CHAPTER-6
RESEARCH FINDINGS:
DATA ANALYSIS AND CONCLUSIONS-STAGE-I

6.1. Introduction:
During Stage-I, a survey was conducted among customers of 12 banks in eight cities. The customers were given a structured questionnaire and were directed to classify the banks by giving their ratings in a scale of seven: (1) Excellent, (2) Very Good, (3) Good, (4) Satisfactory, (5) Barely satisfactory, (6) Unsatisfactory, and, (7) Poor. The customers were also directed to indicate their reasons for giving a particular rating for which seven options were given against each rating. The detailed analysis of the data collected, section-wise, is given below.

6.2. General Profile: Customer Service Survey

6.2.1. Respondents’ city-wise and Bank-wise profile:

The details of the number of customers of each bank surveyed in each of the cities covered in the study is given in the table below:

Table:34
CITY-WISE AND BANK-WISE COVERAGE

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Bank</th>
<th>New Delhi</th>
<th>Mumbai</th>
<th>Kolkata</th>
<th>Chennai</th>
<th>Ahmedabad</th>
<th>Hyderabad</th>
<th>Bhubaneshwar</th>
<th>Jaipur</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indian Bank</td>
<td>13</td>
<td>27</td>
<td>13</td>
<td>26</td>
<td>15</td>
<td>22</td>
<td>5</td>
<td>5</td>
<td>126</td>
</tr>
<tr>
<td>2</td>
<td>GTB/OBC</td>
<td>7</td>
<td>14</td>
<td>4</td>
<td>8</td>
<td>18</td>
<td>18</td>
<td>3</td>
<td>2</td>
<td>74</td>
</tr>
<tr>
<td>3</td>
<td>HDFC</td>
<td>13</td>
<td>27</td>
<td>23</td>
<td>26</td>
<td>32</td>
<td>27</td>
<td>6</td>
<td>8</td>
<td>162</td>
</tr>
<tr>
<td>4</td>
<td>State Bank of Indore</td>
<td>10</td>
<td>9</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>Corporation Bank</td>
<td>21</td>
<td>15</td>
<td>7</td>
<td>14</td>
<td>7</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>82</td>
</tr>
<tr>
<td>6</td>
<td>Indian Overseas Bank</td>
<td>9</td>
<td>18</td>
<td>8</td>
<td>20</td>
<td>5</td>
<td>6</td>
<td>-</td>
<td>2</td>
<td>68</td>
</tr>
<tr>
<td>7</td>
<td>ABN AMRO Bank</td>
<td>8</td>
<td>18</td>
<td>-</td>
<td>14</td>
<td>-</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>8</td>
<td>UCO Bank</td>
<td>22</td>
<td>29</td>
<td>35</td>
<td>20</td>
<td>6</td>
<td>4</td>
<td>12</td>
<td>3</td>
<td>131</td>
</tr>
<tr>
<td>9</td>
<td>United Bank of India</td>
<td>9</td>
<td>18</td>
<td>32</td>
<td>15</td>
<td>18</td>
<td>6</td>
<td>28</td>
<td>3</td>
<td>129</td>
</tr>
</tbody>
</table>
The survey covered all the metros and one more city from Northern, Southern, Western and Eastern parts of the country. Cities have been chosen in such a way that all banks covered in the survey have their presence there.

6.2.2. Customer Service Survey:

Respondents' Gender Profile:

The survey covered both male and female customers of the banks. Overall sex-profile, city-wise, is given below:

**Table: 35**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Centre</th>
<th>Total</th>
<th>Male</th>
<th>Percentage</th>
<th>Female</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>New Delhi</td>
<td>161</td>
<td>132</td>
<td>81.9%</td>
<td>29</td>
<td>18.1%</td>
</tr>
<tr>
<td>2.</td>
<td>Mumbai</td>
<td>250</td>
<td>215</td>
<td>86%</td>
<td>35</td>
<td>14.0%</td>
</tr>
<tr>
<td>3.</td>
<td>Kolkata</td>
<td>157</td>
<td>141</td>
<td>89.8%</td>
<td>16</td>
<td>10.2%</td>
</tr>
<tr>
<td>4.</td>
<td>Chennai</td>
<td>176</td>
<td>159</td>
<td>90.3%</td>
<td>17</td>
<td>9.7%</td>
</tr>
<tr>
<td>5.</td>
<td>Ahmedabad</td>
<td>118</td>
<td>108</td>
<td>91.5%</td>
<td>10</td>
<td>8.5%</td>
</tr>
<tr>
<td>6.</td>
<td>Hyderabad</td>
<td>129</td>
<td>122</td>
<td>94.5%</td>
<td>7</td>
<td>5.5%</td>
</tr>
<tr>
<td>7.</td>
<td>Bhubaneshwar</td>
<td>60</td>
<td>54</td>
<td>90%</td>
<td>6</td>
<td>10.0%</td>
</tr>
<tr>
<td>8.</td>
<td>Jaipur</td>
<td>29</td>
<td>24</td>
<td>82.7%</td>
<td>5</td>
<td>17.3%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1080</td>
<td>955</td>
<td></td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Percentages to Total</td>
<td>88.4%</td>
<td>11.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
It may be observed from the above that the percentage of males covered by the survey was 88.4% while female respondents constituted 11.6%. The bank-wise sex profile of the respondent is as under:

Table 36

RESPONDENTS' GENDER PROFILE - BANK-WISE

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Bank</th>
<th>Total</th>
<th>Male</th>
<th>Percentage</th>
<th>Female</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indian Bank</td>
<td>126</td>
<td>108</td>
<td>85.7%</td>
<td>18</td>
<td>14.3%</td>
</tr>
<tr>
<td>2</td>
<td>GTB/OBC</td>
<td>74</td>
<td>69</td>
<td>93.2%</td>
<td>5</td>
<td>6.8%</td>
</tr>
<tr>
<td>3</td>
<td>HDFC</td>
<td>162</td>
<td>149</td>
<td>91.9%</td>
<td>13</td>
<td>8.1%</td>
</tr>
<tr>
<td>4</td>
<td>State Bank of Indore</td>
<td>28</td>
<td>25</td>
<td>89.3%</td>
<td>3</td>
<td>10.7%</td>
</tr>
<tr>
<td>5</td>
<td>Corporation Bank</td>
<td>82</td>
<td>74</td>
<td>90.2%</td>
<td>8</td>
<td>9.8%</td>
</tr>
<tr>
<td>6</td>
<td>Indian Overseas Bank</td>
<td>68</td>
<td>57</td>
<td>83.8%</td>
<td>11</td>
<td>16.2%</td>
</tr>
<tr>
<td>7</td>
<td>ABN AMRO Bank</td>
<td>50</td>
<td>49</td>
<td>98.0%</td>
<td>1</td>
<td>2.0%</td>
</tr>
<tr>
<td>8</td>
<td>UCO Bank</td>
<td>131</td>
<td>108</td>
<td>82.4%</td>
<td>23</td>
<td>17.6%</td>
</tr>
<tr>
<td>9</td>
<td>United Bank of India</td>
<td>129</td>
<td>109</td>
<td>84.5%</td>
<td>20</td>
<td>15.5%</td>
</tr>
<tr>
<td>10</td>
<td>Citi Bank</td>
<td>106</td>
<td>99</td>
<td>93.4%</td>
<td>7</td>
<td>6.6%</td>
</tr>
<tr>
<td>11</td>
<td>IDBI Bank</td>
<td>124</td>
<td>108</td>
<td>87.1%</td>
<td>16</td>
<td>12.9%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1080</td>
<td>955</td>
<td></td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Overall percentage</td>
<td>-</td>
<td>88.4%</td>
<td></td>
<td>11.6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.2.3. Customer Service Survey:

Respondent’s Income Profile:

The respondents were classified under various income groups ranging from less than Rs.1.5 lakh per annum to more than Rs.10 lakh per annum.

The city wise income profile of the respondents is as under:
### Table 37
**RESPONDENTS’ INCOME PROFILE - CITY-WISE**

<table>
<thead>
<tr>
<th>SI.No.</th>
<th>Name of the Centre</th>
<th>Total</th>
<th><strong>Total Income Group (in lakh)</strong></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>&lt; 1.5</strong></td>
<td><strong>1.5 to 3</strong></td>
<td><strong>3 to 5</strong></td>
<td><strong>5 to 10</strong></td>
<td><strong>&gt; 10</strong></td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>1.</td>
<td>New Delhi</td>
<td>161</td>
<td>44</td>
<td>46</td>
<td>33</td>
<td>28</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Mumbai</td>
<td>250</td>
<td>91</td>
<td>75</td>
<td>66</td>
<td>11</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Kolkata</td>
<td>157</td>
<td>50</td>
<td>64</td>
<td>31</td>
<td>5</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>Chennai</td>
<td>176</td>
<td>59</td>
<td>74</td>
<td>26</td>
<td>12</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>Ahmedabad</td>
<td>118</td>
<td>46</td>
<td>44</td>
<td>20</td>
<td>3</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>Hyderabad</td>
<td>129</td>
<td>55</td>
<td>44</td>
<td>24</td>
<td>2</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>Bhubaneswar</td>
<td>60</td>
<td>14</td>
<td>25</td>
<td>12</td>
<td>6</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>8.</td>
<td>Jaipur</td>
<td>29</td>
<td>13</td>
<td>13</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1080</strong></td>
<td><strong>372</strong></td>
<td><strong>385</strong></td>
<td><strong>215</strong></td>
<td><strong>67</strong></td>
<td>-</td>
<td><strong>41</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Percentage</strong></td>
<td></td>
<td><strong>34.4%</strong></td>
<td><strong>35.6%</strong></td>
<td><strong>19.9%</strong></td>
<td><strong>6.3%</strong></td>
<td>-</td>
<td><strong>3.8%</strong></td>
</tr>
</tbody>
</table>

It may be observed from the above that 70% of the respondents belong to the income group of less than Rs.3 lakh per annum.

