Gautam Batta

Student Number: 223517

December 10, 2022

Due: December 12-20, 2022

Math for CS: Program Exit Assessment

I will be resubmitting my Hand-In Assignment #3.

Math for CS: Hand-In Assignment #3

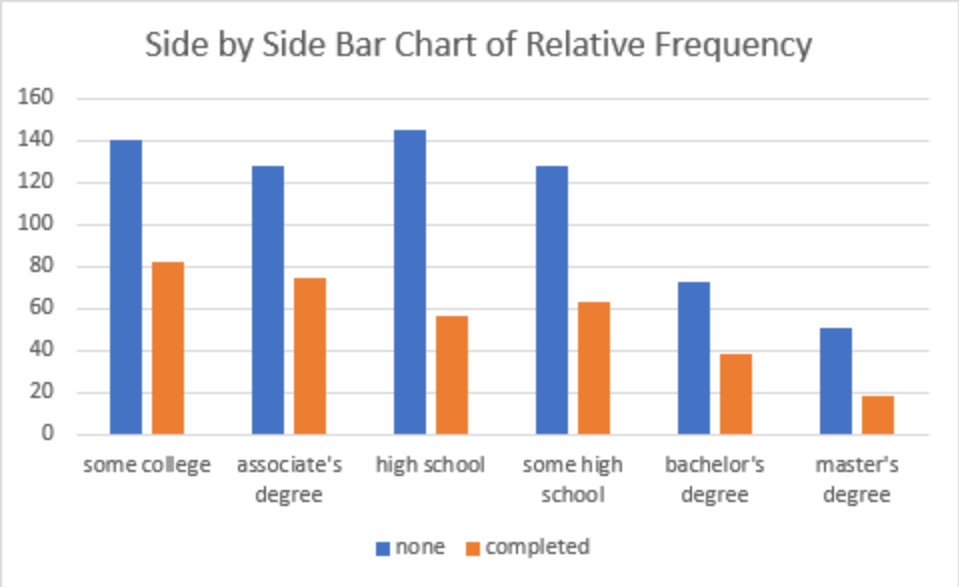
1) Data

A) Worksheet #1

1.

	Test Preparation Course		
Parental Level of Education	**None**	**Completed**	**Grand Total**
Some College	140	82	222
Associate Degree	128	75	203
High School	145	57	202
Some High School	128	63	191
Bachelor's Degree	73	39	112
Master's Degree	51	19	70
Grand Total	**665**	**335**	**1000**

2.

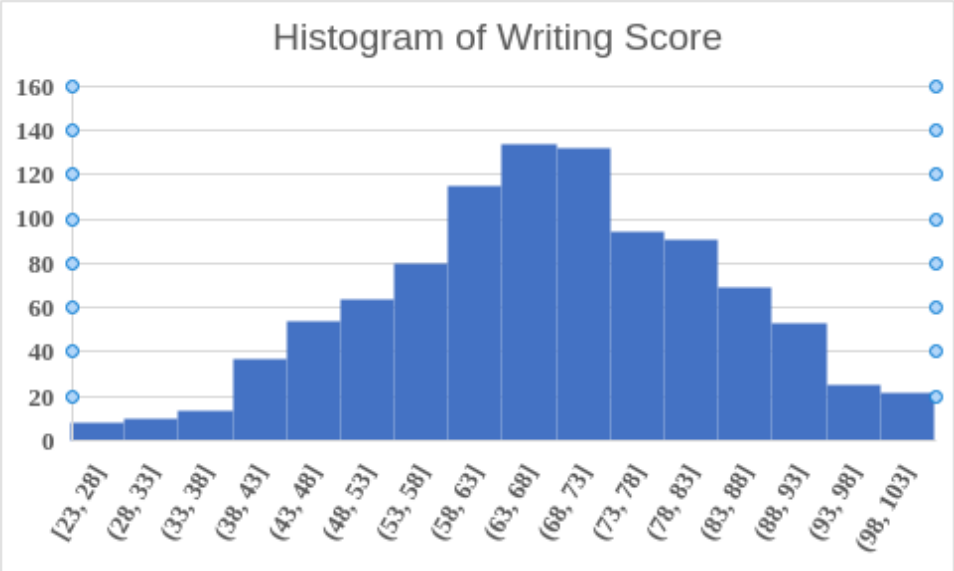


3.

