on Server (1): Content: 0: amount: 45.516; Content: 1: amount: 66.9024; Content: 2: amount: 11.7336; Content: 3: amount: 2.84364; Content: 4: amount: 11.4084; Content: 5: amount: 4.99856; Content: 6: amount: 64.0714; Content: 7: amount: 10.2448


Delay 0.52125 Sol No => 3

Load on Server (0): Content: 0: amount: 4.74012; Content: 1: amount: 37.921; Content: 2: amount: 8.0582; Content: 3: amount: 8.40294; Content: 4: amount: 19.3914; Content: 5: amount: 12.0658; Content: 6: amount: 0.57456; Content: 7: amount: 13.6458
Load on Server
(1):Content:0:amount:18.2599:Content:1:amount:35.279:Content:2:amount:47.1418:
ntent:6:amount:64.2254:Content:7:amount:13.9042
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
(0):Content:0:amount:3:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:am
ount:11.7:Content:4:amount:27:Content:5:amount:16.8:Content:6:amount:0.8:Content
:7:amount:19
Load on Server
mount:8.55
Load on Server
(2):Content:0:amount:34:Content:1:amount:37.2:Content:2:amount:1.8:Content:3:am
ount:52.2:Content:4:amount:112.5:Content:5:amount:31.5:Content:6:amount:12.8:Co
ntent:7:amount:64.6
Load on Server
:amount:2.85
********** GENERATION8*******************
Delay0.447528 Sol No=> 0
Load on Server
(0):Content:0:amount:3:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:am
| Load on Server | 0: | amount: 3 | 1: | amount: 19.2 | 2: | amount: 43.8 | 3: | amount: 10.8 | 4: | amount: 63 | 5: | amount: 7 | 6: | amount: 2.4 | 7: | amount: 0.95 |
| Load on Server | 0: | amount: 3 | 1: | amount: 19.2 | 2: | amount: 43.8 | 3: | amount: 10.8 | 4: | amount: 63 | 5: | amount: 7 | 6: | amount: 2.4 | 7: | amount: 0.95 |
| Load on Server | (2): | amount: 34 | 1: | amount: 37.2 | 2: | amount: 1.8 | 3: | amount: 52.2 | 4: | amount: 112.5 | 5: | amount: 31.5 | 6: | amount: 12.8 | 7: | amount: 64.6 |
| Delay: 0.453377 Sol No: 1 |
| Load on Server | (0): | amount: 3 | 1: | amount: 19 | 2: | amount: 43.8 | 3: | amount: 10.8 | 4: | amount: 63 | 5: | amount: 7 | 6: | amount: 2.4 | 7: | amount: 0.95 |
| Load on Server | (2): | amount: 34 | 1: | amount: 37.2 | 2: | amount: 1.8 | 3: | amount: 0.9 | 4: | amount: 39 | 5: | amount: 2.1 | 6: | amount: 40.8 | 7: | amount: 87.4 |
| Delay: 0.500214 Sol No: 2 |
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.500322 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server

247
Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 3
Content: 1: amount: 19.2
Content: 2: amount: 43.8
Content: 3: amount: 11.7
Content: 4: amount: 27
Content: 5: amount: 16.8
Content: 6: amount: 0.8
Content: 7: amount: 19

Load on Server
(1): Content: 0: amount: 45
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 1.8
Content: 4: amount: 9
Content: 5: amount: 3.5
Content: 6: amount: 64
Content: 7: amount: 8.55

Load on Server
(2): Content: 0: amount: 34
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 52.2
Content: 4: amount: 112.5
Content: 5: amount: 31.5
Content: 6: amount: 12.8
Content: 7: amount: 64.6

Load on Server
(3): Content: 0: amount: 18
Content: 1: amount: 0
Content: 2: amount: 10.2
Content: 3: amount: 24.3
Content: 4: amount: 1.5
Content: 5: amount: 18.2
Content: 6: amount: 2.4
Content: 7: amount: 2.85

************ GENERATION9***********************

Delay 0.447528 Sol No=> 0

Load on Server
(0): Content: 0: amount: 3
Content: 1: amount: 19.2
Content: 2: amount: 43.8
Content: 3: amount: 11.7
Content: 4: amount: 27
Content: 5: amount: 16.8
Content: 6: amount: 0.8
Content: 7: amount: 19

