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Assignment - 3

Name - Jatin Sehrawat

Roll No. - 25016600 30

Course - BCA Cybersecurity

Subject - Foundations of Data-Driven Decision Making

Course Code - ETSEDD111

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Task 1 - Descriptive Statistics

Product	Units sold	Price per unit	Revenue
Laptop	15	50000	750000
Mouse	40	500	20000
Keyboard	25	1500	37500
Monitor	10	12000	120000
Charger	30	800	24000
Laptop	18	50000	900000
Mouse	55	500	27500
Keyboard	20	1500	30000
Monitor	8	12000	960000
Charger	35	800	28000

Unit Sold Values:
15, 40, 25, 10, 30, 18, 55, 20, 8, 35

$$\text{Mean} = \frac{\text{Sum of all values}}{\text{Number of values}}$$

Sum = 256

$$\text{Mean} = \frac{256}{10} = 25.6$$

Median:
8, 10, 15, 18, 20, 25, 30, 35, 40, 55
For 10 values, median = average of 5th & 6th value

$$\text{Median} = \frac{(20 + 25)}{2} = 22.5$$

Standard Deviation

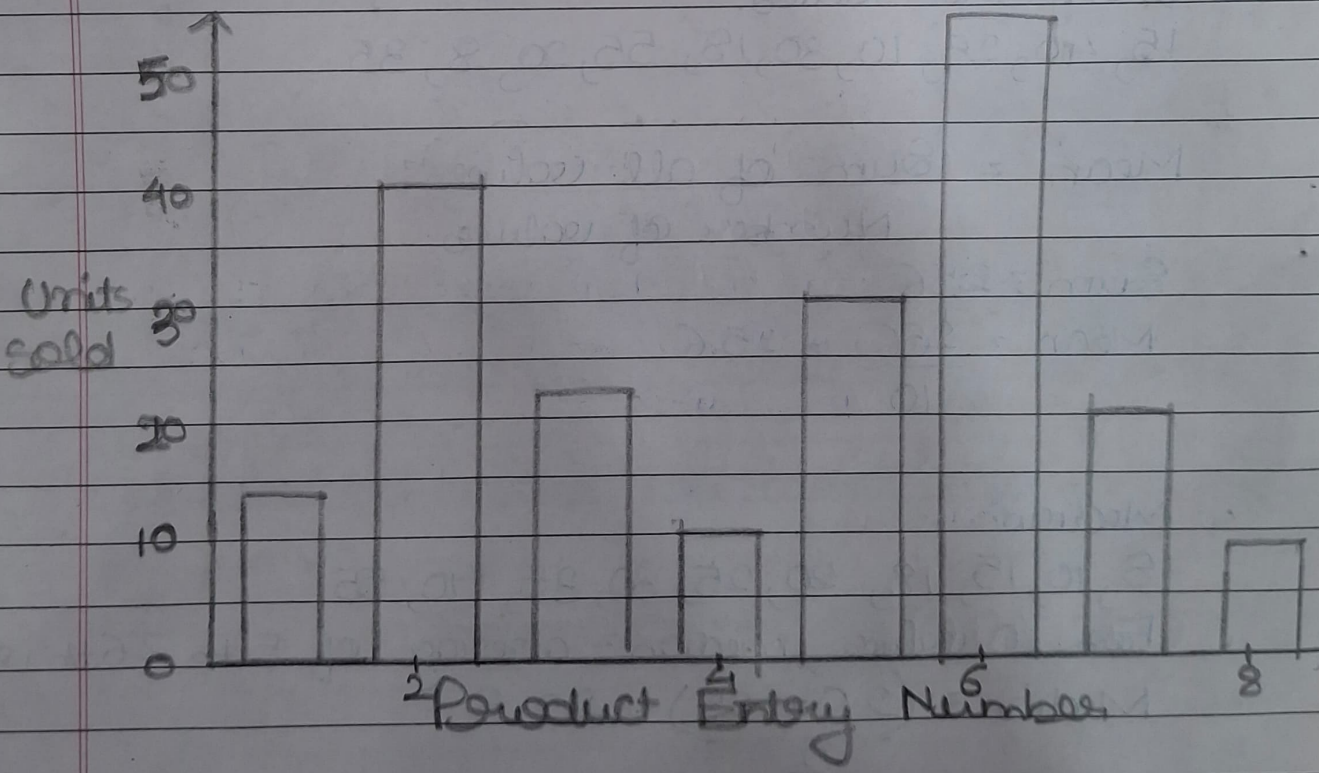
$$SD = \sqrt{\frac{\Sigma(x - \bar{x})^2}{n-1}}$$

