Students Performance

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# Prelude

- The data processing is done by using Python
- The dataset are loaded form kaggle
  (https://www.kaggle.com/datasets/spscientist/students-performance-in-exams)

Data preview:

	gender	race/ethnicity	parental level of education	lunch	test preparation course	math score	reading score	writing score
0	female	group B	bachelor's degree	standard	none	72	72	74
1	female	group C	some college	standard	completed	69	90	88
2	female	group B	master's degree	standard	none	90	95	93
3	male	group A	associate's degree	free/reduced	none	47	57	44
4	male	group C	some college	standard	none	76	78	75

Insights

Reading score has the highest score average with less variability

MATH SCORE

READING SCORE
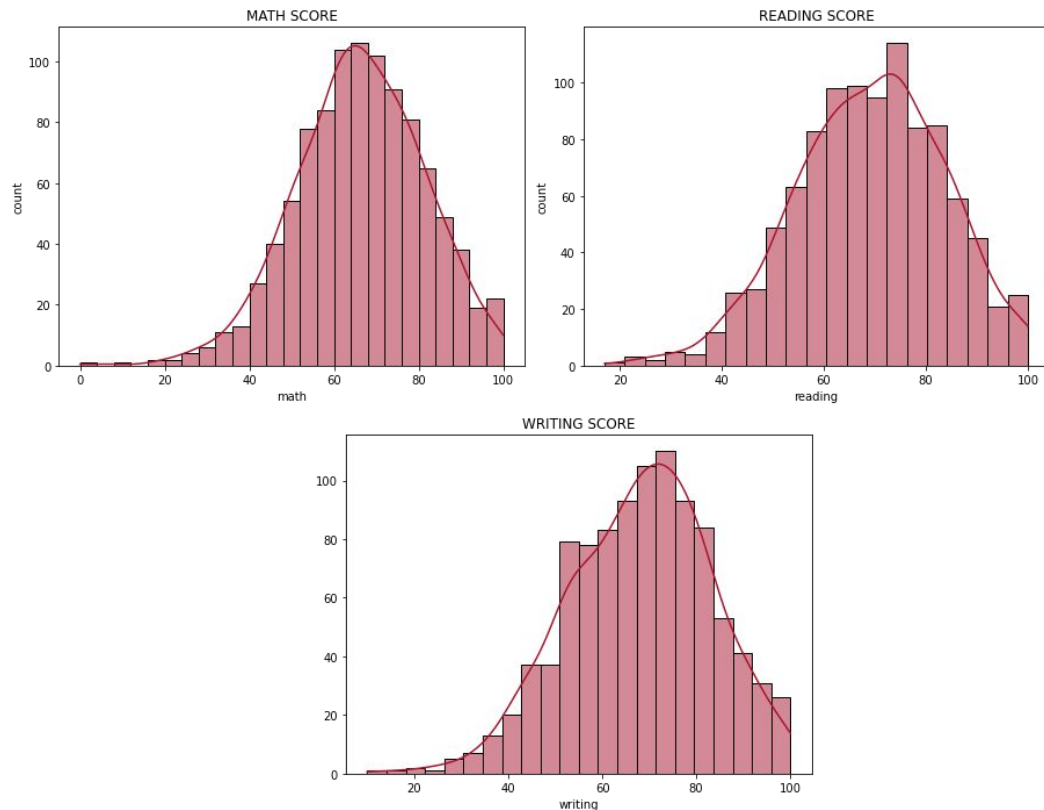
WRITING SCORE

Based on the summary statistic calculation, **student reading** score has the **highest mean** score and the **lowest standard deviation**

| Stat	math	reading	writing
count	1000.00000	1000.000000	1000.000000
mean	66.08900	69.169000	68.054000
std	15.16308	14.600192	15.195657
min	0.00000	17.000000	10.000000
25%	57.00000	59.000000	57.750000
50%	66.00000	70.000000	69.000000
75%	77.00000	79.000000	79.000000
max	100.00000	100.000000	100.000000

