**Data visualization tasks:**

**Task-1: Graph describing the scores based on the ‘Parental Education Level’**

**A graph showing different colored bars

Description automatically generated with medium confidence**

The below graph describes the average math, reading, and writing scores of students grouped by their parent’s level of education. The graph shows that, on average, students who have higher levels of education tend to score higher on both reading and math tests. For example, students whose parents have a master's degree have an average reading score of around 75, while students whose parents have only some high schools have an average reading score of around 65. The same pattern is seen for math score.

**Task-2: Graph describing the outliers for math, reading, writing scores**

**A diagram of different scores

Description automatically generated**

From the above graph, we can notice that math scores have the widest range. The reading scores have the narrowest range, with the least difference between the maximum and minimum scores. There are more outliers in the math scores and writing scores than in the reading scores. The median score for math is lower than the median score for reading and writing.

**Task-3: Graph describing the groups distribution.**

**A pie chart with different colored circles

Description automatically generated**

The above pie chart shows the distribution of five groups that are A, B, C, D, and E. Group C is the largest group, accounting for 31.9% of the total. Group D is the second largest group, accounting for 26.2% of the total. Group E is the smallest group, accounting for only 8.9% of the total.

**Task-4: Graph describing the correlation among different scores**

**A red and blue squares with white text

Description automatically generated**

The plot shows that there are strong positive correlations between math scores, reading scores, and writing scores. This suggests that students who tend to do well in one of these subjects also tend to do well in the others. For example, the correlation coefficient between math scores and reading scores is 0.82, which is a strong positive correlation. This means that students who scored higher in math also tended to score higher in reading.

**Task-5: Graph describing different types of lunch.**

**A graph with orange rectangular bars

Description automatically generated with medium confidence**

The most popular lunch choice is the standard lunch, with more than 600 people having chosen it. The reduced lunch is the least popular choice, with only 300 people having chosen it.

**Task-6: Graph describing Percentage of Parental Level of Education based on Gender**

**A screenshot of a graph

Description automatically generated**

From the above graph, among females a greater number of females have completed the test preparation course. The same behavior is also seen among the males.

**Conclusion:**

1. On average, males outperformed females in math test.

2. Conversely, females demonstrated higher average scores in reading and writing test.

3. The parental level of education factor has a good influence on the student performance.

4. There exists a strong positive correlation between the scores. A high positive correlation suggests that the scores exhibit to move in the same direction. When one score rises, the other score also tends to rise, and conversely, when one score declines, the other score also tends to decline.