Principles Of Data Science

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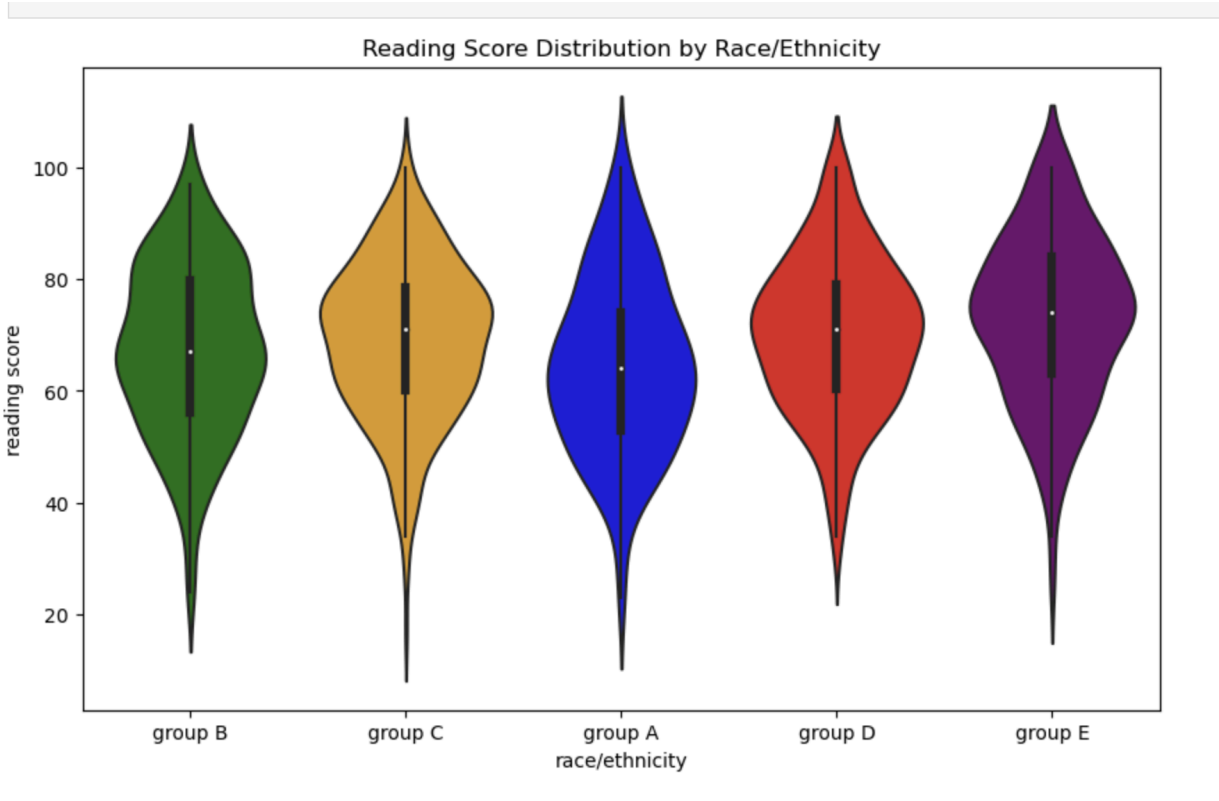
Question 2:

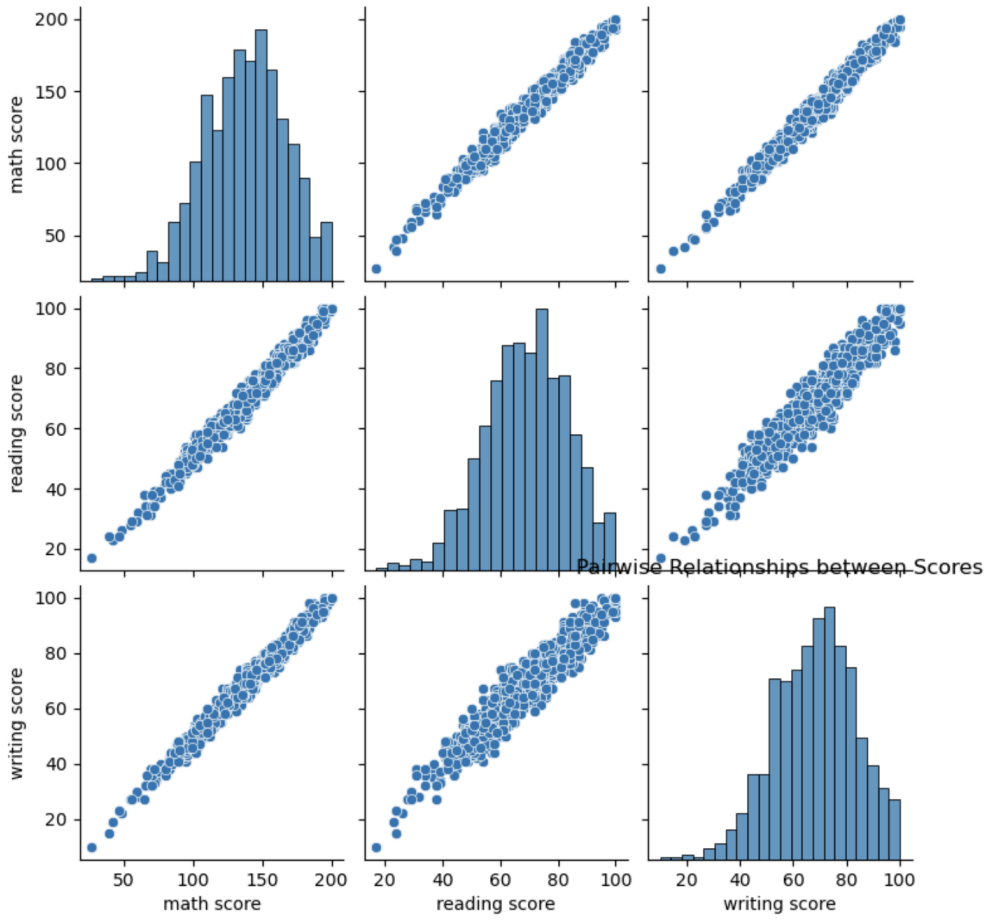
Plot 1:
The picture is a violin plot, a style of data visualization that depicts the distribution of data among several groups. In this scenario, the data being displayed is reading scores, and the groupings represent various racial/ethnic groups.

The violin plot depicts the distribution of reading scores for each group with a violin-shaped symbol. The broader the violin's body, the more evenly distributed the data for that group. The black line in the center of the violin represents the median score for each group. The horizontal lines at the end of the violins represent the interquartile range (IQR), which represents the middle 50% of the data.
The graphic also depicts the distribution of reading scores across all pupils, regardless of race or ethnicity. This distribution is shown as a gray violin in the backdrop.



Plot2 :
The horizontal axis represents the student's reading score.
The vertical axis represents the student's writing score.
The size of each dot corresponds to the student's math score. Larger dots indicate higher math scores.
The graph indicates a favorable association between reading and writing results. This indicates that children who perform well on reading assessments do well on writing tests as well. A positive association exists between reading and math scores, as well as writing and math results. However, the relationship between reading and math scores is smaller than that between reading and writing scores.

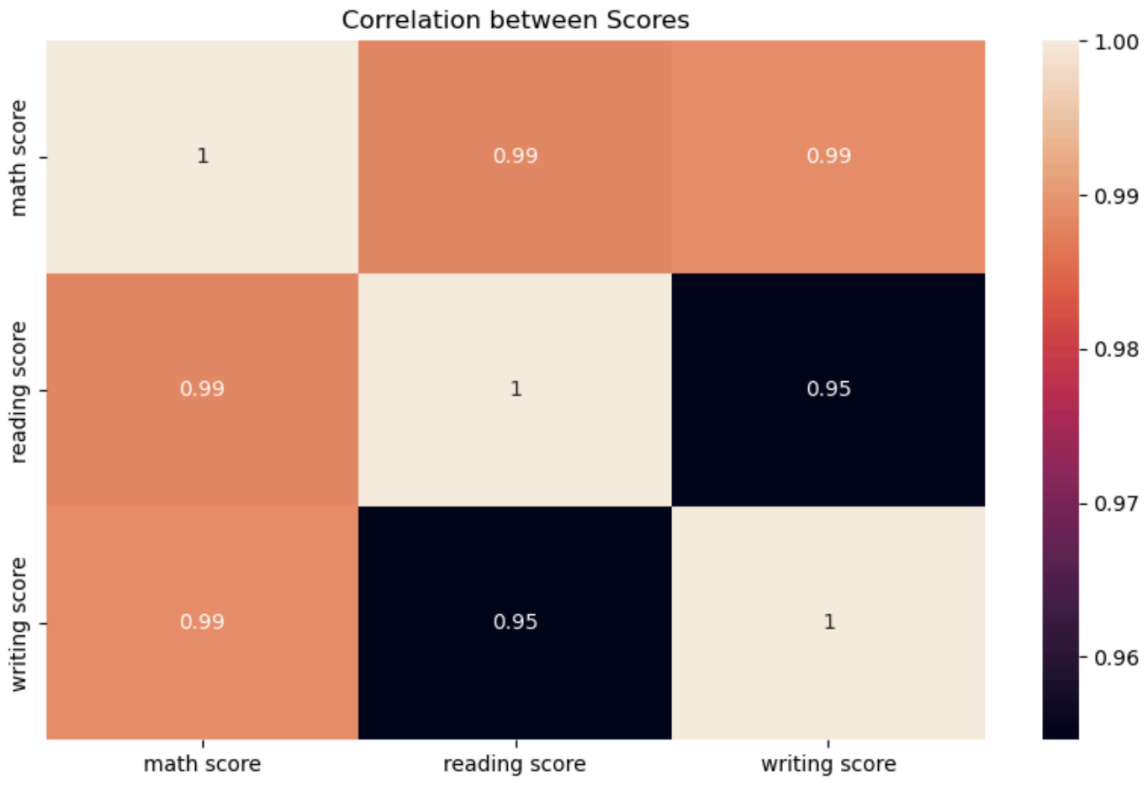
Overall, the graph indicates a link between all three academic talents. Students that are strong readers tend to be powerful.