Load on Server
(1): Content: 0: amount: 45
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 1.8
Content: 4: amount: 9
Content: 5: amount: 3.5
Content: 6: amount: 64
Content: 7: amount: 8.55

Load on Server
(2): Content: 0: amount: 34
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 52.2
Content: 4: amount: 112.5
Content: 5: amount: 31.5
Content: 6: amount: 12.8
Content: 7: amount: 64.6

Load on Server
(3): Content: 0: amount: 18
Content: 1: amount: 0
Content: 2: amount: 10.2
Content: 3: amount: 24.3
Content: 4: amount: 1.5
Content: 5: amount: 18.2
Content: 6: amount: 2.4
Content: 7: amount: 2.85

************ GENERATION9***********************
Delay 0.453377 Sol No => 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.478634 Sol No => 2
Load on Server
Load on Server
Load on Server
Delay: 0.52125 Sol No: => 3
Load on Server (0): Content: 0: amount: 4.74012; Content: 1: amount: 37.921; Content: 2: amount: 8.0582; Content: 3: amount: 8.40294; Content: 4: amount: 19.3914; Content: 5: amount: 12.0658; Content: 6: amount: 0.57456; Content: 7: amount: 13.6458
Load on Server (1): Content: 0: amount: 18.2599; Content: 1: amount: 35.279; Content: 2: amount: 47.1418; Content: 3: amount: 5.09706; Content: 4: amount: 16.6086; Content: 5: amount: 8.23424; Content: 6: amount: 64.2254; Content: 7: amount: 13.9042
Load on Server (2): Content: 0: amount: 56.0914; Content: 1: amount: 19.9085; Content: 2: amount: 1.42204; Content: 3: amount: 37.49; Content: 4: amount: 80.7975; Content: 5: amount: 22.6233; Content: 6: amount: 9.19296; Content: 7: amount: 46.3957
Best Solution Server Load Distribution
Load on Server (0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server (1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server (2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 1.8...
Load on Server

*********** GENERATION10***********
Delay0.447528 Sol No=> 0
Load on Server

Load on Server

Load on Server

Load on Server
Delay0.453377 Sol No=> 1
Load on Server

Load on Server
<table>
<thead>
<tr>
<th>Server</th>
<th>Content 0</th>
<th>Content 1</th>
<th>Content 2</th>
<th>Content 3</th>
<th>Content 4</th>
<th>Content 5</th>
<th>Content 6</th>
<th>Content 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>34</td>
<td>37.2</td>
<td>1.8</td>
<td>0.9</td>
<td>39</td>
<td>2.1</td>
<td>40.8</td>
<td>87.4</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>0</td>
<td>10.2</td>
<td>11.7</td>
<td>21</td>
<td>23.8</td>
<td>26.4</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Delay 0.500214 Sol No => 2

<table>
<thead>
<tr>
<th>Server</th>
<th>Content 0</th>
<th>Content 1</th>
<th>Content 2</th>
<th>Content 3</th>
<th>Content 4</th>
<th>Content 5</th>
<th>Content 6</th>
<th>Content 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2.484</td>
<td>15.8976</td>
<td>36.2664</td>
<td>8.40294</td>
<td>19.3914</td>
<td>12.0658</td>
<td>0.57456</td>
<td>13.6458</td>
</tr>
<tr>
<td>1</td>
<td>45.516</td>
<td>66.9024</td>
<td>11.7336</td>
<td>5.09706</td>
<td>16.6086</td>
<td>8.23424</td>
<td>64.2254</td>
<td>13.9042</td>
</tr>
<tr>
<td>2</td>
<td>28.152</td>
<td>30.8016</td>
<td>1.4904</td>
<td>37.49</td>
<td>80.7975</td>
<td>22.6233</td>
<td>9.19296</td>
<td>46.3957</td>
</tr>
</tbody>
</table>