$SD \simeq 15.56$

Task 2 -

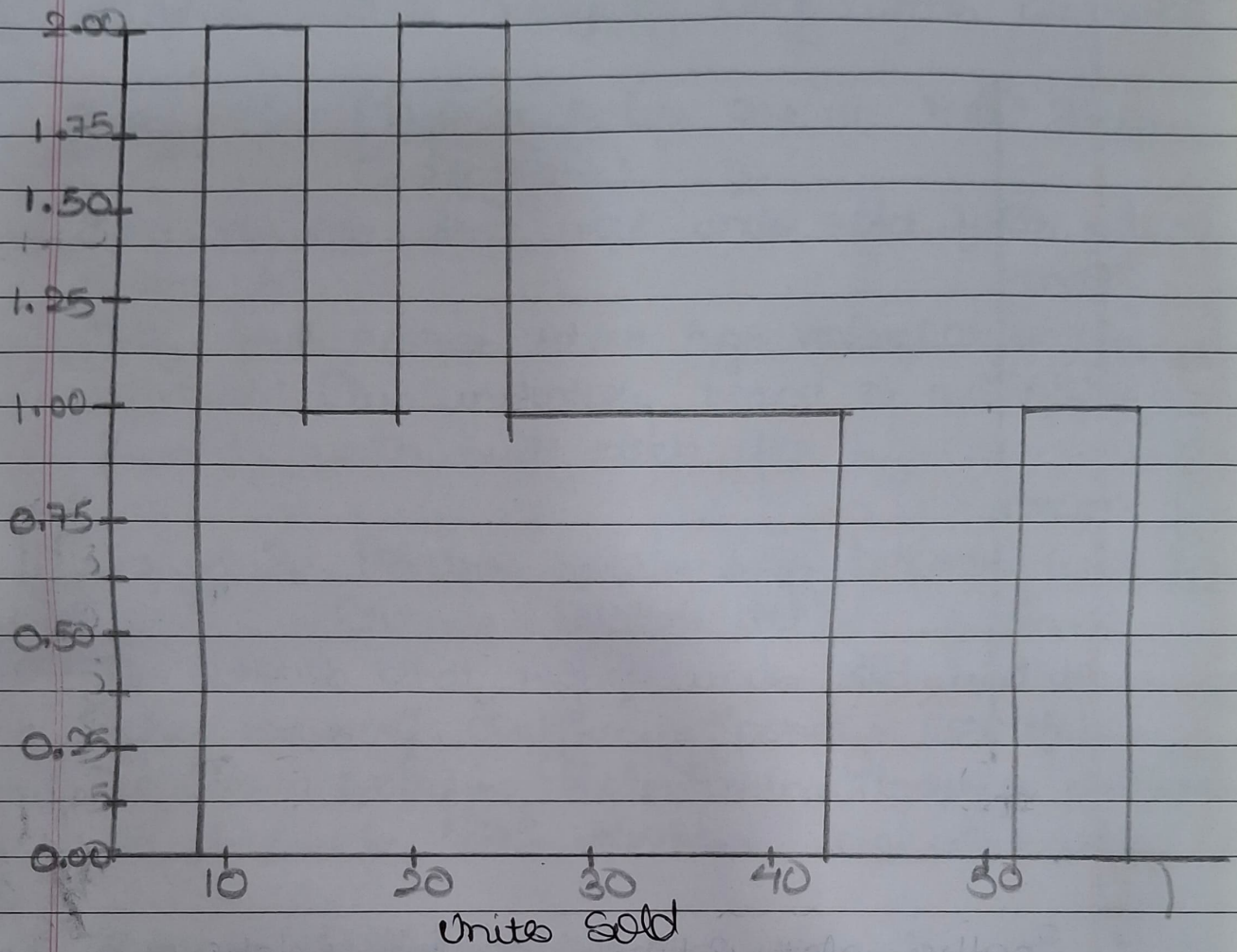
Unit Sold values:
15, 40, 25, 10, 30, 18, 55, 20, 8, 35
Revenues:
750000, 20000, 37500, 120000, 24000, 900000, 27500, 30000, 96000, 28000

