Title _____ Date _____ Page No. _____

# K.R MANGALAM UNIVERSITY

## SESSON - 2025 - 26

## PROGRAM - BCA[AI & DS]

COURSE NAME - DATA DRIVEN DECISI
- ON MAKING.

ASSIGNMENT - 3

FACULTY NAME - MR. SATENDER PAL

SUBMITED BY -

NAME - DIPANSHU

ROLL NO. - 2501060231.

SECTION - D

# TASK 1:

Using a Sample data set (Sales, website traffic, or Survey data, Compute means, median and Standard deviation.

⇒ let's take a Sample Set of monthly Sales (in ₹)

| Months | Sales (₹) |
|---|---|
| Jan | 12000 |
| feb | 15000 |
| Mar | 17000 |
| apr | 16000 |
| May | 13000 |
| Jun | 19000 |
| Jul | 20000 |
| Aug | 18000 |
| Sept | 22000 |
| Oct | 21000 |

$$\text{Mean (Average)} = \frac{\text{Sum of all Values}}{\text{Number of Values}}$$

Mean : 12000 + 15000 + 17000 + 16000 + 13000 + 19000 + 20000 + 40000 + 21000

Median (Middle Value)

Ascending order:

12000, 13000, 15000, 16000, 17000, 18000, 19000, 20000, 21000, 22000

median = average of 5th and 6th term

$$\text{median} = \frac{17000 + 18000}{2} = 17500$$

# Standard Deviation

Standard deviation : $\sqrt{\frac{\Sigma(x_i - \bar{x})^2}{n-1}}$

| Sales | (x - mean) | $(x - \text{mean})^2$ |
|---|---|---|
| 12000 | -5300 | 2809000 |
| 15000 | -2300 | 5290000 |
| 17000 | -300 | 90000 |
| 16000 | -1300 | 1690000 |
| 13000 | -4300 | 18490000 |
| 19000 | 1700 | 2890000 |
| 20000 | 2700 | 7290000 |
| 18000 | 700 | 490000 |
| 22000 | 4700 | 22090000 |
| 21000 | 3700 | 13690000 |
| Total | | 100100000 |

# Standard deviation

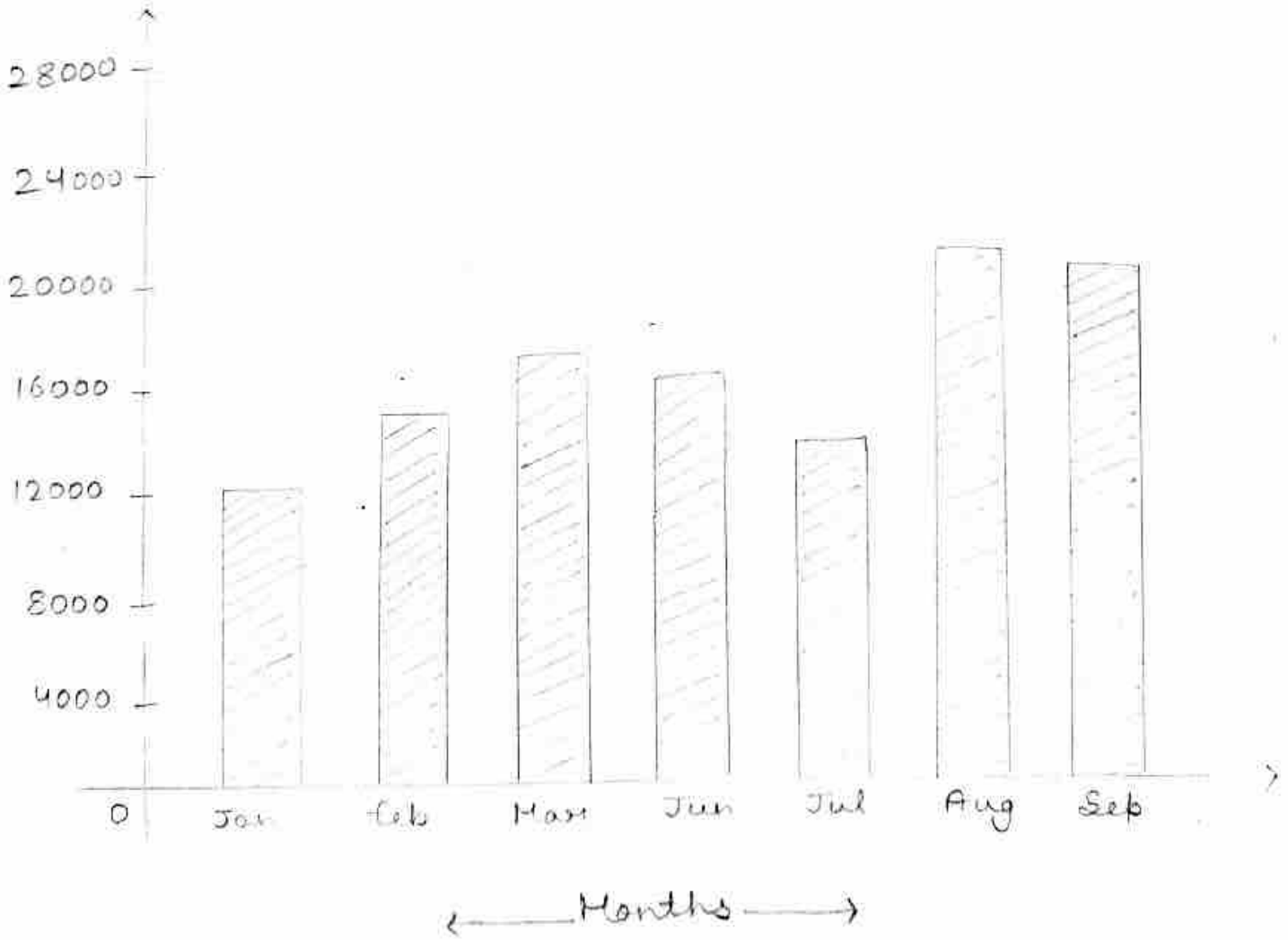
$$\Rightarrow \sqrt{\frac{100100000}{9}} = \sqrt{11122222.22} = 3334$$