The bank-wise income profile of the respondents is as under:

### Table 38
**RESPONDENTS’ INCOME PROFILE - BANK-WISE**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Bank</th>
<th>Total</th>
<th><strong>Income Group (Rs. in lakh)</strong></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>&lt; 1.5</strong></td>
<td><strong>1.5 to 3</strong></td>
<td><strong>3 to 5</strong></td>
<td><strong>5 to 10</strong></td>
<td><strong>&gt; 10</strong></td>
<td><strong>Not applicable</strong></td>
</tr>
<tr>
<td>1.</td>
<td>Indian Bank</td>
<td>126</td>
<td>60</td>
<td>49</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>GTB/OBC</td>
<td>74</td>
<td>15</td>
<td>34</td>
<td>19</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>3.</td>
<td>HDFC Bank</td>
<td>162</td>
<td>63</td>
<td>54</td>
<td>31</td>
<td>5</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>State Bank of Indore</td>
<td>28</td>
<td>9</td>
<td>13</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>
### 6.2.4. Customer Service Survey:

**Respondent's account (type)-wise profile:**

The customers surveyed were maintaining different types of accounts with the banks. The account-wise classification of the respondents, city-wise is as under:

**Table : 39**

**RESPONDENTS' CLASSIFICATION - ACCOUNT WISE / CITY WISE**

<table>
<thead>
<tr>
<th>City</th>
<th>Total</th>
<th>Savings Bank</th>
<th>Current Account</th>
<th>FD/RD</th>
<th>Term Loan</th>
<th>Cash Credit</th>
<th>Forex</th>
<th>Personal</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Delhi</td>
<td>161</td>
<td>8</td>
<td>15</td>
<td>51</td>
<td>31</td>
<td>6</td>
<td>5</td>
<td>3.1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>3.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mumbai</td>
<td>250</td>
<td>1</td>
<td>55</td>
<td>68</td>
<td>27</td>
<td>2</td>
<td>0.8</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
<td>0.8</td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Kolkata</td>
<td>157</td>
<td>7</td>
<td>15</td>
<td>65</td>
<td>41</td>
<td>1</td>
<td>0.6</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td>4</td>
<td>0.6</td>
<td>5</td>
<td>3.2</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>0.6</td>
<td>5</td>
<td>3.2</td>
<td>-</td>
</tr>
<tr>
<td>Chennai</td>
<td>176</td>
<td>8</td>
<td>33</td>
<td>57</td>
<td>26</td>
<td>7</td>
<td>2.8</td>
<td>10</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>7</td>
<td>2.8</td>
<td>10</td>
<td>5.7</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>2.8</td>
<td>10</td>
<td>5.7</td>
<td>-</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>118</td>
<td>5</td>
<td>25</td>
<td>27</td>
<td>22</td>
<td>2</td>
<td>1.7</td>
<td>7</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>1.7</td>
<td>7</td>
<td>5.9</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>1.7</td>
<td>7</td>
<td>5.9</td>
<td>-</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>129</td>
<td>5</td>
<td>30</td>
<td>36</td>
<td>27</td>
<td>4</td>
<td>3.1</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td>1</td>
<td>3.1</td>
<td>1</td>
<td>0.7</td>
<td>-</td>
</tr>
</tbody>
</table>

**Corporation Bank** 82  22  33  18  3  -  6  
**Indian Overseas Bank** 68  26  27  12  2  -  1  
**ABN AMRO** 50  9  12  20  9  -  -  
**UCO Bank** 131  55  47  14  8  -  7  
**UBI** 129  56  44  15  6  -  8  
**Citi Bank** 106  13  33  45  15  -  -  
**IDBI Bank** 124  44  39  22  16  -  3  
**TOTAL** 1080  372  385  215  67  -  41  

**Percentage**  
34.4%  35.6%  19.9%  6.3%  -  3.8%
It may be observed from the above that the survey mostly covered retail customers, viz. savings bank and part of the term deposit account holders with total respondents in this category aggregating 75.2%. Thus the survey has, essentially, covered savings group who are service sensitive customers. The bank-wise, account-wise, classification of the respondents is as given below:

Table:40
RESPONDENTS’ CLASSIFICATION - ACCOUNT WISE - BANK-WISE

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total</th>
<th>Savings Bank</th>
<th>Current Account</th>
<th>FD/RD</th>
<th>Term Loan</th>
<th>Cash Credit</th>
<th>Forex</th>
<th>Personal</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>126</td>
<td>60.3%</td>
<td>20</td>
<td>15.8%</td>
<td>22</td>
<td>17.5%</td>
<td>2</td>
<td>1.6%</td>
<td>6</td>
</tr>
<tr>
<td>GTB/OBC</td>
<td>74</td>
<td>33.8%</td>
<td>14</td>
<td>18.9%</td>
<td>30</td>
<td>40.5%</td>
<td>1</td>
<td>1.4%</td>
<td>2</td>
</tr>
<tr>
<td>HDFC</td>
<td>162</td>
<td>46.9%</td>
<td>30</td>
<td>18.5%</td>
<td>43</td>
<td>26.5%</td>
<td>4</td>
<td>2.5%</td>
<td>4</td>
</tr>
<tr>
<td>State Bank of Indore</td>
<td>28</td>
<td>53.5%</td>
<td>6</td>
<td>21.4%</td>
<td>5</td>
<td>17.9%</td>
<td>1</td>
<td>3.6%</td>
<td>1</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>82</td>
<td>40.2%</td>
<td>14</td>
<td>17.1%</td>
<td>27</td>
<td>32.9%</td>
<td>3</td>
<td>3.7%</td>
<td>5</td>
</tr>
<tr>
<td>IOB</td>
<td>68</td>
<td>45.7%</td>
<td>15</td>
<td>22.0%</td>
<td>15</td>
<td>22.0%</td>
<td>2</td>
<td>2.9%</td>
<td>5</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>50</td>
<td>42.0%</td>
<td>14</td>
<td>28.0%</td>
<td>15</td>
<td>30.0%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>131</td>
<td>38.9%</td>
<td>19</td>
<td>14.5%</td>
<td>46</td>
<td>35.1%</td>
<td>5</td>
<td>3.8%</td>
<td>9</td>
</tr>
<tr>
<td>UBI</td>
<td>129</td>
<td>52.7%</td>
<td>16</td>
<td>12.4%</td>
<td>34</td>
<td>26.4%</td>
<td>3</td>
<td>2.3%</td>
<td>5</td>
</tr>
<tr>
<td>Citi Bank</td>
<td>106</td>
<td>44.3%</td>
<td>20</td>
<td>18.9%</td>
<td>39</td>
<td>36.8%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IDBI Bank Ltd.</td>
<td>124</td>
<td>41.9%</td>
<td>20</td>
<td>16.1%</td>
<td>42</td>
<td>33.9%</td>
<td>2</td>
<td>1.6%</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1080</td>
<td>45.8%</td>
<td>18</td>
<td>17.4%</td>
<td>31</td>
<td>29.4%</td>
<td>23</td>
<td>2.2%</td>
<td>42</td>
</tr>
</tbody>
</table>

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It may be observed from the above that the survey mostly covered retail customers, viz. savings bank and part of the term deposit account holders with total respondents in this category aggregating 75.2%. Thus the survey has, essentially, covered savings group who are service sensitive customers. The bank-wise, account-wise, classification of the respondents is as given below:

Table:40
RESPONDENTS’ CLASSIFICATION - ACCOUNT WISE - BANK-WISE

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total</th>
<th>Savings Bank</th>
<th>Current Account</th>
<th>FD/RD</th>
<th>Term Loan</th>
<th>Cash Credit</th>
<th>Forex</th>
<th>Personal</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>126</td>
<td>60.3%</td>
<td>20</td>
<td>15.8%</td>
<td>22</td>
<td>17.5%</td>
<td>2</td>
<td>1.6%</td>
<td>6</td>
</tr>
<tr>
<td>GTB/OBC</td>
<td>74</td>
<td>33.8%</td>
<td>14</td>
<td>18.9%</td>
<td>30</td>
<td>40.5%</td>
<td>1</td>
<td>1.4%</td>
<td>2</td>
</tr>
<tr>
<td>HDFC</td>
<td>162</td>
<td>46.9%</td>
<td>30</td>
<td>18.5%</td>
<td>43</td>
<td>26.5%</td>
<td>4</td>
<td>2.5%</td>
<td>4</td>
</tr>
<tr>
<td>State Bank of Indore</td>
<td>28</td>
<td>53.5%</td>
<td>6</td>
<td>21.4%</td>
<td>5</td>
<td>17.9%</td>
<td>1</td>
<td>3.6%</td>
<td>1</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>82</td>
<td>40.2%</td>
<td>14</td>
<td>17.1%</td>
<td>27</td>
<td>32.9%</td>
<td>3</td>
<td>3.7%</td>
<td>5</td>
</tr>
<tr>
<td>IOB</td>
<td>68</td>
<td>45.7%</td>
<td>15</td>
<td>22.0%</td>
<td>15</td>
<td>22.0%</td>
<td>2</td>
<td>2.9%</td>
<td>5</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>50</td>
<td>42.0%</td>
<td>14</td>
<td>28.0%</td>
<td>15</td>
<td>30.0%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>131</td>
<td>38.9%</td>
<td>19</td>
<td>14.5%</td>
<td>46</td>
<td>35.1%</td>
<td>5</td>
<td>3.8%</td>
<td>9</td>
</tr>
<tr>
<td>UBI</td>
<td>129</td>
<td>52.7%</td>
<td>16</td>
<td>12.4%</td>
<td>34</td>
<td>26.4%</td>
<td>3</td>
<td>2.3%</td>
<td>5</td>
</tr>
<tr>
<td>Citi Bank</td>
<td>106</td>
<td>44.3%</td>
<td>20</td>
<td>18.9%</td>
<td>39</td>
<td>36.8%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IDBI Bank Ltd.</td>
<td>124</td>
<td>41.9%</td>
<td>20</td>
<td>16.1%</td>
<td>42</td>
<td>33.9%</td>
<td>2</td>
<td>1.6%</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1080</td>
<td>45.8%</td>
<td>18</td>
<td>17.4%</td>
<td>31</td>
<td>29.4%</td>
<td>23</td>
<td>2.2%</td>
<td>42</td>
</tr>
</tbody>
</table>
6.2.5. Customer Service Survey:
Respondent’s occupation profile

The survey covered customers from different walks of life. The occupation-wise, city-wise profile of the respondents is as under:

<table>
<thead>
<tr>
<th>City</th>
<th>Total</th>
<th>Students</th>
<th>Housewife</th>
<th>Service</th>
<th>Business</th>
<th>Self-employed</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>New Delhi</td>
<td>161</td>
<td>5</td>
<td>15</td>
<td>9.3%</td>
<td>74</td>
<td>46%</td>
<td>20</td>
</tr>
<tr>
<td>Mumbai</td>
<td>250</td>
<td>3</td>
<td>4</td>
<td>1.6%</td>
<td>122</td>
<td>48.8%</td>
<td>70</td>
</tr>
<tr>
<td>Kolkata</td>
<td>157</td>
<td>2</td>
<td>4</td>
<td>2.5%</td>
<td>88</td>
<td>56.1%</td>
<td>38</td>
</tr>
<tr>
<td>Chennai</td>
<td>176</td>
<td>2</td>
<td>3</td>
<td>1.7%</td>
<td>104</td>
<td>59.2%</td>
<td>34</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>118</td>
<td>2</td>
<td>2</td>
<td>1.7%</td>
<td>65</td>
<td>55.1%</td>
<td>28</td>
</tr>
<tr>
<td>Hyderabad</td>
<td>129</td>
<td>2</td>
<td>1</td>
<td>0.8%</td>
<td>71</td>
<td>55.0%</td>
<td>33</td>
</tr>
<tr>
<td>Bhubaneswar</td>
<td>60</td>
<td>1</td>
<td>2</td>
<td>3.4%</td>
<td>29</td>
<td>48.3%</td>
<td>8</td>
</tr>
<tr>
<td>Jaipur</td>
<td>29</td>
<td>-</td>
<td>2</td>
<td>7.0%</td>
<td>17</td>
<td>58.6%</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>1080</td>
<td>17</td>
<td>33</td>
<td>-</td>
<td>570</td>
<td>-</td>
<td>236</td>
</tr>
<tr>
<td>Percentage</td>
<td>-</td>
<td>1.6%</td>
<td>3.1%</td>
<td>-</td>
<td>52.8%</td>
<td>-</td>
<td>21.9%</td>
</tr>
</tbody>
</table>

It may be observed from the above that 52.8% of the respondents surveyed belong to ‘Service Class’ category. This category is generally considered as the most service sensitive category among the customers.

The occupation-wise, bank-wise profile of the respondents is given below:

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total</th>
<th>Students</th>
<th>Housewife</th>
<th>Service</th>
<th>Business</th>
<th>Self-employed</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>126</td>
<td>3</td>
<td>6</td>
<td>4.6%</td>
<td>66</td>
<td>52.5%</td>
<td>21</td>
</tr>
<tr>
<td>GTB/OBC</td>
<td>74</td>
<td>-</td>
<td>1</td>
<td>1.4%</td>
<td>43</td>
<td>58.1%</td>
<td>22</td>
</tr>
<tr>
<td>HDFC</td>
<td>162</td>
<td>4</td>
<td>9</td>
<td>5.6%</td>
<td>92</td>
<td>56.8%</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The consolidated city-wise, bank-wise, customer-wise data is given in Appendix –V.

6.3. Customer Service Survey:

Rating of banks

The customers were directed to give rating to the banks in a scale of seven viz. Excellent, Very good, Good, Satisfactory, Barely Satisfactory, Unsatisfactory and poor. The ratings received from the customers belonging to various branches of the banks in the cities covered by the survey was consolidated. The consolidated position with regard to the rating, bank-wise, is as under:

### Table: 43

#### BANK- WISE CONSOLIDATION – OVERALL RATING

<table>
<thead>
<tr>
<th>Name of Bank</th>
<th>Respondent</th>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Barely Satisfactory</th>
<th>Unsatisfactory</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
<td>No. %</td>
</tr>
<tr>
<td>Indian</td>
<td>126</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>14 11.0</td>
<td>75 60</td>
<td>30 23.8</td>
<td>2 2</td>
</tr>
<tr>
<td>GTB/OB</td>
<td>74</td>
<td>14 18.9</td>
<td>24 32.4</td>
<td>20</td>
<td>27.0 16 21.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The observations are made from the above table are as under:

1. Customers have not rated any bank’s service as ‘Poor’
2. ‘Unsatisfactory’ rating has been received only by four (4) banks.
3. ‘Barely satisfactory’ rating has been received in the case of five (5) banks. The percentage of respondent rating these banks ‘barely satisfactory’ is more than 25% in the case of UCO bank and United Bank of India. The rating in the case of Corporation Bank is only 6.1% which is negligible, while Indian Bank’s percentage is 23% in the category.
4. Nine (9) banks have received ‘excellent’ rating. Of these, four banks, viz. Global Trust Bank, HDFC Bank, Citi Bank and IDBI Bank received excellent rating from 25% or more of the respondents. (GTB has since been merged with OBC).
5. The customer service quality among banks has drastically improved in the recent years. It is evidenced by the fact that total respondents giving ‘Excellent, Very good and good’ rating aggregated to 58.5% of the total respondents.
In order to select the banks for further research, it is imperative that a criterion is made for assessing which banks have received overall good rating for customer service and which banks have received lower rating for customer service. In view of this a table has been prepared by taking the data on ‘Excellent’ rating, ‘Excellent + very good’ rating, ‘Excellent + very good + good’ rating, ‘satisfactory’ rating (the mid point), ‘Barely satisfactory + unsatisfactory’ rating and poor rating. The table is presented below:

Table 44
CUSTOMER RATING :BANK – WISE CONSOLIDATION - CONSOLIDATED GROUP -WISE RATING

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total No. of Respondents</th>
<th>Excellent</th>
<th>Excellent + Very good</th>
<th>Excellent + very good + good</th>
<th>Satisfactory</th>
<th>Barely satisfactory + unsatisfactory</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC</td>
<td>162</td>
<td>71%</td>
<td>92%</td>
<td>98.8%</td>
<td>1.2%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>IDBI Bank</td>
<td>124</td>
<td>73.4%</td>
<td>87.1%</td>
<td>96.8%</td>
<td>3.2%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Citi Bank</td>
<td>106</td>
<td>70.8%</td>
<td>86.8%</td>
<td>97.2</td>
<td>2.8%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>GTB (OBC)</td>
<td>48</td>
<td>25.0%</td>
<td>66.7%</td>
<td>91.7%</td>
<td>8.3%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>50</td>
<td>24.0%</td>
<td>60%</td>
<td>96%</td>
<td>4%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>OBC</td>
<td>26</td>
<td>7.7%</td>
<td>23.1%</td>
<td>53.9%</td>
<td>46.1%</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>State Bank of Indore</td>
<td>28</td>
<td>-</td>
<td>17.9%</td>
<td>53.6%</td>
<td>44.4%</td>
<td>2%</td>
<td>Nil</td>
</tr>
<tr>
<td>Indian Overseas Bank</td>
<td>68</td>
<td>2.9%</td>
<td>14.7%</td>
<td>55.9%</td>
<td>43.1%</td>
<td>1%</td>
<td>Nil</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>82</td>
<td>1.2%</td>
<td>6%</td>
<td>41.4%</td>
<td>52.5%</td>
<td>6.1%</td>
<td>Nil</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>126</td>
<td>-</td>
<td>4%</td>
<td>15%</td>
<td>60%</td>
<td>25%</td>
<td>Nil</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>131</td>
<td>-</td>
<td>1.5%</td>
<td>10.7%</td>
<td>34.3%</td>
<td>55%</td>
<td>Nil</td>
</tr>
<tr>
<td>United Bank of India</td>
<td>129</td>
<td>-</td>
<td>3.8%</td>
<td>17.8%</td>
<td>37.2%</td>
<td>45%</td>
<td>Nil</td>
</tr>
<tr>
<td>Total</td>
<td>1080</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to select banks for Stage-II of the research where the impact of organizational design and HR practices are analysed in detail, the following criteria have been applied. The data for application of the criteria is given in the table above.

6.3.1. Selection of Banks with service excellence: criteria:—
i. Banks where customer rating of ‘Excellent’ is 70% or more of the responses.
ii. Banks where customer rating of ‘Excellent and very good’ constitute more than 80% of the total customers surveyed.
iii. Banks where the total number of customers surveyed exceeds 100.
iv. Banks where responses on a particular bank were received from at least six (6) out of the eight (8) cities surveyed.
v. Banks where no customer has rated service as ‘barely satisfactory/unsatisfactory/poor’.

Applying the above criteria the following banks were selected in the category of Banks with service excellence for further study:

**HDFC Bank, IDBI Bank and Citi Bank**

6.3.2. **Selection of banks with lower rating for service: criteria**

1. Bankers where no customer has given ‘Excellent’ rating.
2. Banks where the customer rating of ‘Excellent’ and ‘Very good’ constitute less than 5% of the total customers surveyed.
3. Banks where the customer rating of ‘Barely satisfactory’ and ‘unsatisfactory’ is 25% or more.
4. Banks where the responses were received from at least six (6) out of eight (8) cities surveyed.
5. Banks where the total number of customers surveyed exceeds 100.

Applying the above criteria, three banks were selected in the category of banks with lower rating for customer service for further study:

**Indian Bank, UCO Bank, United Bank of India.**

Detailed analysis of the organizational design and HR practices with inter-firm comparison has been taken up in stage-II of the research (Chapter -7)

6.3.3. **Testing of Hypothesis:**

Along with the rating for banks the questionnaire had asked the customers to give the reasons for giving a specific rating. For example, the reasons listed in the structured questionnaire for the respondent to indicate were as follows:

6.3.3 (1). **Reasons for rating ‘Excellent’:**

1. Excellent counter service in terms of speed and efficiency.
2. Technology based services leading to efficiency.
3. Courteous and polite dealing with customer.
4. Officials are knowledgeable and skilled.
5. Prompt response to customer needs.
6. Innovation in service delivery.
7. Identification of customer needs and designing of appropriate services.
8. Any other (please specify).

6.3.3(2). Reasons for rating ‘Barely Satisfactory’
1. Customer service is O.K.
2. Limited progress in technology upgradation.
3. Customer dealings (courtesy, etc.) is just ok.
4. Knowledge and skills of the officials is just adequate.
5. Response to customer needs just average.
6. Innovations in service delivery is very limited.
7. Little efforts for customer need identification.
8. Any other (Please specify).

6.3.3(3). Reasons for rating the service ‘unsatisfactory’
1. Counter service is inefficient.
2. No progress in Technology up-gradation.
3. Customer dealings is below expected level.
4. Knowledge and skills of the officials is just not up to the mark.
5. Response to the customer needs is below expected levels.
6. Innovation in service delivery absent.
7. No efforts for customer identification.
8. Any other (Please specify).

