

Students Performance

To understand the influence of the parents background, test preparation etc on students performance



BASED ON



Gender



Race/Ethnicity
(Group)



Parental Level
Education



Lunch



Test Preparation
Course



Math Score



Reading Score



Writing Score

OVERVIEW

1. gender: This dataset includes both female and male students.
2. group: The social group of students, which may indicate various social backgrounds or schools that students come from.
3. level_education: The educational level of the student's parents, such as an associate's degree, bachelor's degree, master's degree, or multiple colleges.
4. lunch: A type of lunch student meal, which can be standard (paid) or free/reduced (free or reduced).
5. test_preparation_course: whether the student has taken the test preparation course or not (completed or none).
6. math_score: The student's math test score.
7. reading_score: The student's reading test score.
8. writing_score: The student's writing test score.
9. average: The average of the math, reading, and writing scores for each student.

QUESTION

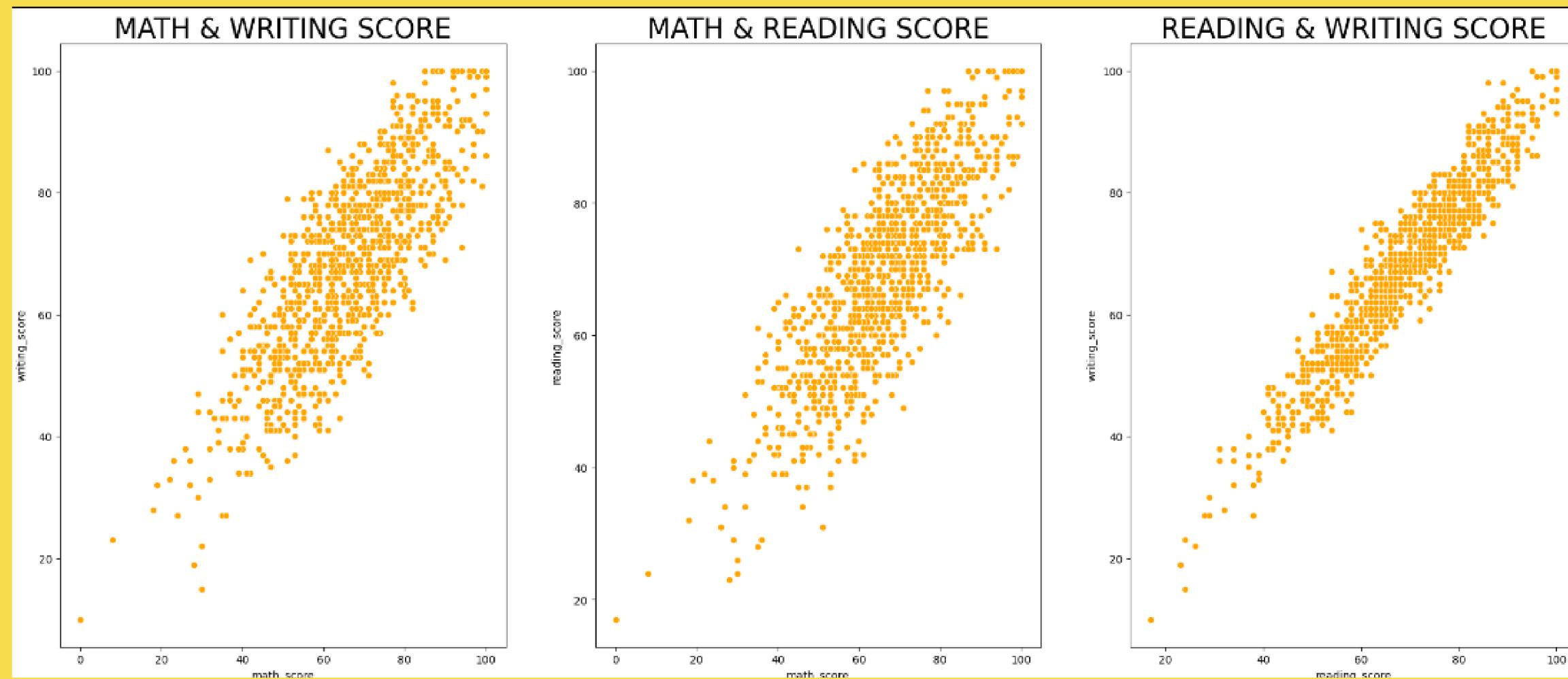
1. How to improve student performance in each test?
2. What are the main factors that influence test scores?
3. Effectiveness of exam preparation courses?
4. Another conclusion