## # Task 2:

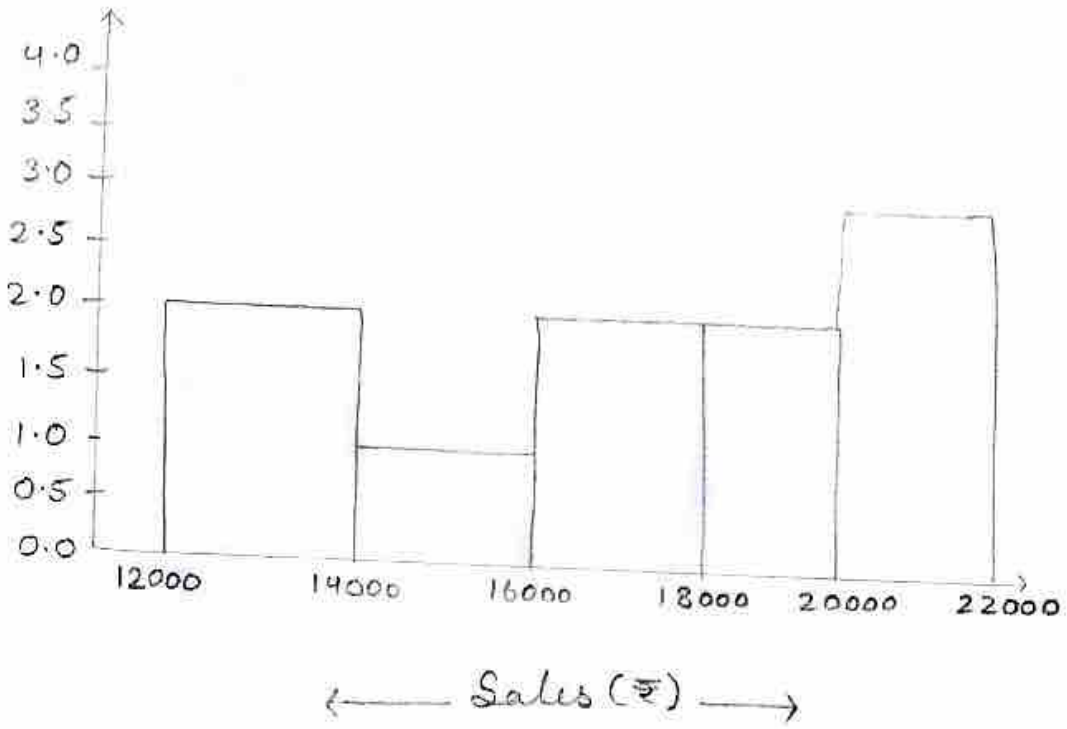
Create at least 3 different charts (bar, histogram and Scatter Plot) to Visualize data trends.
let's take a data set of Monthly Sale (in ₹)

| Month | Sales (₹) | Month | Sales (₹) |
|---|---|---|---|
| Jan | 12000 | Jun | 19000 |
| feb | 16000 | Jul | 20000 |
| Mar | 17000 | Aug | 18000 |
| Apr | 16000 | Sep | 22000 |
| May | 12000 | Oct | 20000 |