The study had formulated eight (8) Hypotheses for testing. Of these, the following five are relating to customer service:

i. There is a correlation between customer satisfaction and the ‘quality of service rendered by the bank at the counters’.

ii. There is a relation between customer satisfaction and the ‘technology based services’ offered by the bank.

iii. ‘Courteous and polite dealing with customers’ and customer satisfaction are correlated.

iv. ‘Prompt response of the bank to the customer needs’ and customer satisfaction are correlated.
v. ‘Innovations in service delivery’ (technology based or otherwise) and customer satisfaction are correlated.

The above hypothesis have been subjected to test using the data from the survey on customer service satisfaction using correlation and regression.

For the purpose of analysis and testing, the ‘Null Hypothesis’ is that there is no relation between the variables.

The tests and the conclusions are given under, hypothesis wise.

6.4. STATISTICAL ANALYSIS

I. Relationship Between “Excellent” Rating and “Excellent Counter Service” as a Factor

From the data collected, the percentage of people among the people surveyed who gave ‘Excellent’ rating to a bank and the percentage of people out of the total who have given “Excellent counter service “as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving excellent rating is the “Dependent Variable”(Y) while the percentage of people giving counter service as a factor for excellent rating is the “Independent Variable(X)”.

The following symbols are used in the calculations of Correlation and regression.

\[
\bar{X} = \frac{\sum X}{N}; \quad x = X - \bar{X}; \quad \bar{Y} = \frac{\sum Y}{N}; \quad y = Y - \bar{Y}
\]

Where ‘N’ is the pair of data used in the calculation*.

Coefficient of Correlation = r.; Regression Coefficient = byx

Table:45 *(N = 8)

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving excellent rating (Y)</th>
<th>Percentage of people Giving excellent counter service as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTB</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>HDFC</td>
<td>71</td>
<td>63</td>
</tr>
<tr>
<td>OBC</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>CORPORATION BANK</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
A. **Coefficient of Correlation:**

\[
    r = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}}
\]

\[
    = \frac{6594}{\sqrt{6088} \times \sqrt{7166}}
\]

\[
    = 0.99
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that ‘Excellent counter service is a factor influencing the quality of service and in turn customer satisfaction.

**Standard of Error \([SE(r)]\):**

\[
    SE(r) = \sqrt{1 - r^2}
\]

\[
    \sqrt{N} = \sqrt{8}
\]

\[
    = 0.98
\]

\[
    = 0.007
\]

**Probable Error \([PE(r)]\):**

\[
    PE(r) = 0.6745 \times SE(r)
\]

\[
    = 0.6745 \times 0.007 = 0.00472
\]

**Significance of Correlation Coefficient:**

\[
    r = 0.99 \quad 6PE(r) = 0.0282
\]

As correlation coefficient is more than 6 PE \((r)\), the correlation coefficient is significant.
**T-Test of Correlation Coefficient:**

As explained in the section on ‘tools of analysis used’, it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \sqrt{\frac{N-2}{1-r^2}} = \frac{0.99 \times \sqrt{8-6}}{\sqrt{1-(0.99)^2}} = 17.32
\]

The standard value for “t” for a value of N-2 at a confidence level of 5% is:

\[
t_6 (0.05) = 1.94
\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. REGRESSION ANALYSIS**

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:

\[
byx = \frac{N \sum XY - [\sum X][\sum Y]}{N \sum X^2 - [\sum X]^2}
\]

\[
= \frac{[8 \times 15496] - [258 \times 276]}{[8 \times 14408] - [258 \times 258]} = 1.08
\]

The value establishes the relation between the variables, i.e., ‘Excellent’ rating from the customer and ‘Excellent counter service’. Therefore the hypothesis that there is a relation between Customer satisfaction and the quality of service rendered by the bank at the counters stands established.

**Equation on Regression Line**

\[
Y - \bar{Y} = byx (X - \bar{X})
\]
\[ Y = 2.36 + 1.08 \times X \]

**T-test of Regression Coefficient:**

i. Calculation of Variance of X’s

\[
(SX)^2 = \frac{\sum (X - \bar{X})^2}{N-1} = \frac{6088}{8-1} = 869.7
\]

\[ SX = \sqrt{869.7} = 29.49 \]

ii. Calculation of Variance of Y’s

\[
S^2_{yx} = \frac{\sum (Y - \bar{Y} - r(X - \bar{X}))^2}{N-2} = \frac{23.98}{8-2} = 3.996
\]

\[ S_{yx} = \sqrt{3.996} = 1.998 \]

\[ t = \frac{r \cdot S_x}{S_{yx} / \sqrt{(N-1)}} = \frac{1.08 \times 29.49}{1.99 / \sqrt{8-1}} = 42.47 \]

The critical value of \( t \) for N-2 at the confidence level of 5% is:

\[ t_{6(0.05)} = 1.943 \]

As “\( t \)” calculated is more than the “\( t_{6(0.05)} \)”, the critical value,

‘r’-regression coefficient - is significant. Hence reject null hypothesis.

---

# The details of the calculation of \( x, x^2, y, y^2, xy, XY, X, Y \) etc. are given in Appendix VI

II. **Relationship Between “Excellent” Rating and “Technology Based Services Leading To Efficiency”**

From the data collected, the percentage of people among the people surveyed who gave ‘Excellent’ rating to a bank and the percentage of people out of the total who have given “Technology based services” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving excellent rating is the “Dependent
Variable”(Y) while the percentage of people giving ‘Technology based services as a factor for excellent rating is the “Independent Variable(X)”.

The following symbols are used in the calculations of Correlation and regression.

\[
X = X \quad ; \quad x = X - X \quad ; \quad Y = Y \quad ; \quad y = Y - Y
\]

\[
N^* \quad \quad N
\]

Where ‘N” is the pair of data used in the calculation*.

Coefficient of Correlation = r. ; Regression Coefficient = byx

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving excellent rating (Y)</th>
<th>Percentage of people giving Technology based services as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTB</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>HDFC</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>OBC</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>CITY BANK</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td>IDBI BANK</td>
<td>73</td>
<td>72</td>
</tr>
</tbody>
</table>

A. Correlation Coefficient :

\[
r = \frac{\Sigma xy}{\sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}} = \frac{4278}{\sqrt{4236} \times \sqrt{4346}} = 0.99
\]

The value of coefficient of correlation signifies very strong relationship between the dependent and independent variable. It can be conclusively concluded that “Technology based services “is a factor influencing the quality of service and in turn customer satisfaction.

Standard of Error [SE(r)]:

\[
SE(r) = \frac{1 - r^2}{\sqrt{N}}
\]


\[ r = 0.99 \quad \text{and} \quad 6 \text{PE} (r) = 0.0324 \]

As correlation coefficient is more than 6 PE (r), the correlation coefficient is Significant.

**T-Test of Correlation Coefficient:**

As explained in the section on 'tools of analysis used,' it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = \frac{r \sqrt{N-2}}{\sqrt{1 - r^2}}
\]

\[
= \frac{0.99 \times \sqrt{6.2}}{\sqrt{1 - (0.99)^2}}
\]

\[= 14.14\]

The standard value for "t" for a value of N-2 at a confidence level of 5% is:

\[t_4 (0.05) = 2.132\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. REGRESSION ANALYSIS**

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:
byx = \frac{N \sum XY - (\sum X)(\sum Y)}{N \sum X^2 - (\sum X)^2}

= \frac{6 \times 15884 - 256 \times 272}{6 \times 15158 - 256 \times 256} = 1.01

The value establishes the relation between the variables, i.e., ‘Excellent’ rating from the customer and ‘Technology based services’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Technology based services’ stands established.

**Equation on Regression Line**

\[ Y - \bar{Y} = \text{byx} \times (X - \bar{X}) \]

\[ Y - 45 = 1.01 \times (X - 43) \]

**Y = 1.57 + 1.01 X**

**T-test of Regression Coefficient:**

Calculation of Variance of X’s

\[ (SX)^2 = \frac{\sum (X - \bar{X})^2}{N - 1} = 4236 = 847.2 \]

\[ SX = \sqrt{847.2} = 29.10 \]

Calculation of Variance of Y’s

\[ S^2 yx = \frac{\sum (Y - \bar{Y} - r(X - \bar{X}))^2}{N - 2} = 25.57 = 6.392 \]

\[ S yx = \sqrt{6.392} = 2.53 \]

\[ t = \frac{r \times SX}{Syx / \sqrt{(N - 1)}} \]

\[ t = \frac{1.01 \times 29.10}{2.53 / \sqrt{6 - 1}} = 26.01 \]
The critical value of t for N-2 at the confidence level of 5% is:

\[ t_{4}(0.05) = 2.132 \]

As “t” calculated is more than the “t4(0.05), the critical value, ‘r’-regression coefficient - is significant. Hence reject null hypothesis.

#( Details of the calculation of x, x^2, y, y^2, xy, XY, X, Y, etc. are given in Appendix.VII)

III. Relationship Between “Excellent” Rating and “Courteous and polite dealings with Customers”

From the data collected, the percentage of people among the people surveyed who gave ‘Excellent’ rating to a bank and the percentage of people out of the total who have given “Courteous and Polite Dealings with Customers” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving excellent rating is the “Dependent Variable”(Y) while the percentage of people giving “Courteous and Polite Dealings” as a factor for excellent rating is the “Independent Variable(X)”.

The following symbols are used in the calculations of Correlation and regression.

\[ \overline{X} = X \quad ; \quad x = X - \overline{X} \quad ; \quad \overline{Y} = Y \quad ; \quad y = Y - \overline{Y} \]

\[ \frac{N}{N} \]

Where ‘N’ is the pair of data used in the calculation*.

Coefficient of Correlation = r. ; Regression Coefficient = byx

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving excellent rating (Y)</th>
<th>Percentage of people giving ‘Courteous and polite Dealings with customers’ as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTB</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>HDFC</td>
<td>71</td>
<td>66</td>
</tr>
<tr>
<td>OBC</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>CORPORATION BANK</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>IOB</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Coefficient of Correlation:

\[
\begin{align*}
\text{Coefficient of Correlation} & : \\
\hat{r} & = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \times \Sigma y^2}} \\
& = \frac{6522}{\sqrt{5967 \times 7166}} = 0.99
\end{align*}
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that “Courteous and polite dealings with customers” is a factor influencing the quality of service and in turn customer satisfaction.

