# Vidyavardhini's College of Engineering and Technology

## Department of Artificial Intelligence & Data Science

**AY: 2024 - 25**

| | | | |
|---|---|---|---|
| **Class:** | TE | **Semester:** | V |
| **Course Code:** | | **Course Name:** | Statistics |

| | |
|---|---|
| **Name of Student:** | Sainath · S · Khot |
| **Roll No. :** | 20 |
| **Assignment No.:** | 1 |
| **Title of Assignment:** | |
| **Date of Submission:** | |
| **Date of Correction:** | |

### Evaluation

| Performance Indicator | Max. Marks | Marks Obtained |
|---|---|---|
| Completeness | 5 | 5 |
| Demonstrated Knowledge Legibility | 3 | 2 |
| Legibility | 2 | 2 |
| Total | 10 | 9 |

| 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** : Sir Ravnak Joshi

**Signature** : RJ

**Date** :

# Assignment

1) Given:

| | | | | |
|---|---|---|---|---|
| 9 | 4 | 8 | 12 | 5 |
| 1 | 8 | 10 | 9 | 13 |
| 18 | 20 | 5 | 10 | 15 |
| 5 | 15 | 8 | 8 | 5 |

$$\text{Mean} = \frac{\sum x}{n} = \frac{\text{sum}}{20} = \frac{197}{20} = 9.85$$

To calculate median, the data is to be arranged in an ascending order

∴ 1, 4, 5, 5, 5, 8, 8, 8, 8, 8, 9, 9, 10, 12, 13, 15, 15, 18, 18, 20

$$\text{Median} = \frac{8+9}{2} = 8.5$$

Mode is the data point with highest frequency

mode = 8

$$\text{Variance} = \frac{\sum_{i=1}^{N} (x-\mu)^2}{n}$$

$(1 - 10.25)^2 = 85.56$

$(4 - 10.25)^2 = 39.06$

$(5 - 10.25)^2 = 27.56$

$(8 - 10.25)^2 = 5.06$

$(9 - 10.25)^2 = 1.56$

$(10 - 10.25)^2 = 0.06$

$(12 - 10.25)^2 = 3.06$

$(13 - 10.25)^2 = 7.56$

$(15 - 10.25)^2 = 22.56$

$(18 - 10.25)^2 = 60.06$

$(20 - 10.25)^2 = 95.06$

$\Sigma = 194.98$

~~Variance = $\frac{599.65}{20} = 29.982$~~

Variance = $\frac{194.98}{20} = 9.749$

Standard deviation = $\sqrt{\text{variance}} = \sqrt{29.982}$

$= 5.425$

Q2

| | | | | |
|---|---|---|---|---|
| 19 | 26 | 14 | 10 | 17 |
| 13 | 4 | 5 | 13 | 18 |
| 18 | 5 | 17 | 13 | 10 |
| 14 | 12 | 3 | 2 | 21 |

$$\text{Mean} = \frac{\sum_{i=1}^{N} x}{N} = \frac{177}{20} = 8.85$$

To calculate median, the data is to be arranged in an ascending order

2, 3, 4, 5, 5, 10, 10, 12, 13, 13, 13, 14, 14, 17, 12, 18, 18, 19, 26, 27.

Median = 13

Mode is the data point with highest frequency

Mode = 13