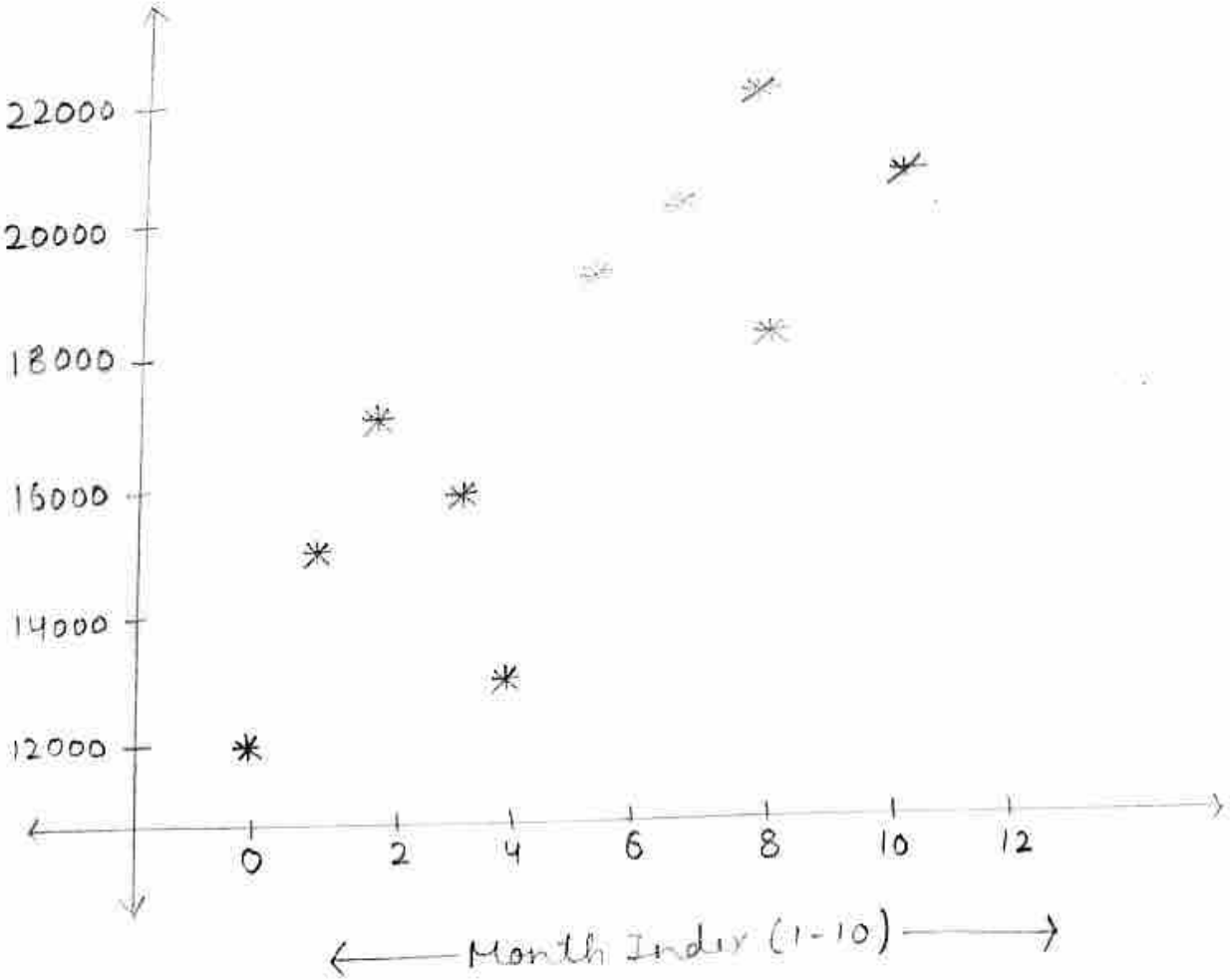
## # Bar Chart



## # Histogram




## # Scatter Plot



## # Task 3 :

Write 3-5 insights based on your Visualization and Explain what decision Can be Made from them.

1. Sales Show a Consistent upward trend :

> Insight : from the Scatter plot, Sales gradually increase month by month, peaking around Sep.

> Decision : The Company should Continue Marketing and Sales Stragies since they are leading to growth.

2. Low Sales in the initial Months.

> Insight : The bar chart Shows that the first few months have noticeable lower Sales Compared to later Months.

> Decision : Management Can focus on promotional offers or advertising in the early Month to boost demand and balance yearly Sales.

3. Most Sales fall between ₹15000-₹20000

> Insight : The histogram indicates that the majority of Sales are with in this range, meaning Performance is Stable.

> Decision : This Can be used to set realistic Monthly Sales target and ensures Performance against the usual range.

# Task 4:

Reflect on how visual Storytelling enhance data interpretation?

⇒ Visual Storytelling transforms raw data into clear, Meaningful insights, When data is Shows through charts, graphs, and visuals, it becomes easier for people to See patterns, trends and relationship that Might be hidden in number alone. for example in the Sales data set, a bar chart quickly Shows which months had height or lower Sales, a bistagram highlights the overall distribution of performance, and a Scatter plot Makes the upward trend instantly visible. These visuals tell a Story of business growth for more effectively than a table of figures.

Visual Storytelling also make data more engaging and memorable. Instead of analyzing long list of number, viewers Can interpret the meaning at a along at a glance, helping them make faster and bitter decision. It encourage understanding through Context - not just what happened but why it happened.