Standard of Error [SE(\(r\))]:

\[
\begin{align*}
\text{SE}(r) & = 1 - r^2 \\
& = 1 - 0.98 = 0.007
\end{align*}
\]

Probable Error [PE (\(r\))]:

\[
\begin{align*}
\text{PE} (r) & = 0.6745 \times \text{SE}(r) = 0.6745 \times 0.007 = 0.0047
\end{align*}
\]

Significance of Correlation Coefficient:

\[
\begin{align*}
\hat{r} & = 0.99 \\
6 \text{PE}(r) & = 0.0282
\end{align*}
\]

As correlation coefficient is more than 6 PE (\(r\)), the correlation coefficient is significant.

T-Test of Correlation Coefficient:

As explained in the section on ‘tools of analysis used’, it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:
264

\[ t = r \sqrt{N-2} \]
\[ \frac{0.99 \times \sqrt{8-2}}{\sqrt{1 - (0.99)^2}} = 17.32 \]

The standard value for \( t \) for a value of \( N-2 \) at a confidence level of 5% is:

\[ t_{6}(0.05) = 1.943 \]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis:**

\( Y \) is the Dependent variable and \( X \) is the independent variable.

Regression Coefficient of \( Y \) on \( X \):

\[ \text{byx} = \frac{N \sum XY - \sum X \sum Y}{N \sum X - [\sum X]^2} \]
\[ \frac{[8 \times 15183] - [251 \times 276]}{[8 \times 13841] - [251 \times 251]} = 1.09 \]

The value establishes the relation between the variables, i.e., ‘Excellent’ rating from the customer and Courteous and polite dealings with customers’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Courteous and polite dealings with customers’ stands established.

**Equation on Regression Line**

\[ \bar{Y} - \bar{Y} = \text{byx} (X - \bar{X}) \]

\[ Y - 35 = 1.09 (X - 31) \]

\[ Y = 1.25 + 1.09 X \]

**T-test of Regression Coefficient:**

Calculation of Variance of \( X \)’s

\[ (SX)^2 = \frac{\sum [X - \bar{X}]^2}{N - 1} = \frac{5967}{8 - 1} = 852.42 \]
Calculation of Variance of Y’s

\[ S^2_{yx} = \frac{\Sigma (Y_i - \bar{Y})^2}{N-2} = 37.42 \]

\[ S_{yx} = \sqrt{6.24} = 2.50 \]

\[ t = \frac{r \cdot S_x}{\sqrt{N-1}} \]

The critical value of \( t \) for \( N-2 \) at the confidence level of 5% is:

\[ t_{6(0.05)} = 1.943 \]

As “t” calculated is more than the “\( t_{6(0.05)} \)”, the critical value, \( r \)-regression coefficient - is significant. Hence reject null hypothesis.

#(Details of the calculation of \( x, x', y, y', xy, XY, X, Y \) etc. are given in Appendix.VIII.)

IV. RELATIONSHIP BETWEEN “EXCELLENT” RATING AND “PROMPT RESPONSE TO CUSTOMER NEEDS”

From the data collected, the percentage of people among the people surveyed who gave ‘Excellent’ rating to a bank and the percentage of people out of the total who have given “Prompt response to customer needs” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving excellent rating is the “Dependent Variable” \( (Y) \) while the percentage of people giving “Prompt response to customer needs” as a factor for excellent rating is the “Independent Variable (X)”.

The following symbols are used in the calculations of Correlation and regression.

\[ \bar{X} = \frac{X}{N}; \quad x = X - \bar{X}; \quad \bar{Y} = \frac{Y}{N}; \quad y = Y - \bar{Y} \]

\[ N \times \]

Where ‘\( N \)” is the pair of data used in the calculation*.

Coefficient of Correlation = \( r \); Regression Coefficient = \( byx \)
## Table: 48

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving excellent rating (Y)</th>
<th>Percentage of people giving “Prompt response to customer needs” as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTB</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>OBC</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>HDFC</td>
<td>71</td>
<td>66</td>
</tr>
<tr>
<td>IOB</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>CITY BANK</td>
<td>71</td>
<td>62</td>
</tr>
<tr>
<td>IDBI BANK</td>
<td>73</td>
<td>68</td>
</tr>
</tbody>
</table>

### A. Correlation Coefficient:

\[
 r = \frac{\Sigma xy}{\sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}} = \frac{5462}{\sqrt{5097 \times 5882}} = 0.99
\]

The value of the coefficient of correlation signifies very strong relationship between the dependent and independent variable. It can be conclusively concluded that “Prompt response to customer need” is a factor influencing the quality of service and in turn customer satisfaction.

**Standard of Error (SE(r))**:

\[
 SE(r) = 1 - r^2 = 1 - 0.98 = 0.007
\]

**Probable Error (PE(r))**:

\[
 PE(r) = 0.6745 \times SE(r) = 0.6745 \times 0.007 = 0.0047
\]

**Significance of Correlation Coefficient**:

\[
 r = 0.99 \quad 6 \times PE(r) = 0.0282
\]

As correlation coefficient is more than 6 PE(r), the correlation coefficient is Significant.
T-Test of Correlation Coefficient:

As explained in the section on "tools of analysis used" it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \frac{\sqrt{N-2}}{\sqrt{1-r^2}} = 0.99 \frac{\sqrt{7-2}}{\sqrt{1-(0.99)^2}} = 15.76
\]

The standard value for "t" for a value of N-2 at a confidence level of 5% is:

\[t_5 (0.05) = 2.015\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

B. Regression Analysis

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:

\[
byx = \frac{N \{ \Sigma XY \} - [\Sigma X] [\Sigma Y]}{N \Sigma X^2 - [\Sigma X]^2}
\]

\[
= \frac{[7 \times 15124] - [246 \times 275]}{[7 \times 13742] - [246 \times 246]} = 1.07
\]

The value establishes the relation between the variables, i.e., 'Excellent' rating from the customer and also 'Prompt response to customer needs'. Therefore the hypothesis that there is a relation between Customer satisfaction and 'Prompt response to customer needs' stands established.

Equation on Regression Line

\[Y - \bar{Y} = byx (X - \bar{X})\]

\[Y - 39 = 1.07 (X-35)\]

\[Y = 1.55 + 1.07 X\]

T-test of Regression Coefficient:
Calculation of Variance of X’s

\[(SX)^2 = \frac{\sum (X - \bar{X})^2}{N-1} = \frac{5097}{7-1} = 849.85\]

\[SX = \sqrt{849.5} = 29.15\]

Calculation of Variance of Y’s

\[S^2yx = \frac{\sum (Y - \bar{Y} - r(X - \bar{X}))^2}{N-2} = \frac{28.86}{7-2} = 5.77\]

\[S_{yx} = \sqrt{5.77} = 2.40\]

\[t = \frac{r \times S_x}{S_{yx} \sqrt{N-1}} = \frac{1.07 \times 28.86}{2.40/\sqrt{7-1}} = 31.51\]

The critical value of \( t \) for N-2 at the confidence level of 5% is:
\[t_{5(0.05)} = 2.015\]

As “t” calculated is more than the “\( t_{5(0.05)} \), the critical value, ‘r’-regression coefficient is significant. Hence reject null hypothesis.

#(The details of the calculation of \( x, y, x^2, y^2, xy, XY \)etc. are given in the Appendix. IX)

V. Relationship Between “Excellent” Rating and “Innovations in Service Delivery”

From the data collected, the percentage of people among the people surveyed who gave ‘Excellent’ rating to a bank and the percentage of people out of the total who have given “Innovations in service delivery” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving excellent rating is the “Dependent Variable” (\( Y \)) while the percentage of people giving “Innovations in service delivery” as a factor for excellent rating is the “Independent Variable (\( X \))”.

The following symbols are used in the calculations of Correlation and regression.

\[
\bar{X} = \frac{X}{N}; \quad x = X - \bar{X}; \quad \bar{Y} = \frac{Y}{N}; \quad y = Y - \bar{Y}
\]

\[N^* \quad \text{N}\]

Where ‘N’ is the pair of data used in the calculation*.

Coefficient of Correlation = \( r \); Regression Coefficient = \( byx \)
Table 49

* N = 5

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving excellent rating (Y)</th>
<th>Percentage of people giving “Innovations in service delivery” as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTB</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>HDFC</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td>ABN AMRO</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>CITY BANK</td>
<td>71</td>
<td>64</td>
</tr>
<tr>
<td>IDBI BANK</td>
<td>73</td>
<td>71</td>
</tr>
</tbody>
</table>

A. Coefficient of Correlation:

\[
r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}} \approx 0.99
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that “Innovations in service delivery” is a factor influencing the quality of service and in turn customer satisfaction.

Standard of Error [SE(r)]:

\[
SE(r) = \frac{1 - r^2}{\sqrt{N}} = \frac{1 - 0.98}{\sqrt{5}} = 0.009
\]

Probable Error [PE(r)]:

\[
PE(r) = 0.6745 \times SE(r) = 0.6745 \times 0.009 = 0.0060
\]

Significance of Correlation Coefficient:

\[
r = 0.99 \quad 6 \times PE(r) = 0.036
\]
As correlation coefficient is more than 6 PE (r), the correlation coefficient is significant.

**T-Test of Correlation Coefficient:**

As explained in the section on "tools of analysis used" it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \sqrt{N-2} = \frac{0.99 \times \sqrt{5-2}}{\sqrt{1-(0.99)^2}} = 12.23
\]

The standard value for “t” for a value of N-2 at a confidence level of 5% is:

\[
t_{3} (0.05) = 2.353
\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis:**

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:

\[
byx = \frac{N \Sigma XY - [\Sigma X] [\Sigma Y]}{N \Sigma X^2 - [\Sigma X]^2} = \frac{[5x15347] - [241x264]}{[5x14203] - [241x241]} = 1.01
\]

The value establishes the relation between the variables, i.e., ‘Excellent’ rating from the customer and ‘Innovations in service delivery’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Innovations in service delivery’ stands established.

**Equation on Regression Line**

\[
Y - \bar{Y} = byx (X - \bar{X})
\]

\[
Y - 53 = 1.01 (X-48)
\]
\[ Y = 4.52 + 1.01 \, X \]

**T-test of Regression Coefficient:**

**Calculation of Variance of X’s**

\[
(SX)^2 = \frac{\sum (X - \overline{X})^2}{N-1} = 2587 = 646.75
\]

\[ SX = \sqrt{646.75} = 25.43 \]

**Calculation of Variance of Y’s**

\[
S^2 YX = \frac{\sum (Y - \overline{Y} - r(X - \overline{X})^2}{N-2} = 12.87 = 4.29
\]

\[ S_{yx} = \sqrt{4.29} = 2.07 \]

\[ t = \frac{r \cdot S_x}{S_{yx} / \sqrt{(N-1)}} = \frac{1.01 \times 25.43}{2.07 / \sqrt{5-1}} = 24.80 \]

The critical value of \( t \) for \( N-2 \) at the confidence level of 5% is:

\[ t_{3(0.05)} = 2.35 \]

As \( t \) calculated is more than the \( t_{3(0.05)} \), the critical value, ‘\( r \)’-regression coefficient - is significant. Hence reject null hypothesis.

