UNIVERSIDAD DEL SURESTE

INDICE

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NOMBRE DEL TRABAJO: RETROALIMENTACION

MATERIA: ESTADISTICA DESCRIPTIVA

GRADO: 3

GRUPO: “C”

FECHA DE ENTREGA: 02/08/2020

Medidas de tendencia central y dispersión para datos agrupados

Clases	X	f	fr	F	X*f	$(X-\bar{X})^2$	$f*(X-\bar{X})^2$
[115-120]	117.5	5	35.71	5	587.5	45.97	229.85
[120-125]	122.5	3	21.43	8	367.5	3.17	9.51
[125-130]	127.5	2	14.29	10	255	10.37	20.74
[130-135]	132.5	4	28.57	14	530	67.57	270.28
total		14	100		1740		530.38

Media

$$\bar{X} = \frac{\Sigma X \cdot f}{n} = \frac{1740}{14}$$

$\bar{X} = 124.28$

Mediana

$Me = 122.5$

$Posición = \frac{n-1}{2} = \frac{13}{2} =$

Modo

$Mo = 117.5$

Varianza

$$S^2 = \frac{\Sigma (X-\bar{X}^2 \cdot f)}{n-1}$$

$$S^2 = \frac{530.38}{13}$$

$S^2 = 40.79^2$

Desviacion estandar

$S = \sqrt{40.79}$

$S = 6.38$

Coeficiente

$$CV = \frac{S}{\bar{X}} \cdot 100$$

$$CV = \frac{6.38}{124} \cdot 100$$

$CV = 5\%$

$\bar{X} = 124.28$
$Me = 122.5$
$Mo = 117.5$
$S^2 = 40.79^2$
$S = 6.38$
$CV = 5\%$
$Q1 = 117.5$
$D6 = 122.5$
$P25 = 117.5$

Cuartiles
Q_k
$\frac{kn}{4}$

Decil
D_k
$\frac{kn}{10}$

Persentil
P_k
$\frac{kn}{100}$

$Q_1 = \frac{1 \times 14}{4} = 3$ $\quad$ $D_6 = \frac{6 \times 14}{10} = 8$ $\quad$ $P_{25} = \frac{25 \times 14}{100} = 3$

$Q_1 = 117.5$ $\quad$ $D_6 = 122.5$ $\quad$ $P_{25} = 117.5$

1125 120 130 135 125 115 116 122
117 115 132 121 133 119

Media

$125+120+130+135+125+115+116+122+117+115+132+124+133+119$

$= \frac{1725}{14} = 123.21$

$\bar{x} = 123.21$

Mediana

115, 115, 116, 117, 119, 120, 121, 122, 125, 125, 130
132, 133, 135

$121+122 = \frac{243}{2} = 121.5$

Moda

115, 115, 116, 117, 119, 120, 121, 122, 125, 125, 130
132, 133, 135

Mo = 115 y 125

125 120 130 135 125 115 116 122 117
115 132 121 133 119

Varianza
s^2

$$s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1}$$

$n = 14$

$\bar{x} = 123.21$

$$s^2 = \frac{(125-123.21)^2 + (120-123.21)^2 + (130-123.21)^2 + (135-123.21)^2 + (125-123.21)^2 + (115-123.21)^2 + (116-123.21)^2 + (122-123.21)^2 + (117-123.21)^2 + (115-123.21)^2 + (132-123.21)^2 + (121-123.21)^2 + (133-123.21)^2 + (119-123.21)^2}{n}$$

$$s^2 = \frac{(1.79)^2 + (-3.21)^2 + (6.79)^2 + (11.79)^2 + (1.79)^2 + (-8.21)^2 + (-7.21)^2 + (-1.21)^2 + (-6.21)^2 + (-8.21)^2 + (8.79)^2 + (-2.21)^2 + (9.79)^2 + (-4.21)^2}{13}$$

$$s^2 = \frac{3.20 + 10.30 + 46.10 + 139.00 + 3.20 + 67.40 + (51.98) + (-1.46) + (-38.56) + (-67.40) + 77.26 + (-4.88) + (95.84) + (-17.72)}{13}$$

$$s^2 = \frac{624.3}{13}$$

$s^2 = 48.02$

desviación

$s = \sqrt{48.02}$

$s = 6.92$

CV

$$CV = \frac{s}{\bar{x}}$$

$CV = 0.056$

Q1 cuartiles

x_1 115, x_2 115, x_3 116, x_4 117, x_5 119, x_6 120, x_7 121, x_8 122, x_9 125, x_{10} 125, x_{11} 130, x_{12} 132, x_{13} 133, x_{14} 135

3.5

Posicion

$$Qk = \frac{kn}{4} \qquad Q1 = \frac{1 \times 14}{4} = 3.5$$

Deciles

[115 115] [116 117] [119 120] [121 122]

[125 125] [130 132] [133 135]

Posición

$$\frac{kn}{10} \qquad \frac{6 \times 14}{10} = 8.4$$

D6 = 122 60%

Percentil

115 115 116 117 119 120 121 122 125 125 130 132 133 135

$$P_{25} = \frac{k.n}{100} = \frac{25 \times 14}{100} = \frac{350}{100} = 3.5$$

116 - 117 = -1 $\quad 1 \times 0.5 = 0.5$ $\quad P = 116.5$

116 + 0.5 = 116.5