CORRELATION



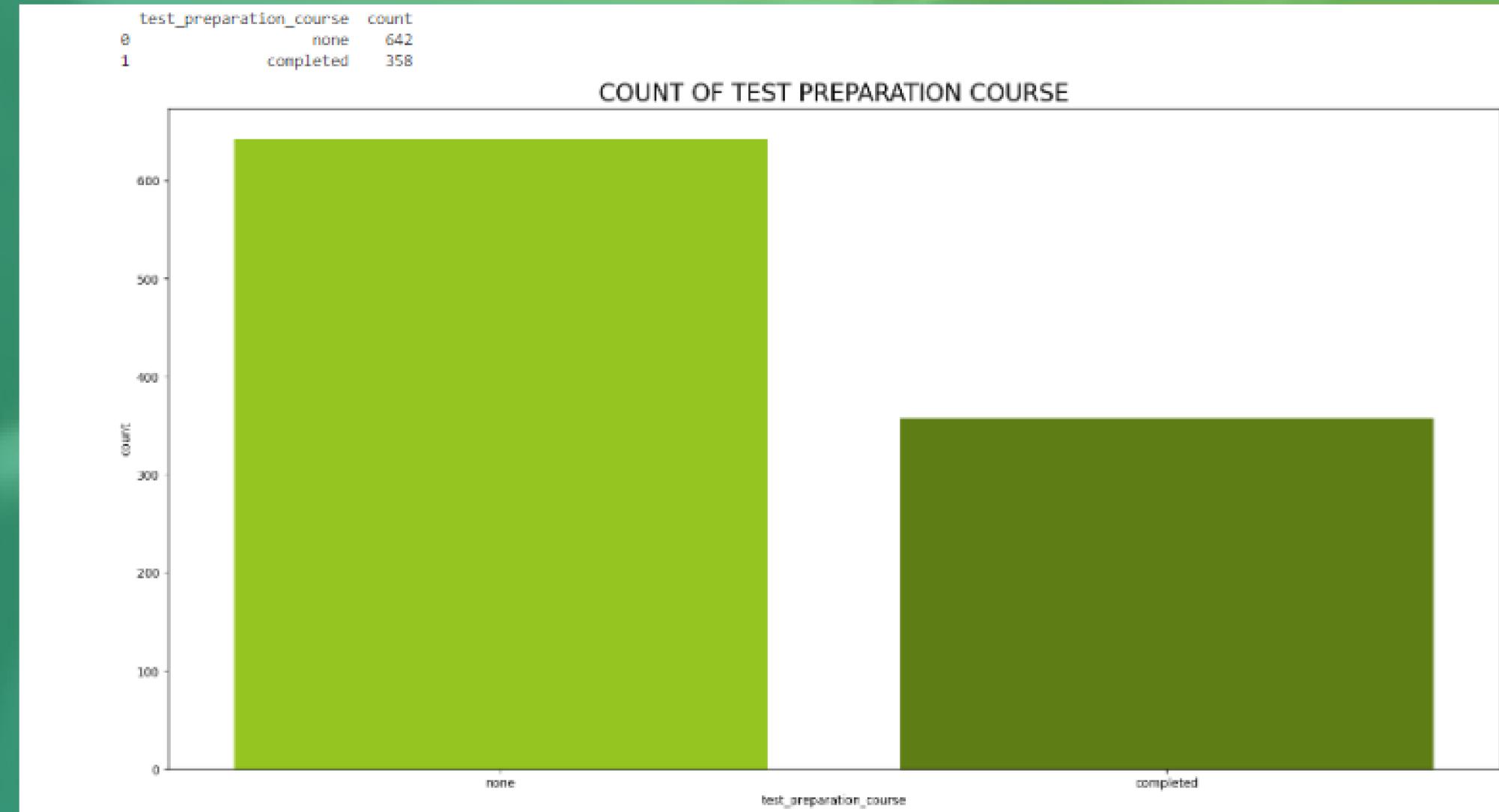
Relationship scores from between each. especially in the reading and writing section. their relationship is very close. This indicates that students who have high scores in reading are certain to have good scores in writing



