Activity 3

Christy Varghese
CSE - A
Roll No. 34.

(1) 5, 9, 16, 22, 23, 24, 25, 29, 35

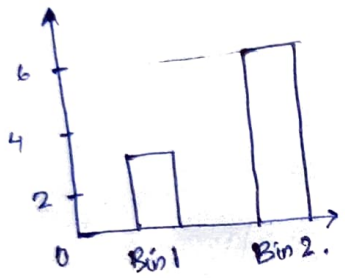
(1.1) By Bin means

$$\Rightarrow \frac{5+9+16+22+23+24+25+29+35}{9}$$

$$\Rightarrow 21$$

Bin1 $\Rightarrow$ (0 - 21) $\Rightarrow$ 5, 9, 16.

Bin2 $\Rightarrow$ (21 - 42) = 22, 23, 24, 25, 29, 35



(1.2) Bin Boundary.

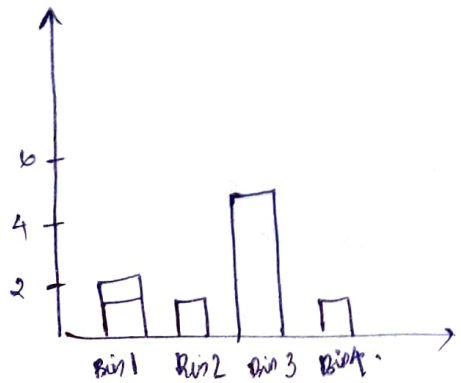
$$\text{width} = \frac{35-5}{3} = 10$$

Bin1 → (0 - 10) = 5, 9,

Bin2 → (10 - 20) = 16.

Bin3 → (20 - 30) = 22, 23, 24, 25, 29

Bin4 = (30 - 40) = 35.



(2) 200, 300, 400, 600, 1000

(a) newMax = 1 newMin = 0

$$v' = \frac{v - \min A}{\max A - \min A}(\text{newMax}_A - \text{newMin}_A) + \text{newMAX}_A$$

$$v'_{200} = \frac{200-200}{1000-200}(1-0)+1 = 0$$

$$v'_{300} = \frac{300-200}{800}(1-0)+1 = 0.25$$

$$v'_{400} = \frac{500-200}{800}(1-0)+1 = 0.375$$

$$v'_{600} = \frac{600-200}{800} = 0.5$$

$$v'_{1000} = \frac{1000-200}{800} = 1$$

(b) z-score normalization

$$A' = \left[\frac{200+300+400+600+1000}{5}\right] = 500$$

$$\sigma^2 = \frac{1}{5}\left[(200^2+300^2+400^2+600^2+1000^2) - (500)^2\right]$$

$$\Rightarrow 280000$$

$$\sigma = 529.15$$

Z-score

$200 \Rightarrow \frac{200-500}{529.15} = -0.567$

$300 \Rightarrow -.378$

$400 \Rightarrow -.189$

$600 \Rightarrow 0.189$

$1000 \Rightarrow .945$

(c) Normalization of decimal sampling.

$$\Rightarrow v' = \frac{v}{10^j} \quad j = 4$$

$$\Rightarrow v'_{200} = \frac{200}{10^4} = 0.02$$

$v'_{300} = 0.03$

$v'_{400} = 0.04$

$v'_{600} = 0.06$

$v'_{1000} = 0.1$