4

Female students tend to have the higher score in reading and writing, meanwhile male are more excel in math
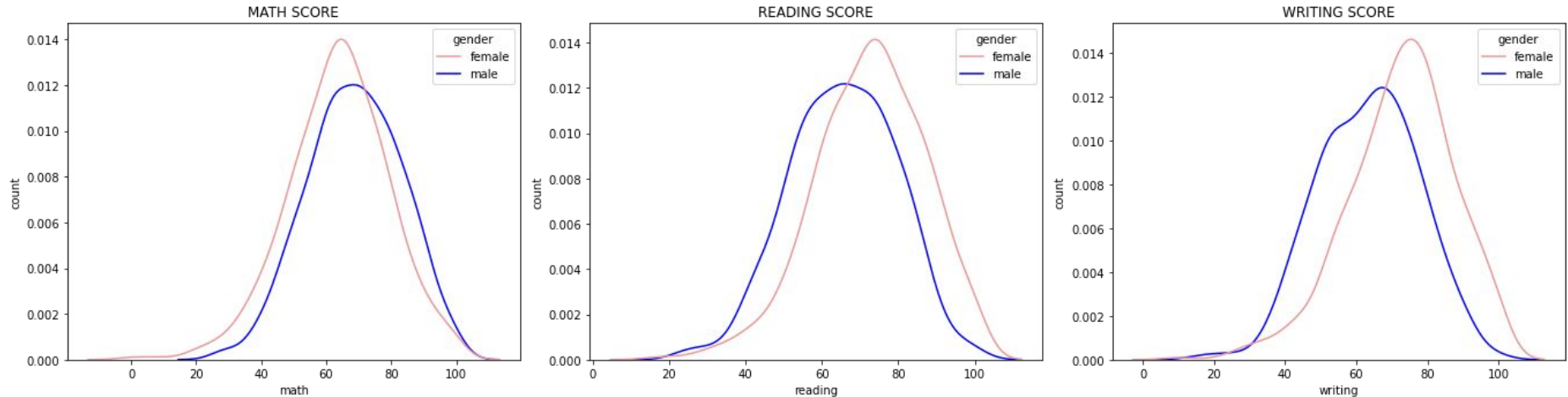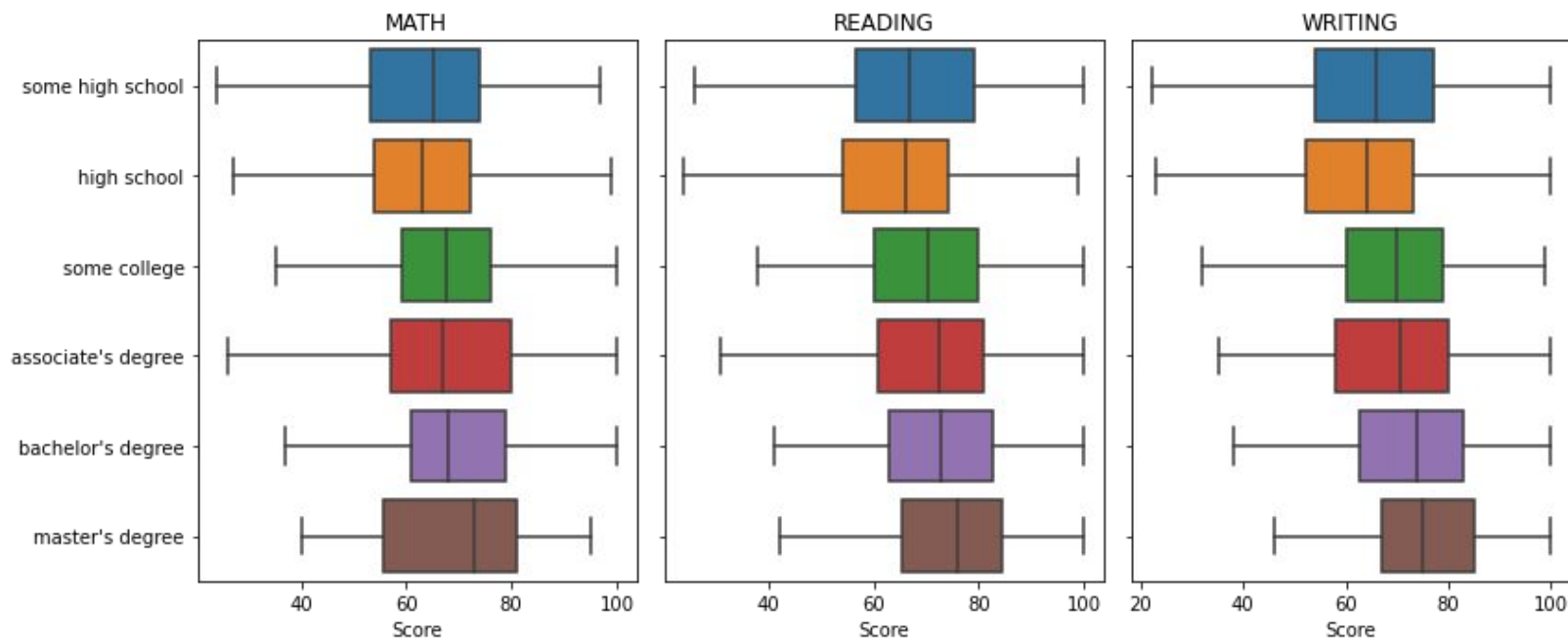