PREPARATION TEST COURSE



A total of 642 students did not take exam preparation, while 358 students took exam preparation. Students who take test prep tend to score slightly higher than those who don't.



AVERAGE SCORE

Based on Dataset, Average Math Score, Reading Score, and Writing Score:

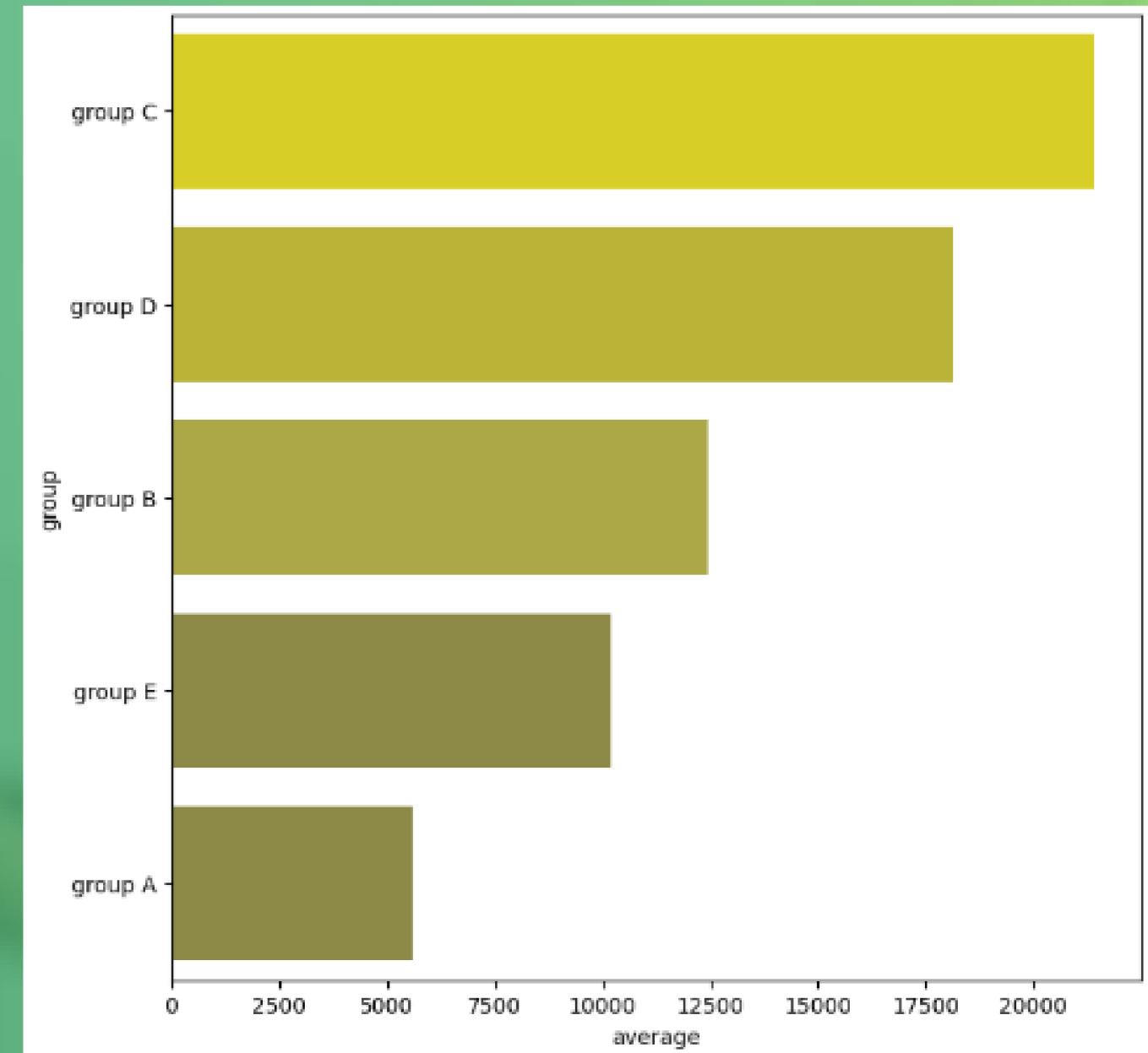
The average math score is around 66.09, the reading score is around 69.17, and the writing score is around 68.05. The average overall score (average of the three scores) is about 67.77.



