APPENDIX 2

FLOWCHART FOR C PROGRAM TO DETERMINE THE OPTIMUM PROCESS PARAMETERS WITH 3:2:1 WEIGHTAGE TO YARN INSTABILITY, PHYSICAL BULK AND TENACITY

1. Start

   Declaration and initialisation of variables overfeed(x1), airpressure(x2), texturing speed(x3), physical bulk(y1), instability(y2), tenacity(y3), z1,z2,z3,z.arr[SIZE], index i, count,y1min,y1max,y3min and y3max

2. Clear screen

3. Read initial values of x1, x2, x3 and increment in values of x1, x2, x3 as 1.86, 0.3 and 20 respectively

4. Evaluate y1, y2, y3 from given equations corresponding to values of x1, x2, x3 from loop. Perform this iterations for each values of x1, x2, x3 as given in for loop.

5. Perform comparison of y1 with maximum and minimum value of y1 and y3 with maximum and minimum value y3. Assign values of y1 and y3 corresponding to given equations.

6. Print output values of x1,x2,x3,y1,y2,y3 and z

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Read initial values of $x_1$, $x_2$, $x_3$ and increment in values of $x_1$, $x_2$, $x_3$ as 1.86, 0.3 and 20 respectively.

Evaluate $y_1$, $y_2$, $y_3$ from given equations corresponding to values of $x_1$, $x_2$, $x_3$ from loop. Perform this iterations for each values of $x_1$, $x_2$, $x_3$ as given in for loop.

If $y_2 < 1$ then:

If $y_2 < 0$ then:

$y_2 = 0$

Evaluate $z_1 = (y_1 - y_{1\text{min}})/(y_{1\text{max}} - y_{1\text{min}}) \cdot 200$;

$z_2 = (1 - y_2) \cdot 300$;

$z_3 = ((y_3 - y_{3\text{min}})/(y_{3\text{max}} - y_{3\text{min}})) \cdot 100$;

$z = z_1 + z_2 + z_3$;

$\text{arr[index++]} = z$.

Sort array using swapping method from loop.
for i=0, i<index, i++

Read initial values of x1, x2, x3 and increment in values of x1, x2, x3 as 1.86, 0.3 and 20 respectively

Evaluate y1, y2, y3 from given equations corresponding to values of x1, x2, x3 from loop. Perform this iterations for each values of x1, x2, x3 as given in for loop.

if y2<1
yes

if y2<0
no

yes

y2=0

Evaluate: 
\[ z1 = \frac{(y1-y1_{\text{min}})}{(y1_{\text{max}}-y1_{\text{min}})} \times 200; \]
\[ z2 = (1-y2) \times 300; \]
\[ z3 = \frac{(y3-y3_{\text{min}})}{(y3_{\text{max}}-y3_{\text{min}})} \times 100; \]
\[ z = z1 + z2 + z3; \]

if \[ z = \text{arr[i]} \]
no

yes

Output
Stop