Baridoma Moses Barirem
19/ENG05/018
STAT 132
Mechatronics Engineering

1 The mean and standard deviation

CL	Group A	Group B
1-5	0	2
6-10	7	4
11-15	10	7
16-20	2	20
21-25	1	16
26-30	5	10
31-35	4	4

Solution

Mean for grouped data $= \mu = \frac{\Sigma(M*F)}{\Sigma f} = \frac{\Sigma(M*F)}{n}$

Group A $= \frac{4 \times 29}{7} = 16.6$

Group B $= \frac{4 \times 49}{7} = 28$

~~Standard deviation~~

Standard deviation $= \sigma = \frac{\sqrt{\Sigma(F \times M^2) - (n * \mu^2)}}{n-1}$

Group A $= \frac{\sqrt{(29 \times 4^2) - (4 - 16.6^2)}}{4 - 1} = \frac{464 - (-271.56)}{3} = 245$

Group B $= \frac{\sqrt{(49 \times 4^2) - (4 - 28^2)}}{4 - 1} = \frac{784 - (-780)}{3} = \frac{+1564}{3}$

$= 521$

2) Coefficient of Variation = $\frac{\text{standard deviation}}{\text{Mean}} \times 100$

Group A = $\frac{245}{16.6} \times 100 = 1475.9$

Group B = $\frac{521}{28} \times 100 = 1860.7$

3) Group A has less variable distribution.