- Male have higher score in math
- The kurtosis for female graphs are higher than male's, meaning that **female students scores are less varied** than male students
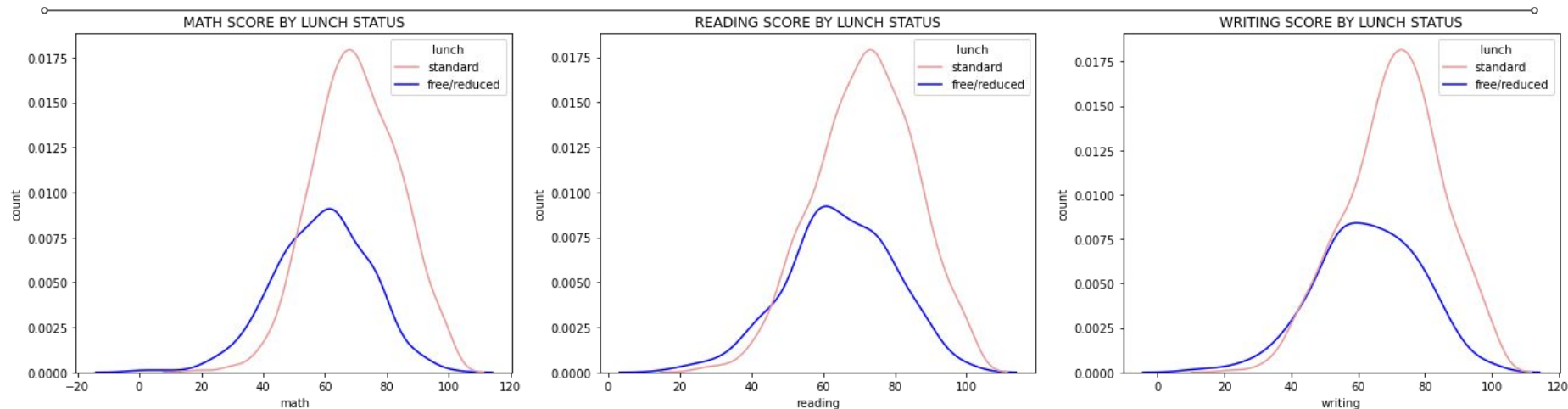
Group E race has the highest median for all scores, while Group A has the lowest median score