Delay 0.500322 Sol No => 3

<table>
<thead>
<tr>
<th>Server</th>
<th>Content 0</th>
<th>Content 1</th>
<th>Content 2</th>
<th>Content 3</th>
<th>Content 4</th>
<th>Content 5</th>
<th>Content 6</th>
<th>Content 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.74012</td>
<td>37.921</td>
<td>8.0582</td>
<td>10.6564</td>
<td>24.5916</td>
<td>15.3014</td>
<td>0.72864</td>
<td>17.3052</td>
</tr>
<tr>
<td>1</td>
<td>18.2599</td>
<td>35.279</td>
<td>47.1418</td>
<td>6.00704</td>
<td>21.0543</td>
<td>17.3052</td>
<td>17.3052</td>
<td>17.3052</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th>Load on Server (0)</th>
<th>Amount (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>19.2</td>
</tr>
<tr>
<td>2</td>
<td>43.8</td>
</tr>
<tr>
<td>3</td>
<td>11.7</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>16.8</td>
</tr>
<tr>
<td>6</td>
<td>0.8</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server (1)</th>
<th>Amount (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>1</td>
<td>63.6</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td>8.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server (2)</th>
<th>Amount (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>1</td>
<td>37.2</td>
</tr>
<tr>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>3</td>
<td>52.2</td>
</tr>
<tr>
<td>4</td>
<td>112.5</td>
</tr>
<tr>
<td>5</td>
<td>31.5</td>
</tr>
<tr>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>7</td>
<td>64.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server (3)</th>
<th>Amount (total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>24.3</td>
</tr>
<tr>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>18.2</td>
</tr>
<tr>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>

********** GENERATION11 ************

Delay 0.447528 Sol No => 0

Load on Server (0): Amount (total)
<table>
<thead>
<tr>
<th>0</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.2</td>
</tr>
<tr>
<td>2</td>
<td>43.8</td>
</tr>
<tr>
<td>3</td>
<td>11.7</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>5</td>
<td>16.8</td>
</tr>
<tr>
<td>6</td>
<td>0.8</td>
</tr>
<tr>
<td>7</td>
<td>19</td>
</tr>
</tbody>
</table>

253
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
Delay 0.453377 Sol No=> 1
Load on Server
(0): Content: 0: amount: 2.484; Content: 1: amount: 15.8976; Content: 2: amount: 36.2664; Content: 3: amount: 0.95
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 66.6; Content: 4: amount: 27; Content: 5: amount: 37.1; Content: 6: amount: 10.4; Content: 7: amount: 0.95
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 0.9; Content: 4: amount: 39; Content: 5: amount: 2.1; Content: 6: amount: 40.8; Content: 7: amount: 87.4
Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 11.7; Content: 4: amount: 21; Content: 5: amount: 23.8; Content: 6: amount: 26.4; Content: 7: amount: 5.7
Delay 0.478634 Sol No=> 2
Load on Server
(0): Content: 0: amount: 2.484; Content: 1: amount: 15.8976; Content: 2: amount: 36.2664; Content: 3: amount: 0.95
<table>
<thead>
<tr>
<th>Server Load Distribution</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load on Server (1)</td>
<td>45.516</td>
</tr>
<tr>
<td>Load on Server (2)</td>
<td>28.152</td>
</tr>
<tr>
<td>Load on Server (3)</td>
<td>23.848</td>
</tr>
<tr>
<td>Load on Server (0)</td>
<td>4.74012</td>
</tr>
<tr>
<td>Load on Server (1)</td>
<td>18.2599</td>
</tr>
<tr>
<td>Load on Server (2)</td>
<td>56.0914</td>
</tr>
<tr>
<td>Load on Server (3)</td>
<td>20.9086</td>
</tr>
</tbody>
</table>

Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
********** GENERATION12***********
Delay0.447528 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.453377 Sol No => 1
Load on Server
(0): Content: 0: amount: 1.5: Content: 5: amount: 18.2: Content: 6: amount: 2.4: Content: 7: amount: 2.85
Delay 0.500214 Sol No => 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.500322 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.500322 Sol No=> 3
Load on Server (3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85

********** GENERATION13**********

Delay 0.447528 Sol No=> 0

Load on Server (0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19

Load on Server (1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55

Load on Server (2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6

Load on Server (3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85

Delay 0.453377 Sol No=> 1

Load on Server (0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 10.8; Content: 4: amount: 63; Content: 5: amount: 7; Content: 6: amount: 2.4; Content: 7: amount: 0.95

