

# ASSIGNMENT

## 3

Course Foundation of Data-Driven Decision Making

Code E1SEDD111

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## [ Task 1 : Descriptive Statistics ]

\* Dataset (Weekly Sales) :

[ 12000, 15000, 13500, 16000, 17000, 14000, 15000, 15500, 16500, 18000 ]

→ Calculations

\* [Mean] = Add all values and calculate average

$$\Rightarrow 12000 + 15000 + 13500 + 16000 + 17000 + 14000 + 13000 + 15500 \\ + 16500 + 18000$$

$$\Rightarrow 150,500 = \frac{150,500}{10} = [15,050]$$

\* [Median] Sort all the values

12000

13000

13500

14000

15000

16000

16500

17000

18000

Median = Avg. of 5<sup>th</sup> & 6<sup>th</sup> Values

$$= (15000 + 15500) / 2$$

$$= [15,250]$$

## \* Standard Deviation

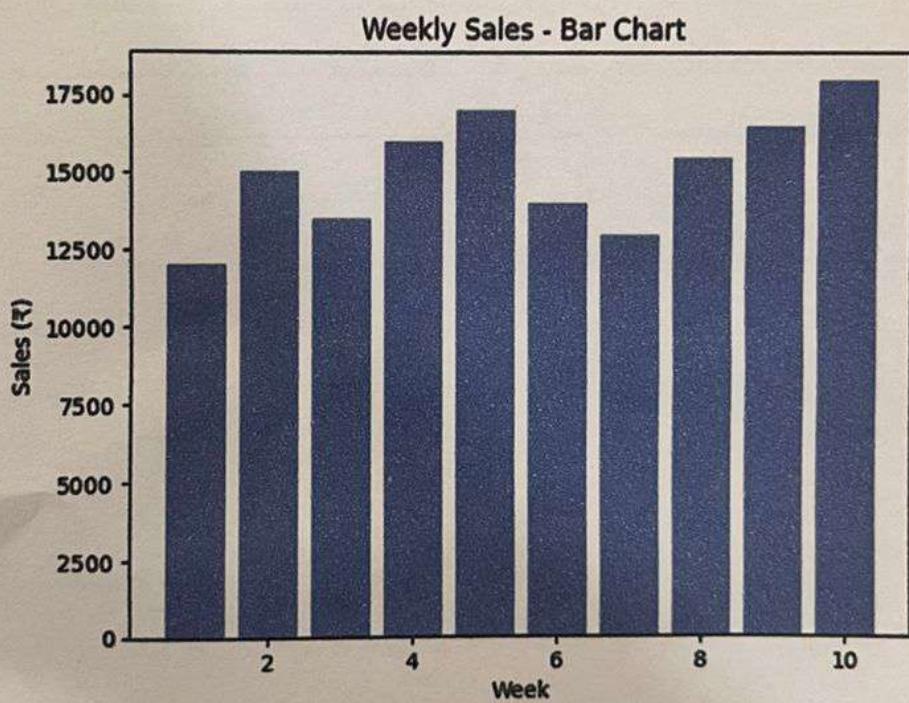
- Find the mean  $\rightarrow 15,050$
- Subtract mean from each value  $\Rightarrow$  get deviations
- Square each deviations
- Add all squared values
- Divide by 10 (Population SD)
- Take square Root  $\Rightarrow [1,700]$