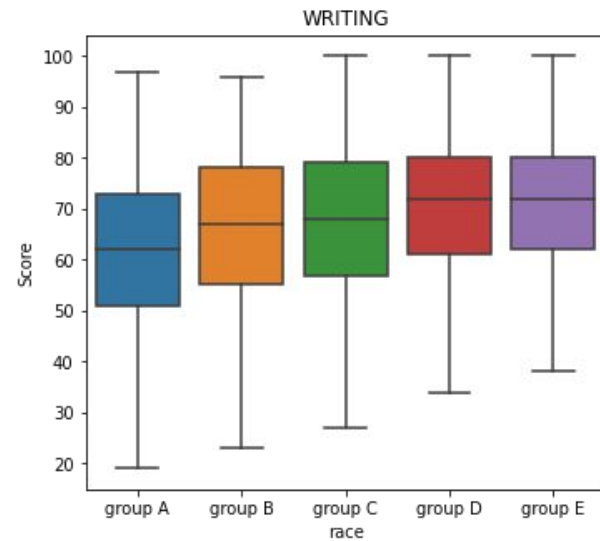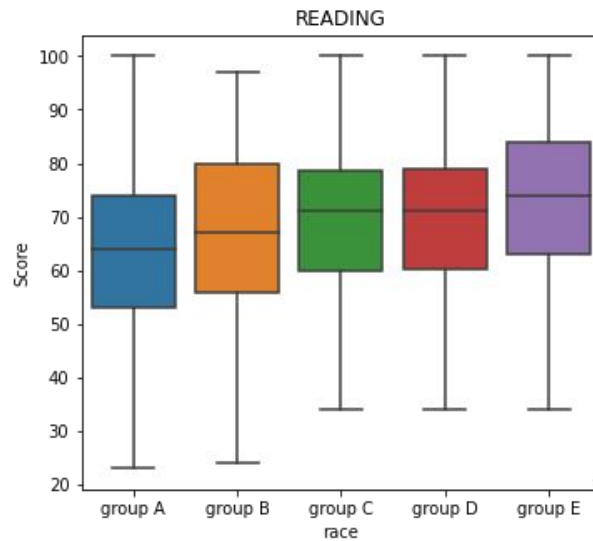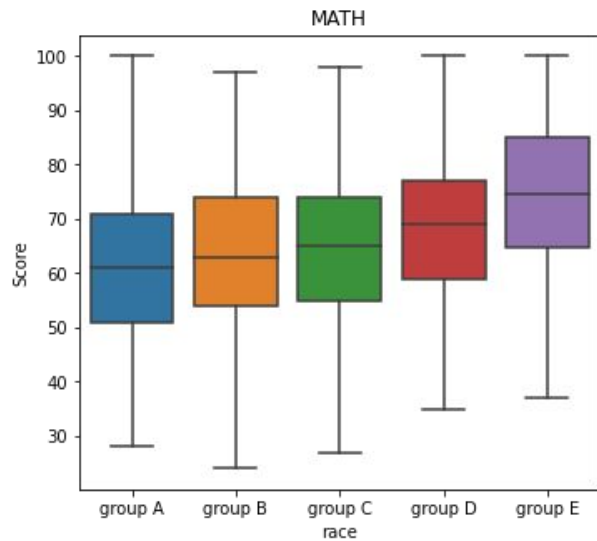
Students scores tend to be better as their parent educational levels are higher
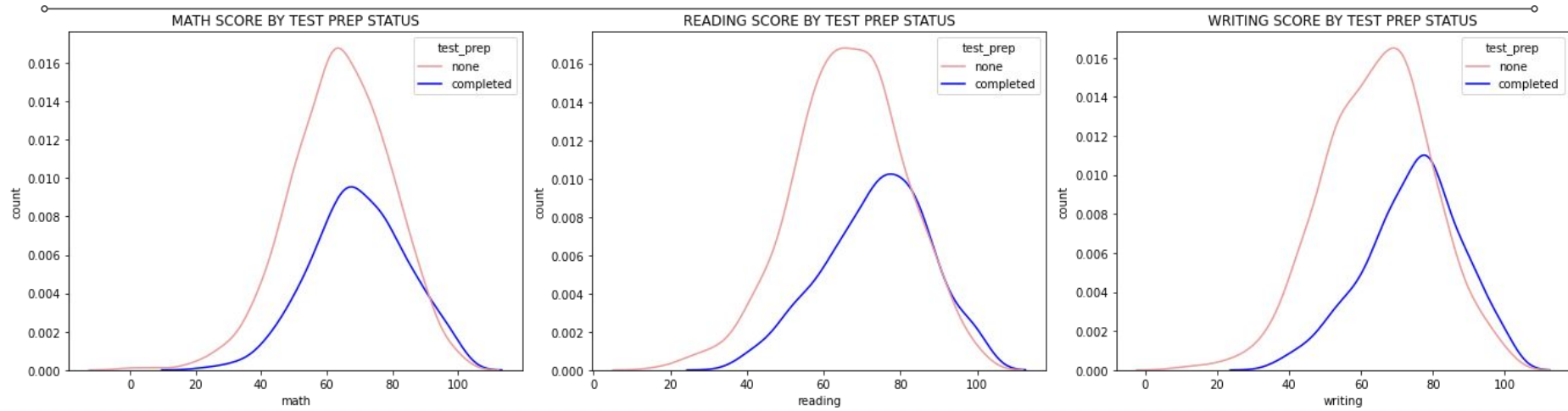
Standard lunch gives a better scorer student