The variables are not independent because the heights of the bar in the graph are not of an identical height; None is noticeably taller than completed.

B) **Worksheet #2**

1.



The shape of the distribution appears to be:

Mode: Unimodal, as there is no clear mode or peak.

Symmetry: Skewed to the left.

Outliers: None.

2.

Median: 68

Upper Quartile: 79

Lower Quartile: 58

Maximum: 100

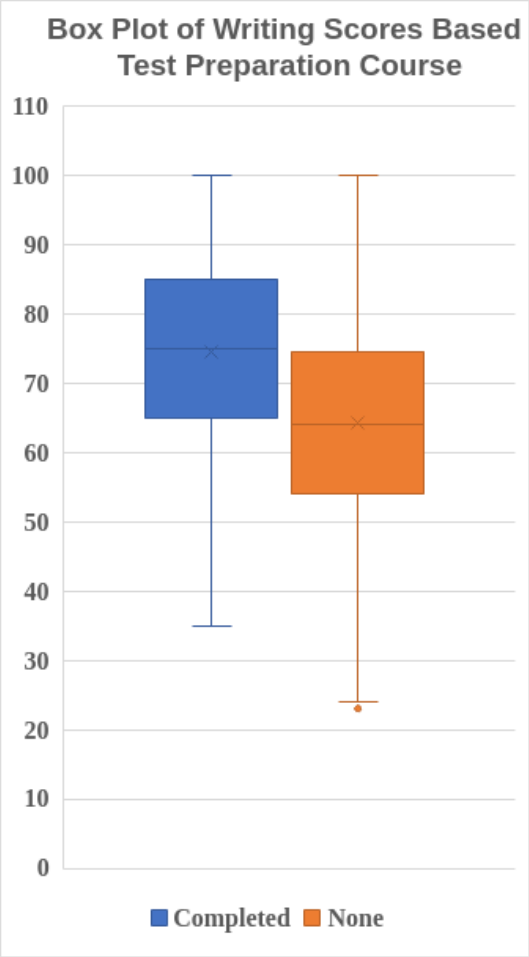
Minimum: 23

3.

Mean:

Standard Deviation: 79

4.