$$\star \quad [\text{Standard Deviation} = 1700]$$

## [ Task 2 : Data Visualizations ]

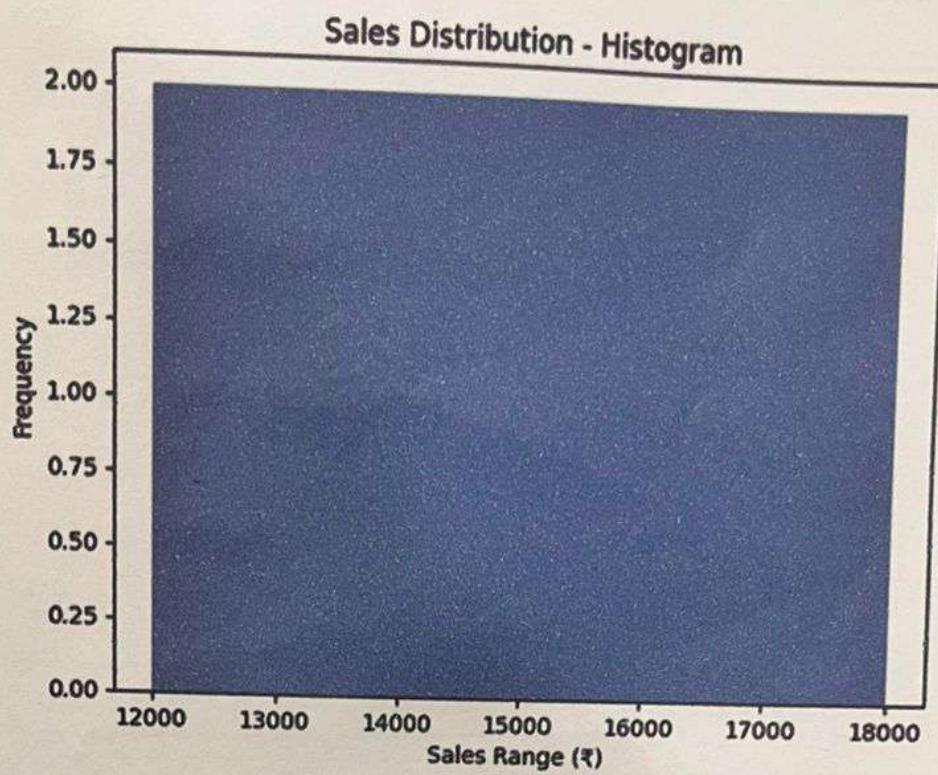
## 1) Bar Chart

This shows the sales amount week-by-week and helps compare performance directly



2)

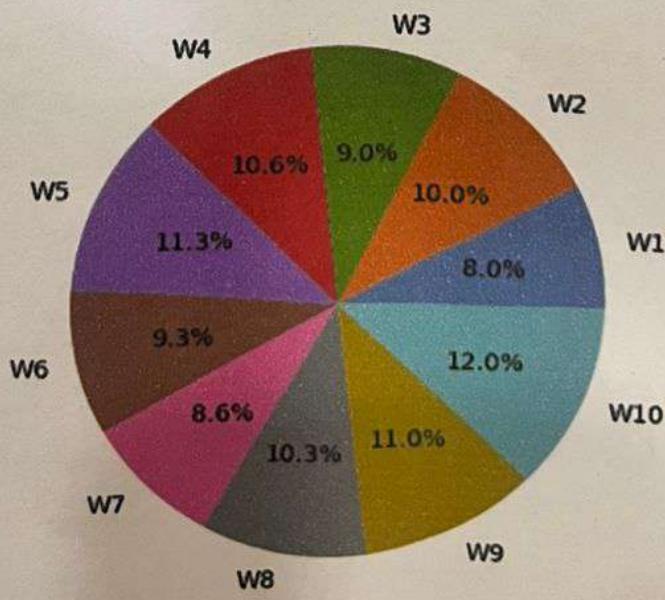
Histogram



3)

Pie chart

**Sales Contribution by Week - Pie Chart**



## [Task 3: Insights from the Visuals]

After looking at the charts and descriptive statistics together, a few insights clearly appear:

- [Overall upward trend]:

Sales gradually improve, especially in the last four weeks. This might be due to seasonal factors or improved marketing.

- [Stable Performance Range]:

Most sales fall between £14K - £17K, showing consistent customer footfall and predictable demand.

- [No extreme drops]: There are no sharp decreases or unusual outliers, meaning business performance is steady & reliable.

- [Weeks 9-10 stand out]: The pie chart shows these two weeks form a significant chunk of total sales.

- [Good Planning Insight]: From these patterns, the shop can plan inventory better and use successful weeks as a reference.

## [Task 4: Reflection on Visual Storytelling ]

Visual Storytelling makes data much easier to communicate. Instead of only relying on tables or long explanations, charts instantly show patterns, trends and differences. For example, the bar chart clearly shows which weeks performed best, while the pie chart quickly communicates contribution percentages.

Using visuals also make reports more engaging and help non-technical people understand insights without needing deep statistical knowledge.

Overall, visuals do play a big role in making data-driven decisions faster and clearer.