It can also be seen that the **kurtosis for free/reduced lunch students are lower,** meaning that the score are more varied than the students with standard lunch

Students with preparation course are getting higher scores

Students with preparation course are significantly more excel than their peers in reading and writing test

These are the correlation for each variable to the scores
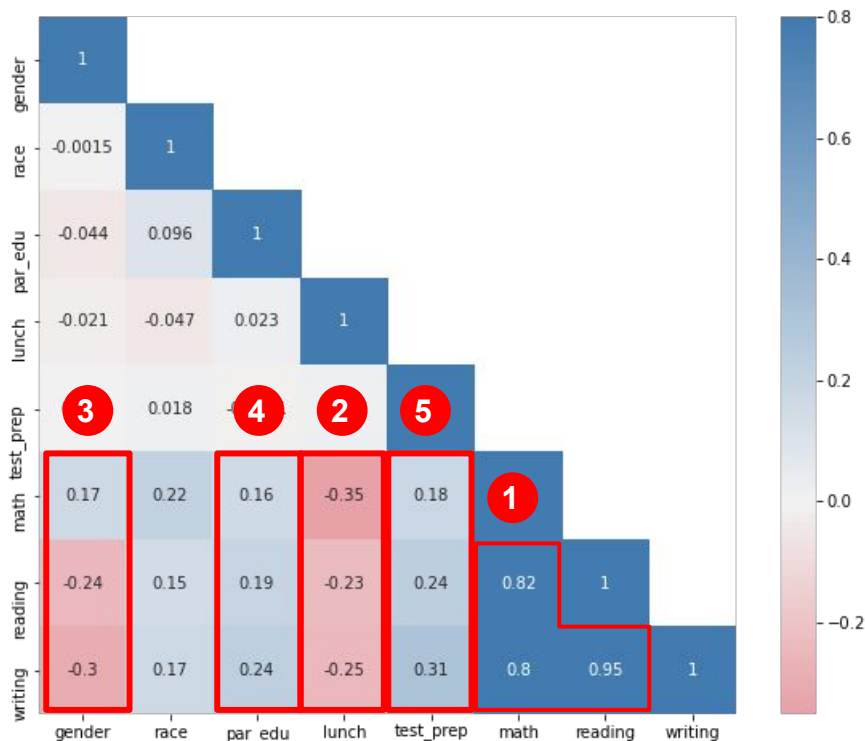
Insights:

1. Students who have good score in one subject tend to have a good score too in other subjects

2. Students with free/reduced lunch tend to have lower score

3. Gender has a quite significant effect to reading and writing score

4. Students perform better as their parent have higher education level

5. Students have higher scores when they did test preparation course

Recommendations

Recommendation

Ideal State	Current State	Recommendation
Students have high scores regardless their status	- Female students have higher score in reading and writing - Male students have higher score in math	- **Check** whether this finds **resulted from genetics** or not (biological ability) - **Check students behavior** during each subject class, and notice if there are any difference from both genders on processing each subject - **Find the mistake pattern** from each subjects by gender
	Students have higher score as their parents have higher educational level	- Inspect **whether this is caused by the motivation given by parents or not**. If it is, try motivates student to have better score regardless their parents educational level

Recommendation

Ideal State	Current State	Recommendation
Students have high scores regardless their status	Students with free/reduced lunch program have lower score	- **Create programs to support students lunch**, whether by donation from volunteer or sponsors as it seems that nutrition has quite significant impact to students performance
	Students with test preparation course tend to have higher score	- School can **create additional class** for test preparations as many students may not having the money to do cram schools

Thank You!

Please reach me through email for inquiries and feedback
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