**Data collection ;**we will use the following collected data for a sample of students ,their scores and number of hours studied per week

**Method of collection ;**we will use sample selection and assume the sample consist of 15 students .The data has been collected for each student ,representing a range of scores and hours studied.

Number of students :15 students

**Data organisation**

The following table displays the data for exam scores and hours studied

|  |  |  |
| --- | --- | --- |
| **student** | **Exam score out of 100** | **Hours of study per week** |
| 1 | 85 | 5 |
| 2 | 90 | 10 |
| 3 | 78 | 8 |
| 4 | 88 | 6 |
| 5 | 92 | 12 |
| 6 | 70 | 4 |
| 7 | 65 | 3 |
| 8 | 95 | 9 |
| 9 | 80 | 7 |
| 10 | 75 | 11 |
| 11 | 82 | 10 |
| 12 | 84 | 5 |
| 13 | 91 | 6 |
| 14 | 89 | 8 |
| 15 | 76 | 9 |

**Calculating measures**

*Exam scores*

Mean ==82.67

Median = 65,70,75,76,78,80,82,**84,**85,88,89,90,91,92,95=84

Mode ;there is no repeating score so the mode does not exist

*Hours studied*

Mean ==7.53

Median =3,4,5,6,6,7,8,**8**,9,9,10,10,11,12=8

Mode = 6,8,9,10 all repeat two times

**4. Data Interpretation**

Exam Scores:

The mean score of approximately 82.67 indicates a generally good performance in the group.

The median score of 84 is close to the mean, suggesting a balanced distribution without significant skewness.

The absence of a mode indicates a variety in the scores, with no single score repeating.

Hours Studied:

The mean hours studied is approximately 7.53, indicating the average amount of weekly study time.

The median of 8 suggests that half of the students studied more than 8 hours, and half studied less.

The modes of 5 and 8 show that these study amounts were the most common among students.

Outliers:

For exam scores, the scores of 65 and 95 could be considered outliers. These outliers slightly affect the mean by pulling it towards the extremes.

For hours studied, the extremes of 3 and 12 hours could also be considered outliers, potentially impacting the mean more than the median.

Comparing sample to entire class:

If data were collected from the entire class, the measures of central tendency could shift depending on the performance and study habits of additional students. A larger dataset could reduce the impact of outliers.

**5. Conclusion**

The analysis shows that the students generally performed well, with an average score in the low 80s. Study habits varied, with a range of hours studied each week.

Key insights include the effect of outliers on the mean and the usefulness of the median for understanding the central tendency of the data. This project reinforced the importance of selecting appropriate measures of central tendency based on the nature of the data

Since the number of hours studied affect the performance of the students the students are urged to study more for good grades.