**Data Visualizations using Python**

**Final Project**

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**CTEC 298-101**

In this final project I will be showcasing what I learned in CTEC 298, by elaborating on the different projects regarding big data, data management and data visualization. I will also be using prior knowledge from CTEC 128 to assist me with various projects.

The topics talked about in CTEC 128 was about analyzing how the means of transportation has changed over time based on various variables. The goal of the project was to give readers insight on how preferences, location, salary/wages, weather, gender and so many more variables play in transportation choices. The objectives of the project were to analyze how location affects transportation preferences, observe the impact salary /wages play in transportation preferences, and hypothesize if males are most likely to use public transportation compared to females. A couple research questions that was asked to help guide the project was what gender uses transportation more and what determines this factor? Which transportation is used the most? If an area has a high crime rate, would that affect which type of transportation one will use? Would females rather take vehicle for hire transportation like Uber and Lyft at night or public transportation? If someone was to live in a city, what would be there most likely use of transportation? How much would someone have to make to be able to afford the use of public transportation comfortably? Depending on where one lives from work, what is their likely use of transportation? Data was collected from the United States Census Bureau, and it was concluded that location does play a factor in how people commute and use transportation to get to their various destinations.

In CTEC 298 I was exposed to concepts of data science, big data, data analysis techniques, and basic research methods. I also learned the basics of data visualization, data manipulation, and data management via data mining, analysis tools, queries, visualization, logic/coding statements, and other key techniques. I completed several assignments the first one was a Jupyter Notebook. Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations, and narrative text. The assignment was to download the application and provide proof of installation of the software. The next assignment was too complete matplotlib tutorial and provide proof of completion. Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python. In CTEC 298, we are giving various resources, and, in this assignment, students were to watch Python Pandas Tutorial they were 4 videos and provide proof of watching those videos. Pandas is a fast, powerful, flexible, and easy to use open-source data analysis and manipulation tool, built on top of the Python programming language. The final tutorial assignment was a Tableau Tutorial assignment. Tableau is a visual analytics platform transforming the way we use data to solve problems empowering people and organizations to make the most of their data.

Using data from CTEC 128, students were to import than data in the application Jupyter Notebook, display the head and tail of the original data, clean the data, and display the head and tail (if applicable), and display six different plots in python. To import the CTEC 128 data into Jupyter Notebook, I used the import panda function and copied the pathname on my file explorer and ran the code. The code data was quite extensive so I displayed the data of the head and tail of the original data, to do that I used *df.head(10) and df.tail(10)* because I wanted to display 10 cells from the excel file for both the head and tail. The next steps were to display the head and tail of the wrangled data, but the data was already cleaned so I did not need to complete this. The final step was to create six plot which were a line graph, bar graph, histogram, scatter plot, stack plot, pie chart, and multiple plots. To see the python code on how I was able to display these plots refer to the PowerPoint presentation.

Table

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Table

Description automatically generatedGraphical user interface, text, table

Description automatically generatedScreenshot of importing the data into Jupyter Notebook

Screenshot of the original data (Head, Tail)

Chart

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the bar graph.

A picture containing graphical user interface

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the histogram.

Chart

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the scatter plot.

Graphical user interface, text, application

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the stack plot.

Chart, application, pie chart

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the pie plot.

Graphical user interface

Description automatically generated

This screenshot displays the data from the CTEC 128 Excel on the multiple plots.

In CTEC 298 I was exposed to concepts of data science, bid data, data analysis techniques, and basic research methods. I also learned the basics of data visualization, data manipulation, and data management via data mining, analysis tools, queries, visualization, logic/coding statements, and other key techniques. Using prior knowledge from CTEC 128 and my knowledge from CTEC 298, was about to create a data set visualization.

References

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