AVERAGE BASED ON GROUP



Group C had the highest number of students (319), followed by group D (262), group B (190), group E (140), and group A (89). Group C had the highest average score, followed by groups D, E, B and A.



AVERAGE BASED ON PARENTAL LEVEL OF EDUCATION



Students with masters-level parents had the highest grade point average, followed by bachelors and associates.

THE TOP AVERAGE SCORE

```
[101]: df[df.average == df.average.max()]
```

	gender	group	level_education	lunch	test_preparation_course	math_score	reading_score	writing_score	average
458	female	group E	bachelor's degree	standard	none	100	100	100	100.0
916	male	group E	bachelor's degree	standard	completed	100	100	100	100.0
962	female	group E	associate's degree	standard	none	100	100	100	100.0

THE BOTTOM AVERAGE SCORE

```
[102]: df[df.average == df.average.min()]
```

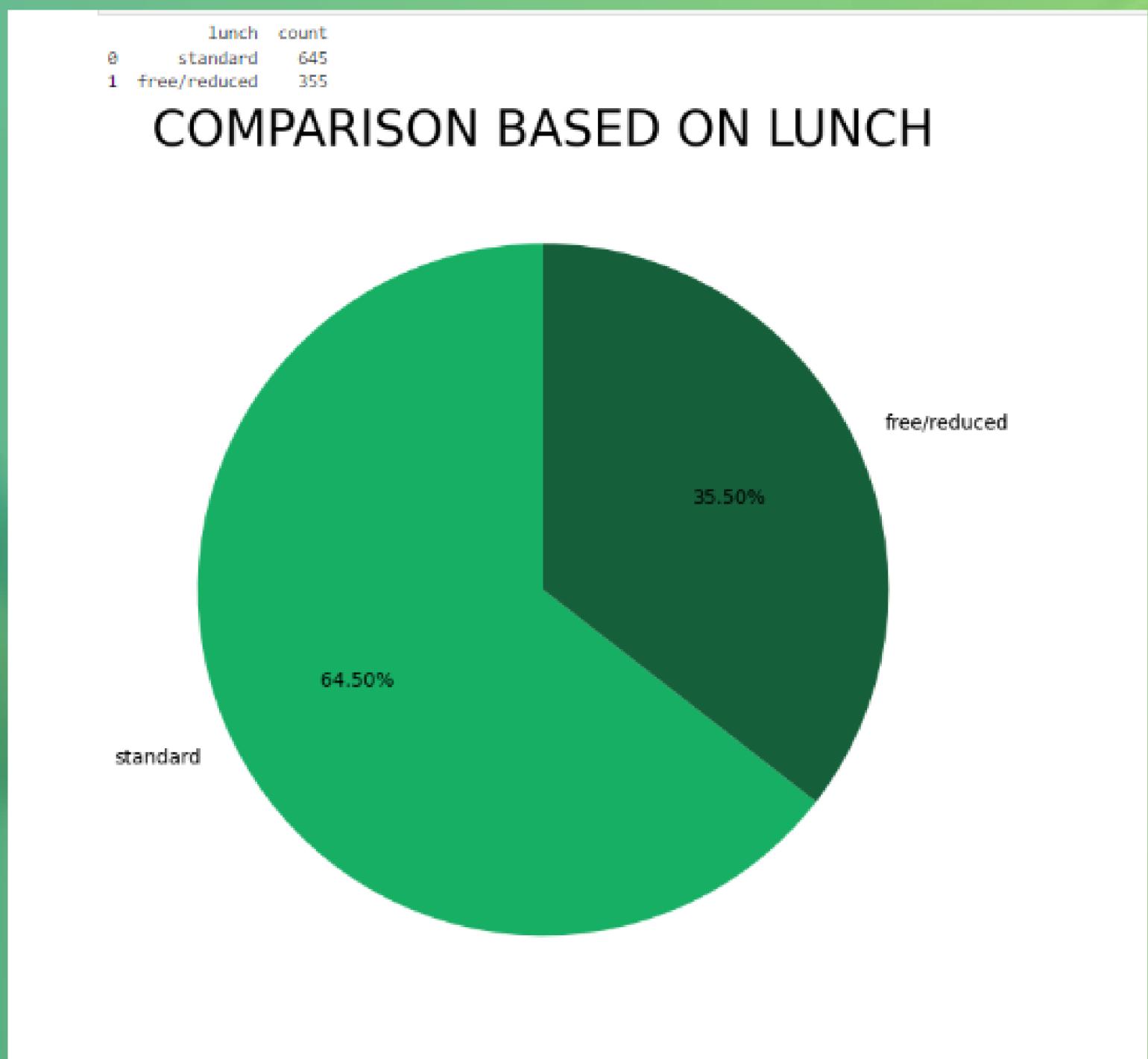
	gender	group	level_education	lunch	test_preparation_course	math_score	reading_score	writing_score	average
59	female	group C	some high school	free/reduced	none	0	17	10	9.0



BASED ON LUNCH



The majority of students (645) had a standard lunch, while 355 students had lunch at a lower price. There was no significant difference in the distribution of scores by type of lunch.



HOW TO IMPROVE STUDENT PERFORMANCE IN EACH TEST??



Based on data analysis, although there is no single factor that is significant, there are several variables that have the potential to influence student performance. To improve student performance, you might consider the following approaches:

- Conduct individual evaluations to identify student weaknesses in each subject and provide additional assistance as needed.
- Develop a comprehensive test preparation program with a focus on the key subject matter tested.