#(The details of the calculation of \( x,y,x^2,y^2,xy,Y \) etc. are given in the Appendix. X)

**VI. Relationship Between “Unsatisfactory” Rating and the factor “Counter Service Inefficient”**

From the data collected, the percentage of people among the people surveyed who gave ‘Unsatisfactory’ rating to a bank and the percentage of people out of the total who have given “Counter service inefficient”as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving Unsatisfactory rating is the “Dependent Variable”(Y) while the percentage of people giving “Counter service inefficient” as a factor for unsatisfactory rating is the “Independent Variable(X)”.  

The following symbols are used in the calculations of Correlation and regression.

\[ \overline{X} = X ; \quad x = X - \overline{X} ; \quad \overline{Y} = Y ; \quad y = Y - \overline{Y} \]

\[ \frac{X}{N*} ; \quad \frac{y}{N} \]
Where ‘N’ is the pair of data used in the calculation*.
Coefficient of Correlation = \( r \); Regression Coefficient = \( b_{yx} \)

### Table: 50

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people giving Unsatisfactory rating (Y)</th>
<th>Percentage of people giving “Counter service inefficient” as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCO Bank</td>
<td>26</td>
<td>14</td>
</tr>
<tr>
<td>UBI</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>IOB</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

#### A. Correlation Coefficient

\[
\begin{align*}
  r & = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} \\
  & = \frac{269}{\sqrt{185} \times \sqrt{453}} \\
  & \approx 0.93
\end{align*}
\]

The value of \( r \) signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that “inefficient counter service” is a factor influencing the quality of service and in turn customer satisfaction.

The observation herein supports the hypothesis that there is a relationship between customer satisfaction and the quality of service rendered at the counters. As proved earlier (Data Analysis; Table 45), the banks which received “Excellent” rating from the customers had “Excellent Counter service as a factor deciding that rating. The reverse is true here as the banks which received unsatisfactory rating has inefficient counter service as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which has better counter service.

#### Standard of Error [SE(\( r \))]:

\[
SE(\( r \)) = 1 - r^2 = 1 - 0.86 = 0.07
\]

The **Probable Error** [PE(\( r \))]:

\[
PE(\( r \)) = 0.6745 \times SE(\( r \)) = 0.6745 \times 0.07 = 0.0472
\]
Significance of Correlation Coefficient:

\[ r = 0.93 \quad 6 \text{PE}(r) = 0.2832 \]

As correlation coefficient is more than 6 PE (r), the correlation coefficient is Significant.

**T-Test of Correlation Coefficient**:

As explained in the section on “tools of analysis used” it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \sqrt{\frac{N-2}{1-r^2}} = 0.93 \sqrt{\frac{4-2}{1-(0.93)^2}} = 3.54
\]

The standard value for “t” for a value of N-2 at a confidence level of 5% is:

\[ t_{2 (0.05)} = 2.920 \]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis**:

\( Y \) is the Dependent variable and \( X \) is the independent variable.

Regression Coefficient of \( Y \) on \( X \):

\[
byx = \frac{N \left[ \Sigma XY \right] - \left[ \Sigma X \right] \left[ \Sigma Y \right]}{N \left[ \Sigma X^2 \right] - \left[ \Sigma X \right]^2}
\]

\[ = \frac{[4 \times 657] - [33 \times 47]}{[4 \times 457] - [33 \times 33]} = 1.45 \]

The value establishes the relation between the variables, i.e., ‘Unsatisfactory’ rating from the customer and ‘Inefficient counter service’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘quality of counter service” stands established.

**Equation on Regression Line**

\[
Y - \bar{Y} = byx (X - \bar{X})
\]
\[ Y - 12 = 1.45 \times (X - 8) \]

\[ Y = 0.4 + 1.45 \times X \]

**T-test of Regression Coefficient:**

**Calculation of Variance of X’s**

\[(SX)^2 = \frac{\sum (X - \bar{X})^2}{N - 1} = \frac{185}{4-1} = 61.6\]

\[ SX = \sqrt{61.6} = 7.8\]

**Calculation of Variance of Y’s**

\[ S^2 YX = \frac{\sum (Y - \bar{Y} - r \times (X - \bar{X}))^2}{N - 2} = \frac{61.86}{4-2} = 30.93\]

\[ SYX = \sqrt{30.93} = 5.56\]

\[ t = \frac{r \times SX}{SYX / \sqrt{(N-1)}} = \frac{1.45 \times 7.8}{5.56 / \sqrt{4-1}} = 3.52\]

The critical value of \( t \) for \( N-2 \) at the confidence level of 5% is:

\[ t_{2(0.05)} = 2.92\]

As “t” calculated is more than the “\( t_{2(0.05)} \)” , the critical value, ‘\( r \)’-regression coefficient - is significant. Hence reject null hypothesis.

#(The details of the calculation of \( x, y, x^2, y^2, xy, XY \) etc. are given in the Appendix. XI)

**VII. Relationship Between “Unsatisfactory” Rating and the Factor “No (Significant”) Progress In Technology Upgradation”**

From the data collected, the percentage of people among the people surveyed who gave ‘Unsatisfactory’ rating to a bank and the percentage of people out of the total who have given “No(significant) progress in technology upgradation” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving Unsatisfactory rating is the “Dependent Variable”(Y) while the percentage of people giving “No(sig.) progress in technology upgradation” as a factor for unsatisfactory rating is the “Independent Variable(X)”.

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The following symbols are used in the calculations of Correlation and regression.

\[
\begin{align*}
\bar{X} &= \frac{X}{N} ; & \bar{x} &= \frac{X - \bar{X}}{\frac{N}{N}} ; & \bar{Y} &= \frac{Y}{N} ; & \bar{y} &= \frac{Y - \bar{Y}}{\frac{N}{N}} \\
\end{align*}
\]

Where ‘N’ is the pair of data used in the calculation*.

Coefficient of Correlation = \( r \); Regression Coefficient = \( b_{yx} \)

<table>
<thead>
<tr>
<th>Table: 51</th>
<th>*N = 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Bank</td>
<td>Percentage of people giving Unsatisfactory rating (Y)</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>26</td>
</tr>
<tr>
<td>UBI</td>
<td>18</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>2</td>
</tr>
<tr>
<td>IOB</td>
<td>1</td>
</tr>
</tbody>
</table>

A. Coefficient of Correlation:

\[
\begin{align*}
    r &= \frac{\Sigma xy}{\sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}} \\
    &= \frac{405}{\sqrt{366} \times \sqrt{453}} \\
    &= 0.99
\end{align*}
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that 'No (significant) progress in technology upgradation’ is a factor influencing the quality of service and in turn customer satisfaction.

The observation herein supports the hypothesis that there is a relationship between customer satisfaction and “Technological progress affecting customer service. As proved earlier (Data Analysis; Table.46.), the banks which received “Excellent” rating from the customers had ‘Technology based services’ as a factor deciding that rating. The reverse is true here as the banks which received unsatisfactory rating has ‘lack of progress in technology” as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which offer technology based services.
Standard of Error [SE(r)]:

\[ SE(r) = 1 - r^2 = 1 - 0.98 = 0.01 \]
\[ \frac{\sqrt{N}}{\sqrt{4}} \]

Probable Error [PE(r)]:

\[ PE(r) = 0.6745 \times SE(r) = 0.6745 \times 0.01 = 0.0067 \]

Significance of Correlation Coefficient:

\[ r = 0.99 \]
\[ 6 \times PE(r) = 0.402 \]

As correlation coefficient is more than 6 PE (r), the correlation coefficient is Significant.

**T-Test of Correlation Coefficient**:

As explained in the section on “tools of analysis used” it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has used in this analysis and the calculations are as below:

\[ t = r \sqrt{N-2} = 0.99 \times \sqrt{4-2} = 9.97 \]
\[ \frac{\sqrt{1 - (0.99)^2}}{\sqrt{1 - r^2}} \]

The standard value for “t” for a value of N-2 at a confidence level of 5% is:

\[ t_{2(0.05)} = 2.920 \]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis**

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:

\[ byx = \frac{N[\Sigma XY] - [\Sigma X][\Sigma Y]}{N[\Sigma X]^2 - [\Sigma X]^2} \]
\[ = \frac{[4 \times 899] - [42 \times 47]}{[4 \times 806] - [42 \times 42]} = 1.11 \]
The value establishes the relation between the variables, i.e., ‘Unsatisfactory’ rating from the customer and ‘No (significant) progress in technology upgradation’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘technology based services offered by the bank’ stands established.

**Equation on Regression Line**

\[
Y - \bar{Y} = b_{yx} (X - \bar{X})
\]

\[
Y - 12 = 1.11 (X-10)
\]

\[
Y = 0.90 + 1.11 X
\]

**T-test of Regression Coefficient:**

Calculation of Variance of X’s

\[
(SX)^2 = \sum [X - \bar{X}]^2 = 366 = 122
\]

\[
SX = \sqrt{122} = 11.05
\]

Calculation of Variance of Y’s

\[
S^2_{yx} = \sum [Y - \bar{Y} - r(X-\bar{X})]^2 = 4.86 = 2.43
\]

\[
Syx = \sqrt{2.43} = 1.56
\]

\[
t = \frac{r SX}{Syx / \sqrt{(N-1)}} = \frac{1.11 \times 11.05}{1.56 / \sqrt{4-1}} = 13.62
\]

The critical value of \(t\) for N-2 at the confidence level of 5% is:

\[t_{2(0.05)} = 2.92\]

As \(t\) calculated is more than the \(t_{2(0.05)}\), the critical value, ‘\(r\)’-regression coefficient is significant. Hence reject null hypothesis.

#(The details of the calculation of x,y,x^2,y^2,xy,XYetc. are given in the Appendix. XII)

**VIII. Relationship Between “Unsatisfactory” Rating and the Factor “Response to Customer Needs Below Expected Level”**
From the data collected, the percentage of people among the people surveyed who gave ‘Unsatisfactory’ rating to a bank and the percentage of people out of the total who have given “Response to customer needs below expected level” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving ‘Unsatisfactory’ rating is the “Dependent Variable” (Y) while the percentage of people giving “Response to customer needs below expected level” as a factor for unsatisfactory rating is the “Independent Variable (X)”.

