



Vidyavardhini's College of Engineering and Technology  
Department of Artificial Intelligence & Data Science

AY: 2024-25

Class:	TE	Semester:	V
Course Code:	CSC504	Course Name:	DWM


Name of Student:	Sunit Sunit Khair
Roll No. :	19
Assignment No.:	2
Title of Assignment:	Introduction to data Analytics
Date of Submission:	
Date of Correction:	

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Completeness	5	4
Demonstrated Knowledge	3	3
Legibility	2	1
Total	10	08

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Completeness	5	3-4	1-2
Demonstrated Knowledge Legibility	3	2	1
Legibility	2	1	0

Checked by

Name of Faculty : Neha Raut  
Signature :   
Date :

Q.1 Suppose a group of age records has been sorted as follows: 3, 7, 8, 13, 22, 22, 22, 26, 26, 28, 30, 37. Partition them into 3 bins by equal-frequency

Sol<sup>n</sup>:- Given 3 bins there are total 12 observations. Hence, by equi-depth partitioning Method, each bin have 4 observations.

Bin 1 : 3, 7, 8, 13

Bin 2 : 22, 22, 22, 26

Bin 3 : 26, 28, 30, 37

Smooth the data by bin mean. We take average of each bin and replace data value by mean value in corresponding.

Bin 1 : 7.75, 7.75, 7.75, 7.75

Bin 2 : 23, 23, 23, 23

Bin 3 : 30.25, 30.25, 30.25, 30.25

Smooth the data by bin boundary. We take difference of each data value and the bin boundaries. Each bin value is then replace by the closest boundary value.

Bin 1 : 3, 3, 13, 13

Bin 2 : 22, 22, 22, 26

Bin 3 : 26, 26, 26, 37



Q.2) Consider the following data points:

11, 13, 13, 15, 15, 16, 19, 20, 20, 21, 21, 22, 23, 24, 30, 40, 45, 45, 45, 71, 72, 73, 75.

Soln:- Mean =  $\frac{769}{24} = 32.041$   $[n=24]$

Median = 12<sup>th</sup> and 13<sup>th</sup> element in dataset = 21 and 22

Mode = 20 and 45

$$Q_1 = \left[ \frac{n+1}{4} \right]^{th} = \left[ \frac{24+1}{4} \right]^{th} = \left[ \frac{25}{4} \right]^{th} = (6)^{th} \text{ element approx}$$

$$Q_1 = 16$$

$$Q_3 = \left[ \frac{3(n+1)}{4} \right]^{th} = \left[ \frac{3(24+1)}{4} \right]^{th} = \left[ \frac{3(25)}{4} \right]^{th} = \left[ \frac{75}{4} \right]^{th} = [19]^{th}$$

element approx

$$Q_3 = 45$$

$$IQR = Q_3 - Q_1 = 45 - 16 = 29$$

$$\text{Lower limit} = Q_1 - 1.5 \times IQR = 16 - (1.5 \times 29) = -27.5$$

$$\text{Upper limit} = Q_3 + 1.5 \times IQR = 45 + (1.5 \times 29) = 88.5$$

Box plot

