Exploring Relationship Using Correlation

Introduction

Correlation is a statistical method used to measure the relationship between two variables. It shows whether variables increase or decrease together and how strongly they are related. The correlation value ranges between -1 and +1.

- +1 indicates strong positive correlation.
- -1 indicates strong negative correlation.
- 0 indicates no relationship.

Dataset 1:

Study Hours vs. Exam Scores

Study Hours: 2, 3, 4, 5, 6

Exam Scores: 40, 50, 60, 70, 85

Observation:

As study hours increase, exam scores also increase. The calculated correlation is approximately +0.98, showing a strong positive correlation. This means students who study more hours generally score higher marks.

Dataset 2:

Screen Time vs. Productivity

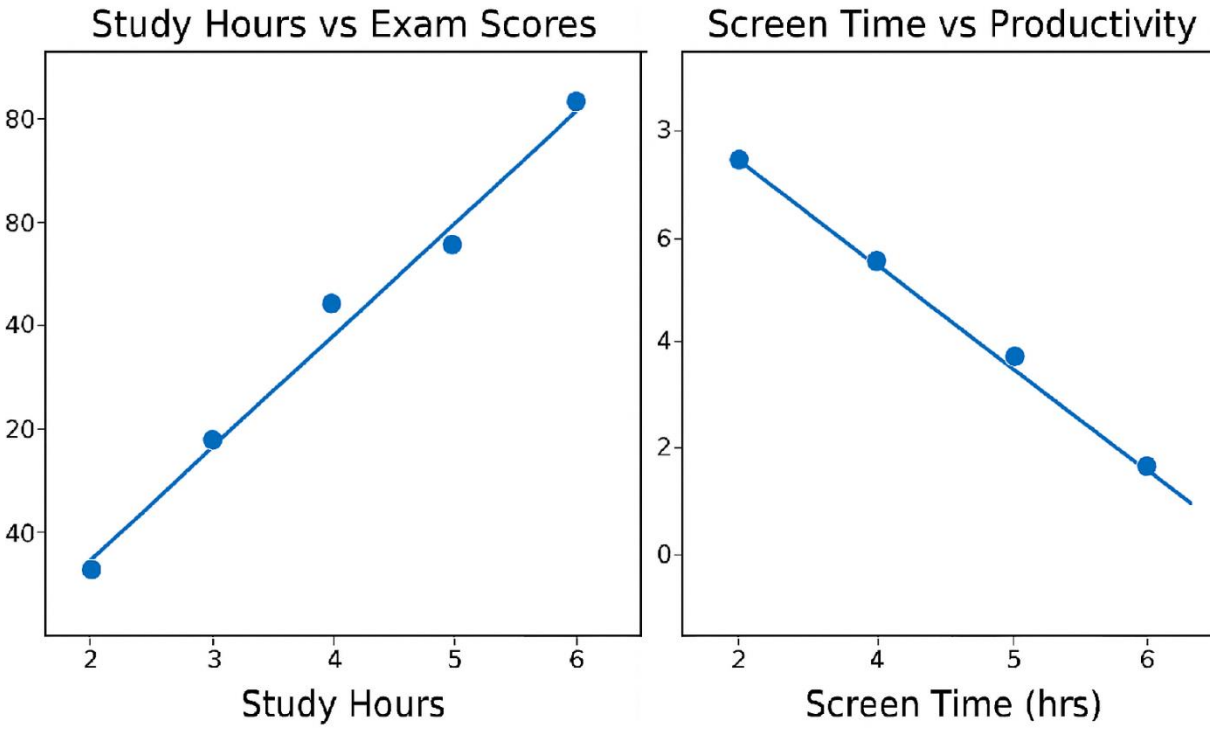
Screen Time (hrs): 2, 3, 4, 5, 6

Productivity: 9, 8, 6, 5, 3

Observation:

As screen time increases, productivity decreases. The calculated correlation is approximately -0.97, showing a strong negative correlation. This suggests that higher screen time may reduce productivity.

Graph



Analysis

Study hours and exam scores show positive correlation, while screen time and productivity show negative correlation. Correlation helps identify patterns in data but does not always mean causation.

Conclusion

This task helped in understanding how correlation is used to analyse relationships between real-life variables. It demonstrated both positive and negative correlations using simple daily-life datasets.