Load on Server (1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 66.6; Content: 4: amount: 27; Content: 5: amount: 37.1; Content: 6: amount: 10.4; Content: 7: amount: 0.95
Load on Server
Load on Server
Delay 0.478634 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.52125 Sol No=> 3
Load on Server
Load on Server
(1): Content: 0: amount: 18.2599: Content: 1: amount: 35.279: Content: 2: amount: 47.1418:
Load on Server
Load on Server
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server

*********** GENERATION14***********
Delay0.447528 Sol No=> 0
Load on Server

261
Load on Server

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>1</td>
<td>63.6</td>
</tr>
<tr>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>3.5</td>
</tr>
<tr>
<td>6</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Delay 0.453377 Sol No=> 1

Load on Server

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>1</td>
<td>37.2</td>
</tr>
<tr>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td>3</td>
<td>52.2</td>
</tr>
<tr>
<td>4</td>
<td>112.5</td>
</tr>
<tr>
<td>5</td>
<td>31.5</td>
</tr>
<tr>
<td>6</td>
<td>12.8</td>
</tr>
<tr>
<td>7</td>
<td>64.6</td>
</tr>
</tbody>
</table>

Load on Server

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>10.2</td>
</tr>
<tr>
<td>3</td>
<td>24.3</td>
</tr>
<tr>
<td>4</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>18.2</td>
</tr>
<tr>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>7</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Delay 0.500214 Sol No=> 2

Load on Server

<table>
<thead>
<tr>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2.484</td>
</tr>
<tr>
<td>1</td>
<td>15.8976</td>
</tr>
<tr>
<td>2</td>
<td>36.2664</td>
</tr>
</tbody>
</table>
Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server
******* GENERATION15************
Delay:0.447528 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content 0:amount:2.484</th>
<th>Content 1:amount:15.8976</th>
<th>Content 2:amount:36.2664</th>
<th>Content 3:amount:10.6564</th>
<th>Content 4:amount:24.5916</th>
<th>Content 5:amount:15.3014</th>
<th>Content 6:amount:0.72864</th>
<th>Content 7:amount:17.3052</th>
</tr>
</thead>
</table>
Load on Server


Delay: 0.480948 Sol No=> 3

Load on Server

(0): Content: 0: amount: 2.61; Content: 1: amount: 16.704; Content: 2: amount: 38.106; Content: 3: amount: 9.396; Content: 4: amount: 54.81; Content: 5: amount: 6.09; Content: 6: amount: 2.088; Content: 7: amount: 0.8265

Load on Server

(1): Content: 0: amount: 45.39; Content: 1: amount: 66.096; Content: 2: amount: 9.894; Content: 3: amount: 68.004; Content: 4: amount: 35.19; Content: 5: amount: 38.01; Content: 6: amount: 10.712; Content: 7: amount: 1.0735

Load on Server

(2): Content: 0: amount: 29.58; Content: 1: amount: 32.364; Content: 2: amount: 1.566; Content: 3: amount: 0.783; Content: 4: amount: 33.93; Content: 5: amount: 1.827; Content: 6: amount: 35.496; Content: 7: amount: 76.038

Load on Server


Delay: 0.52125 Sol No=> 4

Load on Server

(0): Content: 0: amount: 4.74012; Content: 1: amount: 37.921; Content: 2: amount: 8.0582; Content: 3: amount: 8.40294; Content: 4: amount: 19.3914; Content: 5: amount: 12.0658; Content: 6: amount: 0.57456; Content: 7: amount: 13.6458

Load on Server

(1): Content: 0: amount: 18.2599; Content: 1: amount: 35.279; Content: 2: amount: 47.1418; Content: 3: amount: 5.09706; Content: 4: amount: 16.6086; Content: 5: amount: 8.23424; Content: 6: amount: 64.2254; Content: 7: amount: 13.9042

Load on Server

(2): Content: 0: amount: 56.0914; Content: 1: amount: 19.9085; Content: 2: amount: 1.42204:

Load on Server

Best Solution Server Load Distribution

Load on Server

Load on Server

Load on Server

Load on Server

*********** GENERATION16************

Delay0.447528 Sol No=> 0

Load on Server

Load on Server
Load on Server
(2): Content: 0: amount: 28.152; Content: 1: amount: 30.8016; Content: 2: amount: 1.4904; Content: 3: amount: 0.783; Content: 4: amount: 33.93; Content: 5: amount: 1.827; Content: 6: amount: 35.496; Content: 7: amount: 76.038

Load on Server

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Content 0:</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>63.6</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>8.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>Content 0:</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>37.2</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>52.2</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>112.5</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>31.5</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>64.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3)</td>
<td>Content 0:</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>24.3</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>2.85</td>
</tr>
</tbody>
</table>

**************** GENERATION17***********************

Delay 0.447528 Sol No=> 0

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>Content 0:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>19.2</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>16.8</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Content 0:</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>63.6</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>8.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>Content 0:</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>37.2</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>52.2</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>112.5</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>31.5</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>64.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3)</td>
<td>Content 0:</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>24.3</td>
</tr>
<tr>
<td></td>
<td>Content 4:</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>Content 5:</td>
<td>18.2</td>
</tr>
<tr>
<td></td>
<td>Content 6:</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Content 7:</td>
<td>2.85</td>
</tr>
</tbody>
</table>