The following symbols are used in the calculations of Correlation and regression.

\[
\bar{X} = \frac{X}{N} ; \quad x = X - \bar{X} ; \quad \bar{Y} = \frac{Y}{N} ; \quad y = Y - \bar{Y}
\]

Where ‘N’ is the pair of data used in the calculation.

Coefficient of Correlation = \( r \); Regression Coefficient = \( b_{yx} \)

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>% Giving Unsatisfactory rating (Y)</th>
<th>% Giving “Response to customer needs below expected level” as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCO Bank</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>UBI</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Indian Bank</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>IOB</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**A. Coefficient of Correlation:**

\[
r = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} = \frac{397}{\sqrt{350} \times \sqrt{453}} = 0.99
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that “Response to customer needs below expected level” is a factor influencing the quality of service and in turn customer satisfaction.

The observation herein supports the hypothesis that there is a relationship between customer satisfaction and “Prompt response of the bank to customer needs. As proved
earlier (Data Analysis; Table 48), the banks which received “Excellent” rating from the customers had ‘Prompt response to customer needs’ as a factor deciding that rating. The reverse is true here as the banks which received ‘unsatisfactory’ rating has ‘Response to customer needs below expected level” as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which gives prompt response to customer needs.

**Standard of Error [SE(r)]:**

\[
SE(r) = 1 - r^2 = 1 - 0.98 = 0.01
\]

\[
= \frac{1}{\sqrt{N}} = \frac{1}{\sqrt{4}}
\]

**Probable Error [PE (r)]:**

\[
PE (r) = 0.6745 \times SE(r) = 0.6745 \times 0.01 = 0.0067
\]

**Significance of Correlation Coefficient:**

\[
r = 0.99 \quad 6 \text{PE}(r) = 0.402
\]

As correlation coefficient is more than 6 PE (r), the correlation coefficient is significant.

**T-Test of Correlation Coefficient:**

As explained in the section on “tools of analysis used” it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = \frac{r \sqrt{N-2}}{\sqrt{1-r^2}} = \frac{0.99 \times \sqrt{4-2}}{\sqrt{1-0.99^2}} = 9.97
\]

The standard value for “t” for a value of N-2 at a confidence level of 5% is:

\[
t_2 (0.05) = 2.920
\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis**

Y is the Dependent variable and X is the independent variable.
Regression Coefficient of $Y$ on $X$:

$$byx = \frac{N \sum XY - \sum X \sum Y}{\sum X^2 - (\sum X)^2}$$

$$= \frac{[4 \times 891] - [42 \times 47]}{[4 \times 790] - [42 \times 42]} = 1.14$$

The value establishes the relation between the variables, i.e., ‘Unsatisfactory’ rating from the customer and ‘Response to customer needs below expected level’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Prompt response to customer needs’ stands established.

**Equation on Regression Line**

$$Y - \overline{Y} = byx (X - \overline{X})$$

$$Y - 12 = 1.14 (X-10)$$

$$\overline{Y} = 0.60 + 1.14 \overline{X}$$

**$T$-test of Regression Coefficient:**

**Calculation of Variance of $X$’s**

$$(SX)^2 = \frac{\sum (X - \overline{X})^2}{N-1} = 350 = \frac{116.66}{4-1}$$

$$SX = \sqrt{116.66} = 10.80$$

**Calculation of Variance of $Y$’s**

$$S^2 yx = \frac{\sum (Y - \overline{Y} - r(X - \overline{X}))^2}{N-2} = 2.7 = \frac{1.35}{4-2}$$

$$Syx = \sqrt{1.35} = 1.16$$

$$t = \frac{r \cdot SX}{Syx / \sqrt{(N-1)}} = \frac{1.14 \times 10.80}{1.16/ \sqrt{4-1}} = 18.37$$

The critical value of $t$ for N-2 at the confidence level of 5% is:

$t_{2(0.05)} = 2.92$

As “$t$” calculated is more than the “$t_{2(0.05)}$, the critical value, ‘$r$’-regression coefficient - is significant. Hence reject null hypothesis.

#(The details of the calculation of $x,y,x^2,y^2,xy,XY$ etc. are given in the Appendix. XIII.)
IX. Relationship Between “Barely Satisfactory” Rating And The Factor “Ok (Average) Counter Service”

From the data collected, the percentage of people among the people surveyed who gave ‘Barely satisfactory’ rating to a bank and the percentage of people out of the total who have given “OK(average) counter service” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving ‘Barely satisfactory’ rating is the “Dependent Variable”(Y) while the percentage of people giving “OK(average) counter service” as a factor for ‘Barely satisfactory’ rating is the “Independent Variable(X)”.

The following symbols are used in the calculations of Correlation and regression.

\[
\bar{X} = \frac{X}{N} ; \quad x = X - \bar{X} ; \quad \bar{Y} = \frac{Y}{N} ; \quad y = Y - \bar{Y}
\]

Where ‘N’ is the pair of data used in the calculation*.

Coefficient of Correlation = \( r \); Regression Coefficient = \( b_{yx} \)

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people giving Barely satisfactory rating (Y)</th>
<th>Percentage of people giving “OK(average) counter service” as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian Bank</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>UBI</td>
<td>27</td>
<td>16</td>
</tr>
</tbody>
</table>

A. Coefficient of Correlation:

\[
r = \frac{\sum xy}{N} = \frac{241}{4} = 0.95
\]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that ‘OK(average) counter service’ is a factor influencing the quality of service and in turn customer satisfaction.
The observation herein supports the hypothesis that there is a relationship between customer satisfaction and quality of counter service. As proved earlier (Data Analysis; Table.45) the banks which received "Excellent" rating from the customers had 'Excellent counter service' as a factor deciding that rating. The reverse is true here as the banks which received' Barely satisfactory' rating has 'average counter service' as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which offer quality counter service.

**Standard of Error \([SE(r)]\):**

\[
SE(r) = 1 - r^2 = 1 - 0.90 = 0.05
\]

**Probable Error \([PE(r)]\):**

\[
PE(r) = 0.6745 \times SE(r) = 0.6745 \times 0.05 = 0.033
\]

**Significance of Correlation Coefficient:**

\[
 r = 0.99 \quad 6 \text{PE}(r) = 0.198
\]

As correlation coefficient is more than 6 PE \((r)\), the correlation coefficient is significant.

**T-Test of Correlation Coefficient :**

As explained in the section on "tools of analysis used" it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \frac{\sqrt{N-2}}{\sqrt{1-r^2}} = 0.95 \times \frac{\sqrt{4-2}}{\sqrt{1-(0.95)^2}} = 4.23
\]

The standard value for "t" for a value of N-2 at a confidence level of 5% is:

\[
t_2(0.05) = 2.920
\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.
B. Regression Analysis

Y is the Dependent variable and X is the independent variable.

Regression Coefficient of Y on X:

\[ byx = \frac{N \sum XY - \left( \sum X \right) \left( \sum Y \right)}{N \sum X^2 - \left( \sum X \right)^2} \]

\[ = \frac{[4 \times 1537] - [61 \times 85]}{[4 \times 1125] - [61 \times 61]} = 1.23 \]

The value establishes the relation between the variables, i.e., ‘Barely satisfactory’ rating from the customer and ‘Ok(average) counter service’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Quality of service rendered at the counters’ stands established.

**Equation on Regression Line**

\[ Y - \bar{Y} = byx (X - \bar{X}) \]

\[ Y - 21 = 1.23 (X - 15) \]

\[ Y = 2.55 + 1.23X \]

**T-test of Regression Coefficient:**

Calculation of Variance of X’s

\[ (SX)^2 = \frac{\sum (X - \bar{X})^2}{N - 1} = \frac{195}{4 - 1} = 65 \]

\[ SX = \sqrt{65} = 8.06 \]

Calculation of Variance of Y’s

\[ S^2 yx = \frac{\sum (Y - \bar{Y} - r(X - \bar{X}))^2}{N - 2} = \frac{31.15}{4 - 2} = 15.58 \]

\[ Syx = \sqrt{15.58} = 3.95 \]

\[ t = \frac{r \cdot Sx}{Syx / \sqrt{(N - 1)}} = \frac{1.23 \times 8.06}{3.95 / \sqrt{4 - 1}} = 4.34 \]

The critical value of \( t \) for \( N - 2 \) at the confidence level of 5% is:

\[ t_{2(0.05)} = 2.920 \]
As "t" calculated is more than the "t2(0.05), the critical value, 'r'-regression coefficient - is significant. Hence reject null hypothesis.

(The details of the calculation of x,y,x^2,y^2,xy,XY etc. are given in the Appendix. XIV)

X. Relationship Between " Barely Satisfactory " Rating and the Factor "Limited Progress in Technology"

From the data collected, the percentage of people among the people surveyed who gave 'Barely satisfactory' rating to a bank and the percentage of people out of the total who have given "Limited progress in Technology" as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving 'Barely satisfactory' 'rating is the "Dependent Variable"(Y) while the percentage of people giving "Limited progress in Technology" as a factor for 'Barely satisfactory' rating is the "Independent Variable(X)".

The following symbols are used in the calculations of Correlation and regression.

\[
\bar{X} = \frac{X}{N} ; \quad \bar{Y} = \frac{Y}{N} ; \quad x = X - \bar{X} ; \quad y = Y - \bar{Y}
\]

Where 'N' is the pair of data used in the calculation.*

Coefficient of Correlation \( r = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} \) = 0.99

Table: 54

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people Giving Barely satisfactory rating (Y)</th>
<th>Percentage of people giving &quot;Limited Progress in Technology&quot; as a factor (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian Bank</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Corporation Bank</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>29</td>
<td>27</td>
</tr>
<tr>
<td>UBI</td>
<td>27</td>
<td>25</td>
</tr>
</tbody>
</table>

A. Coefficient of Correlation:

\[
r = \frac{\sum xy}{\sqrt{\sum x^2} \times \sqrt{\sum y^2}} = \frac{312}{\sqrt{297} \times \sqrt{329}} = 0.99
\]
The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that 'Limited progress in Technology' is a factor influencing the quality of service and in turn customer satisfaction.