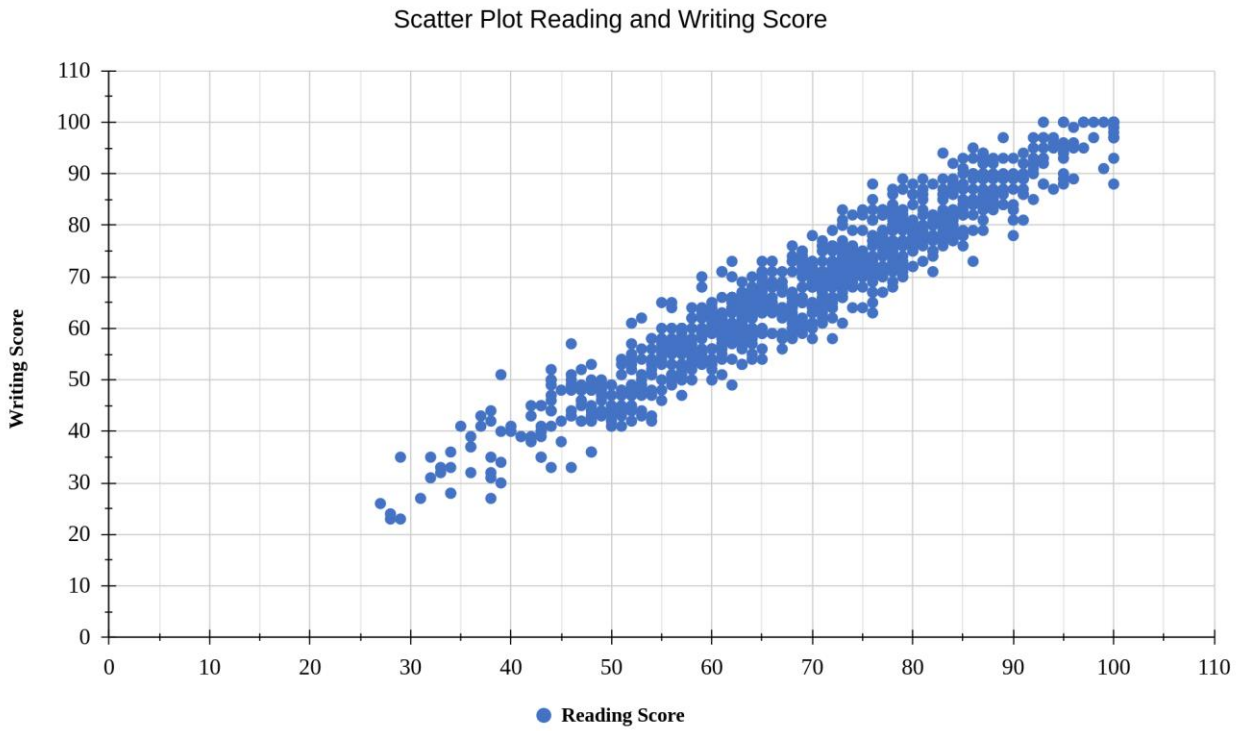
The median of None is lower than Completed.

The Q3 of None is the same value as the median of Completed, and the Q1 of Completed is the same value as the median of None.

The minimum of None is approximately ten less than Completed. In fact, the Q1, median, and Q3 of None are also ten less than Completed, which is very interesting because it shows that there may be a correlation between None and Completed.

C) **Worksheet #3**

1.



2.

Correlation Coefficient: 0.954274434456683

This is meaningful because the number is close to +1, which indicates that the variables have an almost perfect, positive linear relationship; They are correlated.

3.

No, the variables are correlated, not influencing each other. So, changes in the explanatory variable would not cause changes in the response variable

2) Paragraph

I enjoyed this assignment, and it was probably my favourite hand-in because it was very straightforward: a bit of graphing and some mathematical calculations. I did have some difficulty graphing and formatting data with excel, but I managed to find some good tutorials online by Microsoft, and I was able to overcome most of my graphing problems. I actually learned a bit of excel in a business course that I took in grades 9 and 10, so I knew a little bit, but had forgotten most of it.

PEA Reflection

Data Scientists use data to solve problems and they also are good at managing it. They tend to also use programming languages like R and SQL to do their work. And are extremely useful for figuring out how to use certain data, and for what. They can also effectively collect enormous amounts of data and optimize it to fit whatever their needs. They tend to be helpful if an organization collected some statistics (or some other kind of data) and needed to interpret or utilize it. Data scientists have specific skills that allow them to do their job, like organization and knowledge of a business or how an organization may be able to use certain data and present it confidently.

The goal of the hand-in was to graph and calculate things using data, and data scientists use data for multiple different things. The hand-in's topic is relevant to Data Science because -for the hand-in- I had to graph and use data in effective ways, like data scientists. The task of all hand-ins is problem-solving, which is also a significant part of a data scientist, since if they cannot solve their problems well, how would they solve a company's problems. Considering their job is completely about data (it is even in their name), a data scientist needs to be able to successfully interpret and understand data before they can code, like how I had to understand the data I got before I could graph it.

A data scientist may sometimes use graphs instead of code to represent data in a simpler form because they are a marvellous way to represent data and they are easier to understand than a program. The data scientist would also need to analyze and fully understand the data in order to know what type of graph would be best suited to represent it.

Source: https://www.computerscience.org/careers/data-science/