Chart 1 - Bar Chart (Units Sold by Product Entry



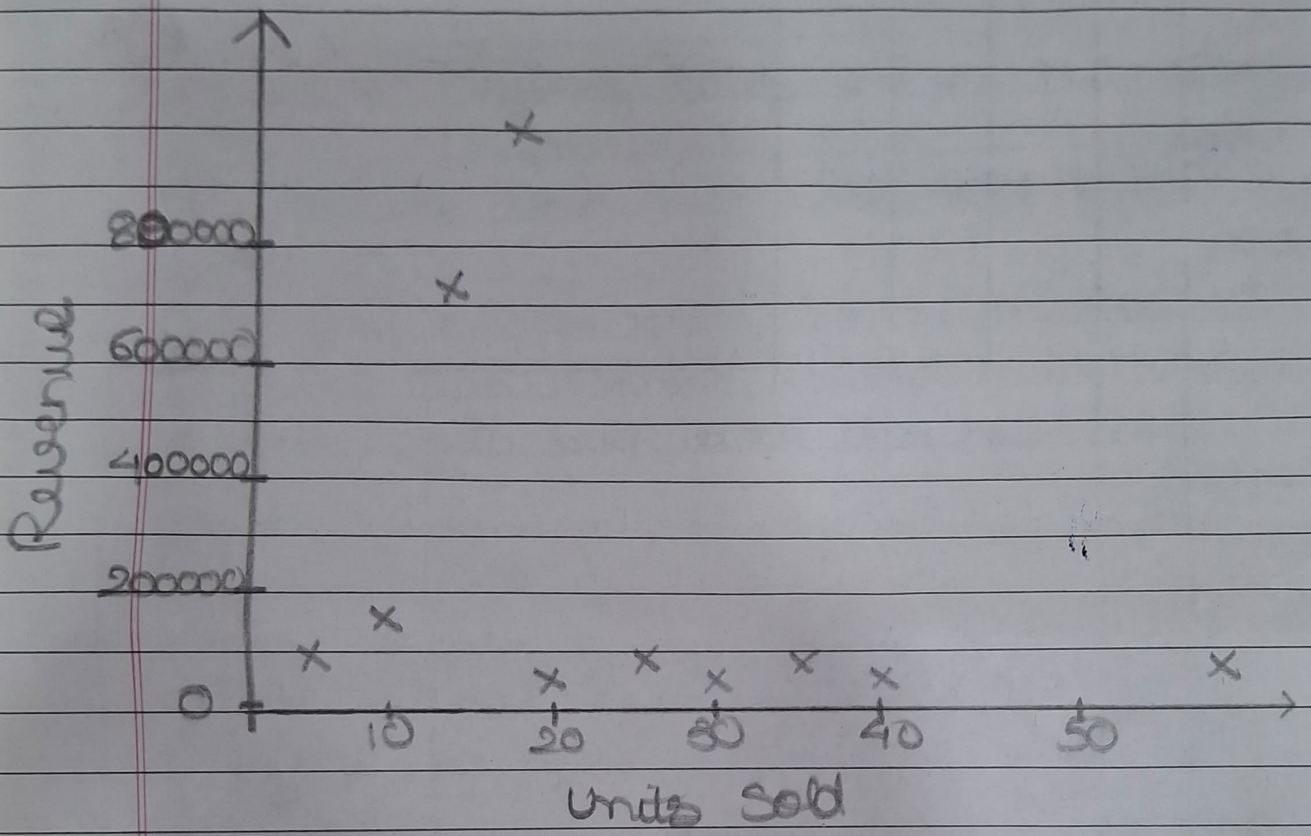
Bar chart shows that 'Mouse (Row 7)' and 'Laptop (Row 6)' have highest unit sold, while 'Monitor (Row 8)' has lowest.

Chart 2- Histogram (Distribution of Units Sold)



Histogram shows that most product falls in 10-30 units sold range, while very high sales (above 50) are rare.
This indicates sales are mostly moderate with few peaks.

Chart 3 – Scatter Plot (Units Sold vs Revenue)



Scatter plot shows positive relationship between solds and revenue. Higher units sold generally lead to higher revenue, confirming that demand strongly influences ~~earnings~~ earnings.

Task 3 – Insights Based on Visualisation.

Insight 1 – High Variation in Unit Sold (Bar Chart)
The chart shows large differences in units sold across entries.
Like Laptop (Entry 6) and Mouse (Entry 7) have much higher Sales than others while Monitor (Entry 8) has lowest.

Decision:- Focus marketing and stock on top selling items while analyzing why items not sold.

Insight 2 - Majority Sales are in Mid-Range (Histogram)

It indicates that most units sold falls between 10 and 30.

Only few entries show high sales (above 50).

Decision:- Plan inventory based on mid-range demand, with bulk stock for high-demand items.

Insight 3 - Positive relationship between Sales & Revenue (Scatter plot)

It shows that higher units sold lead to higher revenue, confirming positive correlation.

Decision:- Boosting sales volume through promotion or discounts can increases total revenues.

~~Task 4 - Reflection on How Visual~~

Insight 4 - Outliers in Sales Performance.

One of two entries show high sales (55 units), which creates spikes in both bar & scatter chart.

Decision:- Investigate what caused spikes - seasonal demand, discount or marketing

Insight 5 - Consistent Medium Performance across products.

Several entries (20-30 units) show performances.

Decision:- These products can form core inventory because they ensure monthly revenue.

Task 4 - Reflection on How Visual Storytelling Enhances Data Interpretation

It plays a crucial role in understanding data because it transforms numbers into clear, meaningful patterns. Bar charts, histogram & scatter plot helped simplify complex sales information by showing trends.

Bar chart allowed quick comparison of sales across different product, which makes it easy to identify which items performed well and weak. Histogram showed distribution of units sold, to understand whether sales were concentrated in specific range. Scatter plot highlights relationship between units sold & revenue, visually confirming positive correlation.