Delay 0.453377 Sol No=> 1

<table>
<thead>
<tr>
<th>Load on Server</th>
<th>Content</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0)</td>
<td>Content 0:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Content 1:</td>
<td>19.2</td>
</tr>
<tr>
<td></td>
<td>Content 2:</td>
<td>43.8</td>
</tr>
<tr>
<td></td>
<td>Content 3:</td>
<td>3</td>
</tr>
</tbody>
</table>

```
Load on Server
(1):

- Content: 0: amount: 45
- Content: 1: amount: 63.6
- Content: 2: amount: 4.2
- Content: 3: amount: 66.6
- Content: 4: amount: 27
- Content: 5: amount: 37.1
- Content: 6: amount: 10.4
- Content: 7: amount: 0.95

Load on Server
(2):

- Content: 0: amount: 34
- Content: 1: amount: 37.2
- Content: 2: amount: 1.8
- Content: 3: amount: 0.9
- Content: 4: amount: 39
- Content: 5: amount: 2.1
- Content: 6: amount: 40.8
- Content: 7: amount: 87.4

Load on Server
(3):

- Content: 0: amount: 18
- Content: 1: amount: 0
- Content: 2: amount: 10.2
- Content: 3: amount: 11.7
- Content: 4: amount: 21
- Content: 5: amount: 23.8
- Content: 6: amount: 26.4
- Content: 7: amount: 5.7

Delay 0.478634 Sol No=> 2

Load on Server
(0):

- Content: 0: amount: 2.484
- Content: 1: amount: 15.8976
- Content: 2: amount: 36.2664
- Content: 3: amount: 10.6564
- Content: 4: amount: 24.5916
- Content: 5: amount: 15.3014
- Content: 6: amount: 0.72864
- Content: 7: amount: 17.3052

Load on Server
(1):

- Content: 0: amount: 45.516
- Content: 1: amount: 66.9024
- Content: 2: amount: 11.7336
- Content: 3: amount: 2.84364
- Content: 4: amount: 11.4084
- Content: 5: amount: 4.99856
- Content: 6: amount: 64.0714
- Content: 7: amount: 10.2448

Load on Server
(2):

- Content: 0: amount: 28.152
- Content: 1: amount: 30.8016
- Content: 2: amount: 1.4904
- Content: 3: amount: 47.5438
- Content: 4: amount: 102.465
- Content: 5: amount: 28.6902
- Content: 6: amount: 11.6582
- Content: 7: amount: 58.8377

Load on Server
(3):

- Content: 0: amount: 23.848
- Content: 1: amount: 6.3984
- Content: 2: amount: 10.5096
- Content: 3: amount: 28.9562
- Content: 4: amount: 11.535
- Content: 5: amount: 21.0098
- Content: 6: amount: 3.54176
- Content: 7: amount: 8.61232

Delay 0.480948 Sol No=> 3
Load on Server
Load on Server
Load on Server
Load on Server

Best Solution Server Load Distribution
Load on Server
Load on Server
Load on Server
Load on Server

272
***** GENERATION18***************

Delay0.447528 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.453377 Sol No=> 1
Load on Server
Load on Server
Load on Server
Load on Server
Delay 0.464873 Sol No=> 2
Load on Server
Load on Server
Load on Server
Delay 0.473946 Sol No=> 3
Load on Server
Load on Server
Load on Server

274
Load on Server
Delay: 0.485483 Sol No=> 4
Load on Server
(0): Content: 0: amount: 2.484; Content: 1: amount: 15.8976; Content: 2: amount: 36.2664; Content: 3: amount: 9.396; Content: 4: amount: 54.81; Content: 5: amount: 6.09; Content: 6: amount: 2.088; Content: 7: amount: 0.8265
Load on Server
(1): Content: 0: amount: 45.516; Content: 1: amount: 66.9024; Content: 2: amount: 11.7336; Content: 3: amount: 68.004; Content: 4: amount: 35.19; Content: 5: amount: 38.01; Content: 6: amount: 10.712; Content: 7: amount: 1.0735
Load on Server
(2): Content: 0: amount: 28.152; Content: 1: amount: 30.8016; Content: 2: amount: 1.4904; Content: 3: amount: 0.783; Content: 4: amount: 33.93; Content: 5: amount: 1.827; Content: 6: amount: 35.496; Content: 7: amount: 76.038
Load on Server
Best Solution Server Load Distribution
Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19
Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55
Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 1.8; Content: 4: amount: 38.01; Content: 5: amount: 35.496; Content: 6: amount: 10.712; Content: 7: amount: 0.8265
276.2: Content: 4: amount: 112.5: Content: 5: amount: 31.5: Content: 6: amount: 12.8: Content: 7: amount: 64.6

Load on Server


********** GENERATION 19 **********

Delay 0.447528 Sol No => 0

Load on Server


Load on Server


Load on Server