Plot3 :
The graph demonstrates a substantial positive association between all three scores. This suggests that pupils who perform well in arithmetic are more likely to excel in reading and writing, and vice versa. The values closer to one reflect the strength of the connection, with one indicating a complete positive correlation.

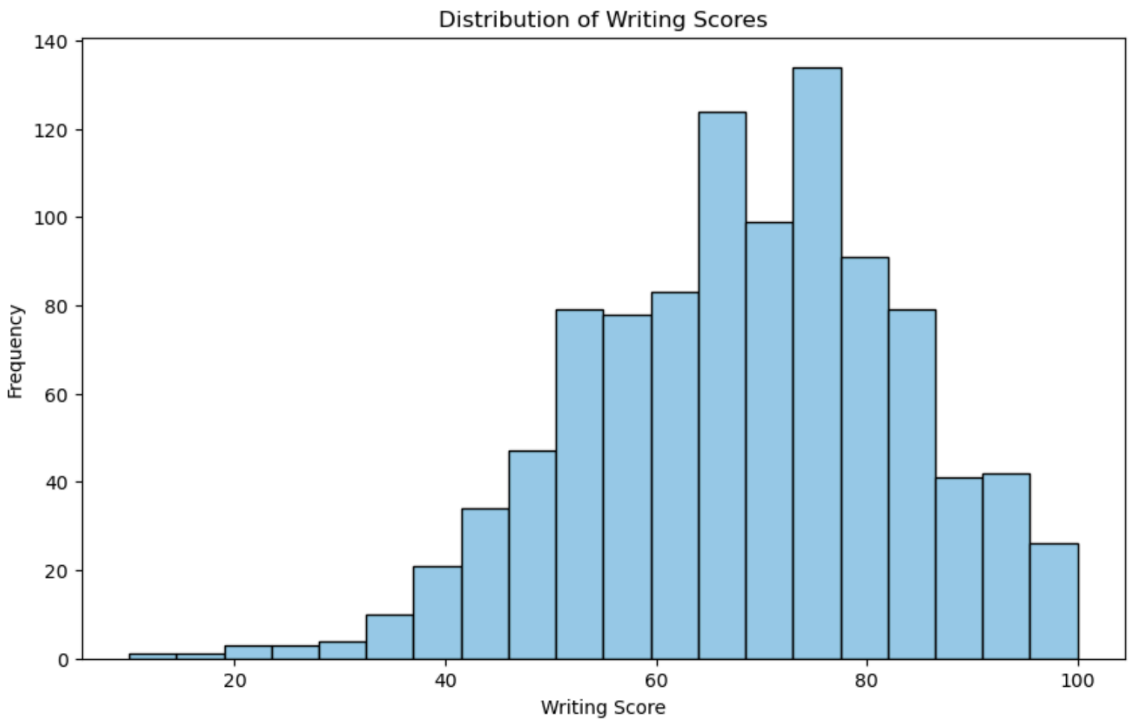
Here are some further details I:

The connection between math and reading scores is the greatest, measuring 0.99.
The correlation coefficient between writing and reading scores is 0.95.
The connection between writing and math scores is 0.97.
It is vital to understand that correlation does not imply causality. Just because two things are connected does not imply that one caused the other. It's possible.



Plot4 :
In this situation, the data generates scores. The x-axis displays the various writing scores, while the y-axis displays the frequency of each score. For example, the bar at 60 on the x-axis indicates that 60 was the most common score.

The shape of the histogram provides information about how the data is dispersed. A symmetrical histogram, such as this one, indicates that there are almost equal numbers of scores above and below the average. A right-skewed histogram indicates that there are more high scores than low scores, whereas a left-skewed histogram indicates that there are more low scores than high scores.



Plot5 :
Here X- axis is "Math Score" and Y- axis is "Reading Score".
Students with greater reading scores are likely to have better math scores.

Some pupils scored well in reading but low in arithmetic, and vice versa.Overall, students who are strong in reading tend to be good at arithmetic, and vice versa.