The observation herein supports the hypothesis that there is a relationship between customer satisfaction and Technology adoption by the banks. As proved earlier (Data Analysis; Table.46.), the banks which received “Excellent” rating from the customers had ‘Technology based services leading to efficiency’ as a factor deciding that rating. The reverse is true here as the banks which received ‘Barely satisfactory’ rating has ‘limited progress in technology’ as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which offers technology based services.

**Standard of Error \([SE(r)]\):**

\[
SE(r) = 1 - r^2 = 1 - 0.98 = 0.01
\]

\[
\sqrt{\frac{N}{\sqrt{4}}} = \sqrt{\frac{1}{\sqrt{0.98}}}
\]

**Probable Error \([PE(r)]\):**

\[
PE(r) = 0.6745 \times SE(r) = 0.6745 \times 0.01 = 0.00674
\]

**Significance of Correlation Coefficient:**

\[
r = 0.99 \quad 6 \text{ PE}(r) = 0.040
\]

As correlation coefficient is more than 6 \(PE(r)\), the correlation coefficient is Significant.

**T-Test of Correlation Coefficient:**

As explained in the section on "tools of analysis used" it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:

\[
t = r \sqrt{\frac{N-2}{1 - r^2}} = 0.99 \sqrt{\frac{4-2}{1 - 0.99^2}} = 9.97
\]

The standard value for "\(t\)" for a value of \(N-2\) at a confidence level of 5% is:
\[ t_2 \ (0.05) = 2.920 \]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis**

\( Y \) is the Dependent variable and \( X \) is the independent variable.

Regression Coefficient of \( Y \) on \( X \):

\[
byx = \frac{N \sum XY - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}
\]

\[
= \frac{[4 \times 19481] - [77 \times 85]}{[4 \times 1779] - [77 \times 77]} = 1.05
\]

The value establishes the relation between the variables, i.e., ‘Barely satisfactory’ rating from the customer and ‘Limited progress in technology’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Technology based services offered by the bank’ stands established.

**Equation on Regression Line**

\[
\bar{Y} - \bar{Y} = byx (\bar{X} - \bar{X})
\]

\[
\bar{Y} - 21 = 1.05 (\bar{X} - 19)
\]

\[ \bar{Y} = 1.05 + 1.05 \bar{X} \]

**T-test of Regression Coefficient:**

**Calculation of Variance of X’s**

\[
(SX)^2 = \frac{\sum (X - \bar{X})^2}{N - 1} = 297 \approx 99
\]

\[
SX = \sqrt{99} = 9.95
\]

**Calculation of Variance of Y’s**

\[
S^2 \ yx = \frac{\sum (Y - \bar{Y} - r(X - \bar{X})^2}{N - 2}
\]

\[
\frac{= 1.2425}{4-2} = 0.62
\]

\[
S_{yx} = \sqrt{0.62} = 0.79
\]

\[
t = \frac{r \times S_x}{S_{yx} / \sqrt{(N-1)}} = \frac{1.05 \times 9.95}{0.79 / \sqrt{4-1}} = 23.2
\]

The critical value of \( t \) for \( N-2 \) at the confidence level of 5% is:
\( t_{2(0.05)} = 2.920 \)

As "\( t \)" calculated is more than the "\( t_{2(0.05)} \), the critical value,
\( 'r' \)-regression coefficient is significant. Hence reject null hypothesis.

#(The details of the calculation of \( x, y, x^2, y^2, xy, XY \) etc. are given in the Appendix XV.)

**XI. Relationship Between “ Barely Satisfactory ” Rating and the Factor ‘ Response to Customer needs just average’**

From the data collected, the percentage of people among the people surveyed who gave ‘Barely satisfactory’ rating to a bank and the percentage of people out of the total who have given “Response to customer needs just average” as a factor for giving the rating are given below. In the statistical analysis, the percentage of people giving ‘Barely satisfactory’ rating is the “**Dependent Variable**”(\( Y \)) while the percentage of people giving “OK(average) counter service” as a factor for ‘Barely satisfactory’ rating is the “**Independent Variable**(\( X \))”.

The following symbols are used in the calculations of Correlation and regression.

\[
\overline{X} = X ; \quad x = X - \overline{X} ; \quad \overline{Y} = Y ; \quad y = Y - \overline{Y}
\]

Where ‘\( N \)” is the pair of data used in the calculation*.

Coefficient of Correlation = \( r \). ; Regression Coefficient = \( b_{yx} \)

<table>
<thead>
<tr>
<th>Name of the Bank</th>
<th>Percentage of people giving Barely satisfactory rating (( Y ))</th>
<th>Percentage of people giving “Response to Customer need just average” (( X ))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian Bank</td>
<td>23</td>
<td>18</td>
</tr>
<tr>
<td>UCO Bank</td>
<td>29</td>
<td>23</td>
</tr>
<tr>
<td>UBI</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>State Bank of Indore</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table: 55  *\( N = 4 \)
A. Coefficient of Correlation:

\[ r = \frac{\sum xy}{\sqrt{\sum x^2 \ast \sum y^2}} = \frac{397}{\sqrt{362 \ast 463}} = 0.97 \]

The value of coefficient of correlation signify very strong relationship between the dependent and independent variable. It can be conclusively concluded that ‘Response to customer needs ’ is a factor influencing the quality of service and in turn customer satisfaction.

The observation herein supports the hypothesis that there is a relationship between customer satisfaction and response to customer needs. As proved earlier (Data Analysis; Table.48.), the banks which received “Excellent” rating from the customers had ‘Prompt response to customer service ‘ as a factor deciding that rating. The reverse is true here as the banks which received ‘ Barely satisfactory’ rating has ‘response to customer needs just average’ as a factor for the rating. This corroborates the earlier conclusion and hence it is evident that customer gives better service rating to a bank which promptly responds to customer needs.

Standard of Error \([SE(r)]\):

\[ SE(r) = \sqrt{1 - r^2} = \sqrt{1 - 0.94^2} = 0.03 \]

Probable Error \([PE( r )] \):

\[ PE( r ) = 0.6745 \ast SE( r ) = 0.6745 \ast 0.03 = 0.020 \]

Significance of Correlation Coefficient:

\[ r = 0.97 \quad 6 \ast PE( r ) = 0.120 \]

As correlation coefficient is more than 6 \( PE( r ) \), the correlation coefficient is Significant.

T-Test of Correlation Coefficient:

As explained in the section on “tools of analysis used” it is important to undertake a statistical test to check the reliability of the correlation coefficient. T-Test has been used in this analysis and the calculations are as below:
The standard value for \( t \) for a value of \( N-2 \) at a confidence level of 5% is:

\[
t_2 (0.05) = 2.920
\]

As the value obtained in the test is more than the standard value, Null hypothesis is rejected. Correlation coefficient is significant.

**B. Regression Analysis**

\( Y \) is the Dependent variable and \( X \) is the independent variable.

Regression Coefficient of \( Y \) on \( X \):

\[
byx = \frac{N \sum XY - \sum X \sum Y}{N \sum X^2 - (\sum X)^2}
\]

\[
= \frac{[4 \times 1814] - [70 \times 81]}{[4 \times 1586] - [70 \times 70]} = 1.09
\]

The value establishes the relation between the variables, i.e., ‘Barely satisfactory’ rating from the customer and ‘Response to customer needs just average’. Therefore the hypothesis that there is a relation between Customer satisfaction and ‘Prompt response of the bank to customer needs’ stands established.

**Equation on Regression Line**

\[
Y - \bar{Y} = byx (X - \bar{X})
\]

\[
Y - 20 = 1.09 (X - 17)
\]

\[
Y = 1.47 + 1.09 X
\]

**T-test of Regression Coefficient:**

Calculation of Variance of \( X \)’s

\[
(SX)^2 = \frac{\sum (X - \bar{X})^2}{N - 1} = \frac{393}{4 - 1} = 131
\]
\[
SX = \sqrt{131} = 11.44
\]

**Calculation of Variance of \( Y \)'s**

\[
S^2_{yx} = \frac{\sum (Y - \bar{Y} - r(X - \bar{X}))^2}{N-2} = \frac{27.63}{4-2} = 13.81
\]

\[
Syx = \sqrt{13.81} = 3.72
\]

\[
t = \frac{r \cdot Sx}{\sqrt{\frac{Syx}{N-1}}} = \frac{1.09 \cdot 11.44}{3.72/\sqrt{4-1}} = 5.8
\]

The critical value of \( t \) for \( N-2 \) at the confidence level of 5% is:

\[
t_{2(0.05)} = 2.920
\]

As “\( t \)” calculated is more than the “\( t_{2(0.05)} \), the critical value, ‘\( r \)’-regression coefficient – is significant. Hence reject null hypothesis.

#(The details of the calculation of \( x,y,x^2,y^2,xy,XY \) etc. are given in the Appendix. XVI.)

**GENERAL OBSERVATIONS AND CONCLUSIONS:**

The statistical analysis has clearly established the following hypotheses:

1. “There is a relation between customer satisfaction” and the quality of service rendered by the bank at the counters.

The data has proved beyond doubt that the number of customers giving “Excellent” rating to the banks is high in the case of banks where the customers receive quality service at the counters. On the other hand customers have given unsatisfactory rating to those banks where the counter service is inefficient and barely satisfactory rating to those banks where the counter service is just average. The correlation and regression analysis has proved the hypotheses.

2. “There is a relation between customer satisfaction” and the technology based services offered by the bank.

The data has revealed that the banks which are using advanced technology for operations has received better rating from the customers. The customers have rated the service of
some banks where the technology upgradation is yet to take place as “Unsatisfactory/Barely satisfactory”. The correlation and regression analysis has proved the hypotheses.

3. “Courteous and polite dealings with customers” and customer satisfaction are correlated

It is evident from the data collected that the banks where the customers are receiving courteous and polite dealings tend to receive higher rating for customer service. The correlation and regression analysis has proved the hypotheses.

4. “Prompt response of the bank to the customer needs” and customer satisfaction are correlated

The data has established that the banks where there is prompt response to customer needs received better service rating. Complementing this observation, it has been observed that customers have rated service of some banks unsatisfactory/barely satisfactory where the response to customer needs have been found to be below the expected level or average. The correlation and regression analysis has proved the hypotheses.

5. “Innovations in Service Delivery (technology based or otherwise)” and customer satisfaction are correlated

The survey data has demonstrated that the customers have given higher rating in the cases of banks where there is innovations in service delivery. Many innovations in service delivery are technology driven. It has been established, as mentioned above, that banks with technological advancement have received a better rating compared to the other banks. The correlation and regression analysis has proved the hypotheses.