Load on Server


Delay 0.453377 Sol No => 1

Load on Server


Load on Server

Load on Server
Load on Server
Delay0.467236 Sol No=> 2
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.489946 Sol No=> 3
Load on Server
Load on Server
Load on Server
(2): Content:

Load on Server
(3): Content:

Delay 0.496093 Sol No => 4

Load on Server
(0): Content:

Load on Server
(1): Content:

Load on Server
(2): Content:

Load on Server
(3): Content:

Best Solution Server Load Distribution

Load on Server
(0): Content:
Load on Server
Load on Server
Load on Server
*********** GENERATION20***************
Delay0.447528 Sol No=> 0
Load on Server
Load on Server
Load on Server
Load on Server
Delay0.453377 Sol No=> 1
Load on Server
(0):Content:0:amount:3:Content:1:amount:19.2:Content:2:amount:43.8:Content:3:amount:19
Load on Server
(1): Content: 0: amount: 45
Content: 1: amount: 63.6
Content: 2: amount: 4.2
Content: 3: amount: 66.6
Content: 4: amount: 27
Content: 5: amount: 37.1
Content: 6: amount: 10.4
Content: 7: amount: 0.95
Load on Server
(2): Content: 0: amount: 34
Content: 1: amount: 37.2
Content: 2: amount: 1.8
Content: 3: amount: 0.9
Content: 4: amount: 39
Content: 5: amount: 2.1
Content: 6: amount: 40.8
Content: 7: amount: 87.4
Load on Server
(3): Content: 0: amount: 18
Content: 1: amount: 0
Content: 2: amount: 10.2
Content: 3: amount: 11.7
Content: 4: amount: 21
Content: 5: amount: 23.8
Content: 6: amount: 26.4
Content: 7: amount: 5.7
Delay 0.477875 Sol No => 2
Load on Server
(0): Content: 0: amount: 2.79
Content: 1: amount: 17.856
Content: 2: amount: 40.734
Content: 3: amount: 9.594
Content: 4: amount: 22.14
Content: 5: amount: 13.776
Content: 6: amount: 0.656
Content: 7: amount: 15.58
Load on Server
(1): Content: 0: amount: 45.21
Content: 1: amount: 64.944
Content: 2: amount: 7.266
Content: 3: amount: 3.906
Content: 4: amount: 13.86
Content: 5: amount: 6.524
Content: 6: amount: 64.144
Content: 7: amount: 11.97
Load on Server
(2): Content: 0: amount: 31.62
Content: 1: amount: 34.596
Content: 2: amount: 1.674
Content: 3: amount: 42.804
Content: 4: amount: 92.25
Content: 5: amount: 25.83
Content: 6: amount: 10.496
Content: 7: amount: 52.972
Load on Server
(3): Content: 0: amount: 20.38
Content: 1: amount: 2.604
Content: 2: amount: 10.326
Content: 3: amount: 33.696
Content: 4: amount: 21.75
Content: 5: amount: 23.87
Content: 6: amount: 4.704
Content: 7: amount: 14.478
Delay 0.497065 Sol No => 3
Load on Server
(0): Content: 0: amount: 2.2386; Content: 1: amount: 14.327; Content: 2: amount: 32.6836; Content: 3: amount: 9.69729; Content: 4: amount: 22.3784; Content: 5: amount: 13.9243; Content: 6: amount: 0.663062; Content: 7: amount: 15.7477

Load on Server
(1): Content: 0: amount: 45.7614; Content: 1: amount: 68.473; Content: 2: amount: 15.3164; Content: 3: amount: 3.80271; Content: 4: amount: 13.6216; Content: 5: amount: 6.37569; Content: 6: amount: 64.1369; Content: 7: amount: 11.8023

Load on Server

Load on Server

Best Solution Server Load Distribution

Load on Server
(0): Content: 0: amount: 3; Content: 1: amount: 19.2; Content: 2: amount: 43.8; Content: 3: amount: 11.7; Content: 4: amount: 27; Content: 5: amount: 16.8; Content: 6: amount: 0.8; Content: 7: amount: 19

Load on Server
(1): Content: 0: amount: 45; Content: 1: amount: 63.6; Content: 2: amount: 4.2; Content: 3: amount: 1.8; Content: 4: amount: 9; Content: 5: amount: 3.5; Content: 6: amount: 64; Content: 7: amount: 8.55

Load on Server
(2): Content: 0: amount: 34; Content: 1: amount: 37.2; Content: 2: amount: 1.8; Content: 3: amount: 52.2; Content: 4: amount: 112.5; Content: 5: amount: 31.5; Content: 6: amount: 12.8; Content: 7: amount: 64.6

Load on Server
(3): Content: 0: amount: 18; Content: 1: amount: 0; Content: 2: amount: 10.2; Content: 3: amount: 24.3; Content: 4: amount: 1.5; Content: 5: amount: 18.2; Content: 6: amount: 2.4; Content: 7: amount: 2.85
4.6 RESULT ANALYSIS