- Encourage participation in test preparation programs, bearing in mind that students who do prep tend to have higher scores.

MAIN FACTORS INFLUENCING EXAM SCORES



Although the analysis shows that no single factor is dominant, several factors that need to be considered in understanding student test scores are:

- Student preparation level: Students who take exam preparation tend to have higher scores.
- Ethnic groups: There is a difference in scores between ethnic groups, although not significant. This shows the importance of respecting and supporting cultural diversity in the learning process.
- Type of lunch: There was no significant difference in the distribution of scores by type of lunch.

EFFECTIVENESS OF EXAM PREPARATION COURSES



The analysis shows that students who take test preparation courses tend to have higher scores. However, to assess the effectiveness of the course in more detail, you may consider the following steps:

- Conduct follow-up studies to measure score improvement before and after taking the course.
- Analyze the specific elements in the course that have most contributed to improving student scores.
- Gather feedback from students who have taken the course to understand their experiences and areas of improvement.

OTHER CONCLUSIONS



Based on data analysis, it can be concluded that in this context, there is no single factor that significantly influences students' math, reading, and writing scores. Nonetheless, the distribution of scores shows certain patterns by ethnic group and participation in test preparation programs. It is important to note that external factors such as motivation, family support, and psychological factors may also contribute to academic outcomes, although they were not explicitly identified in this analysis.





Let's Connect



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