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Final Project.

Data Tools: The information on this module introduces different tools and techniques used for data analysis. It helped me understand and learn more about spreadsheets and how they are used to organize and analyze data, it also helps to understand better how databases work and how to use SQL to manipulate and query data. In conclusion it helped me to have a better and more solid base in the fundamental data tools and techniques that data analysis require.

Big data: This module targets the challenges that can be associated with processing and analyzing large dataset. It gave me more understanding about distributed computing systems and how they are used to process big amounts of data, it also explains more about data storage systems and how they can be different from traditional databases. It also helps to investigate techniques that can be used for data analysis in big data environments.

Bias in Machine Learning: In this module I learned about the different types of biases such as confirmation bias and selection bias, as well as how they can affect the results of machine learning algorithms. In addition to this it also gives information about techniques used to detect and reduce bias in machine learning algorithms and it will give a deeper understanding of the challenges connected to ensuring fairness in these machine learning algorithms.

The Unit Test: It was a regular experience just as any test that I have taken before with multiple choice questions, it included questions covering topics such as data analysis tools, database systems, big data etc. It had a timer, and it just measured my understanding on these topics.

Data Analysis Presentation.

What is the nature of the relationship between happiness and income growth, and how much does it influence happiness levels generally?

The dataset selected gives a chart with information about income, happiness levels, satisfaction etc. in a list of one hundred and eleven countries. For this project I analyzed the correlation between happiness and income with the data provided in the chart from one of the pre-approved websites.

Chart, histogram

Description automatically generated

This histogram was created with the goal of showing the average income in more than 40 countries that goes between 572 USD to 26200 USD

Chart, scatter chart

Description automatically generatedThen to start exploring more about the topic, analyze the data and discover if there exists a correlation between income and happiness, I used the happiness column and the income column to build a Scatter diagram.

In the Scatter plot it is noticeable that there is a correlation between happiness and income, on the x-axis is the income of all countries and in the y-axis the level of happiness, this diagram provides a patter in the data with a positive correlation between income increase and a higher level of happiness.

In addition to these two graphs the correlation coefficient was also calculated to determine the strength and direction of the association. For this task I used the Pearson correlation coefficient which measures the linear relationship between two variables.

The correlation coefficient might have a value between -1 and 1. A positive value denotes a positive correlation, implying that happiness tends to rise along with income as it rises, and the association is stronger the closer the value is to 1.

The Correlation Coefficient obtained from this was the number of **0.741** meaning that in this case it suggests a strong positive correlation between them.

There are several reasons why there might be a connection between happiness and income increase:

1. Higher income frequently results in higher living standards, including access to better healthcare, education and housing. These elements can contribute to greater levels of happiness and well-being.
2. Financial security: having a greater income gives people a sense of financial security which could lessen stress and worry caused by having to pay for necessities and unforeseen bills.
3. Opportunities: higher income levels may present additional chances for both professional and personal development. More options and opportunities might result as well in high sense of contentment and happiness in life.
4. Greater Freedom and Choices: people who earn more money have more freedom to choose what suits their interests and principles.
5. Social comparison often comes into play when people compare their financial situation to that of others, which can involve income. Higher income can help to increase social status and a sense of accomplishment in civilizations where money is highly regarded and respected, which can have a good impact on happiness levels.

Although it’s important to note that while income can have a significant influence on happiness it is not the sole determinant. Other factors can come into play and the relationship between income and happiness may vary across individuals and cultures.

Overall, this project emphasizes the preliminary research that shows a positive correlation between income increase and higher happiness levels. The knowledge collected from the study serves as a foundation for further investigation into the complicated relationship between wealth and happiness

Details about the project:

-For this project I used python to analyze and create graphs and histograms of the data obtained from one of the pre-approved data sources specified in the final project assignment.

- All the data used for this project was obtained from this website: <https://www.kaggle.com/datasets/levyedgar44/income-and-happiness-correction>

- All images uploaded are from my work on python to analyze the dataset