We have taken same inputs with all three crossover operator point. We have taken the data from 20th generation outputs with crossover one, crossover two and crossover three point operators. However in above output I had taken solution numbers starting from 0 but here I am starting series from 1 for graph analysis purpose.

Table 17: Data from Generation No.20 with Crossover Point One

<table>
<thead>
<tr>
<th>Solution no</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40.93</td>
</tr>
<tr>
<td>2</td>
<td>42.04</td>
</tr>
<tr>
<td>3</td>
<td>47.53</td>
</tr>
<tr>
<td>4</td>
<td>50.08</td>
</tr>
</tbody>
</table>

Figure 37: Analysis with crossover point one (Solutions(x-axis) vs. delay(y-axis))

Table 18: Data From Generation No.20 With Crossover Point Two

<table>
<thead>
<tr>
<th>Solution no</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42.71</td>
</tr>
<tr>
<td>2</td>
<td>44.20</td>
</tr>
<tr>
<td>3</td>
<td>47.21</td>
</tr>
<tr>
<td>3</td>
<td>51.59</td>
</tr>
</tbody>
</table>
Figure 38: Analysis with crossover point two (Solutions (x-axis) vs. delay(y-axis))

Table 19: Data From Generation No.20 With Crossover Point Three

<table>
<thead>
<tr>
<th>Solution no</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>44.75</td>
</tr>
<tr>
<td>2</td>
<td>45.33</td>
</tr>
<tr>
<td>3</td>
<td>47.78</td>
</tr>
<tr>
<td>4</td>
<td>49.70</td>
</tr>
</tbody>
</table>

Figure 39: Analysis with crossover point three (Solutions (x-axis) vs. delay(y-axis))

We analyzed these three graphs. We see the best result with crossover point one.
We can also analyze the data with each generation with delay with crossover point 1, 2 and 3. With crossover point 1, 2 and 3 we see that the delay value becomes constant after few generations. It is all because of mutation probability.

Table 20: Generations vs Delay with Crossover Point 1, 2, 3

<table>
<thead>
<tr>
<th>Generation no</th>
<th>Delay</th>
<th>Generation no</th>
<th>Delay</th>
<th>Generation no</th>
<th>Delay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45.85</td>
<td>1</td>
<td>45.85</td>
<td>1</td>
<td>45.85</td>
</tr>
<tr>
<td>2</td>
<td>42.04</td>
<td>2</td>
<td>44.2</td>
<td>2</td>
<td>44.2</td>
</tr>
<tr>
<td>3</td>
<td>40.93</td>
<td>3</td>
<td>42.71</td>
<td>3</td>
<td>42.71</td>
</tr>
<tr>
<td>4</td>
<td>40.93</td>
<td>4</td>
<td>42.71</td>
<td>4</td>
<td>42.71</td>
</tr>
<tr>
<td>5</td>
<td>40.93</td>
<td>5</td>
<td>42.71</td>
<td>5</td>
<td>42.71</td>
</tr>
<tr>
<td>6</td>
<td>40.93</td>
<td>6</td>
<td>42.71</td>
<td>6</td>
<td>42.71</td>
</tr>
<tr>
<td>7</td>
<td>40.93</td>
<td>7</td>
<td>42.71</td>
<td>7</td>
<td>42.71</td>
</tr>
<tr>
<td>8</td>
<td>40.93</td>
<td>8</td>
<td>42.71</td>
<td>8</td>
<td>42.71</td>
</tr>
<tr>
<td>9</td>
<td>40.93</td>
<td>9</td>
<td>42.71</td>
<td>9</td>
<td>42.71</td>
</tr>
<tr>
<td>10</td>
<td>40.93</td>
<td>10</td>
<td>42.71</td>
<td>10</td>
<td>42.71</td>
</tr>
<tr>
<td>11</td>
<td>40.93</td>
<td>11</td>
<td>42.71</td>
<td>11</td>
<td>42.71</td>
</tr>
<tr>
<td>12</td>
<td>40.93</td>
<td>12</td>
<td>42.71</td>
<td>12</td>
<td>42.71</td>
</tr>
<tr>
<td>13</td>
<td>40.93</td>
<td>13</td>
<td>42.71</td>
<td>13</td>
<td>42.71</td>
</tr>
<tr>
<td>14</td>
<td>40.93</td>
<td>14</td>
<td>42.71</td>
<td>14</td>
<td>42.71</td>
</tr>
<tr>
<td>15</td>
<td>40.93</td>
<td>15</td>
<td>42.71</td>
<td>15</td>
<td>42.71</td>
</tr>
<tr>
<td>16</td>
<td>40.93</td>
<td>16</td>
<td>42.71</td>
<td>16</td>
<td>42.71</td>
</tr>
<tr>
<td>17</td>
<td>40.93</td>
<td>17</td>
<td>42.71</td>
<td>17</td>
<td>42.71</td>
</tr>
<tr>
<td>18</td>
<td>40.93</td>
<td>18</td>
<td>42.71</td>
<td>18</td>
<td>42.71</td>
</tr>
<tr>
<td>19</td>
<td>40.93</td>
<td>19</td>
<td>42.71</td>
<td>19</td>
<td>42.71</td>
</tr>
<tr>
<td>20</td>
<td>40.93</td>
<td>20</td>
<td>42.71</td>
<td>20</td>
<td>44.75</td>
</tr>
</tbody>
</table>
Figure 40: Analysis with generations (x-axis) vs delay (y-axis) with crossover point 1

Figure 41: Analysis with generations (x-axis) vs delay (y-axis) with crossover point 2

Figure 42: Analysis with generations (x-axis) vs delay (y-axis) with crossover point 3