SECP 1513 - Sec 07
TECHNOLOGY AND INFORMATION SYSTEM

ASSIGNMENT 4: ONLINE DASHBOARD REPORT

GROUP 6

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DUE DATE: 15/1/2022

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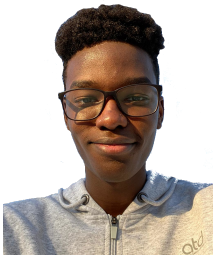
GROUP MEMBERS					
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TASKS	Introduction Data Analytics	Conclusion Data Analytics	Power BI Editor Data Analytics	Data Interpretation Data Analytics	Introduction Reflection

TABLE OF CONTENT

INTRODUCTION

In industrial talk #7, Mr. Isma Redha from it gave us an introduction to data visualization using Microsoft Power BI. We learned about how information can be visualized in several ways like trends, outliers, and correlations which provide specific insights. We also need to understand the types of data like quantitative, discrete, continuous, and categorical, and their relations. We learned about seven types of data relationships which are: nominal comparison, time series, correlation, ranking, deviation, distribution, and part-to-whole relationships.

The most popular chart types are bar chart, pie chart, line chart, scatterplot chart, bubble chart, and heat map variations. The bar chart is best used to show change over time and comparison, the pie chart is best used for making portion to the whole comparison with discrete and continuous data, it's also the most impactful with a small data set, and the scatterplot chart is used to show the relationship between items based on two sets of variables, it's also best used to show the correlation in a large amount of data, the bubble chart is good for displaying nominal comparisons or ranking relationship and the heat map variations are used to display categorical data using the intensity of color to represent values of geographical areas.

Mr. Isma also showed us how to import data into Microsoft Power BI to analyze and visualize them in different ways and how to publish our report to power BI. We learned that data can be analyzed for various purposes such as education, environment, health, and many more. In this assignment, we created a dashboard page to view the data on criminal activities, which are drug addiction. Drug addiction is a serious problem and tracking the data for drug abuse cases is important to reduce the amount of drug addiction cases in Malaysia.

Firstly, we discussed and gathered the data from data.gov.my and obtained one Excel file about Statistics of Drug Addicts by Race, Gender, And State in 2019. After that, we transformed some of the variables by combining categories and turning counts into percentages. Next, we performed descriptive data analytics on the transformed data using Microsoft Power BI. In the data analytics, we plotted a pie chart, column chart, treemap, donut chart, and scatter chart. Then, we published the data analytics online, as a one-page online dashboard report. After plotting the data and creating the dashboard the two major questions that we have are:

i) Does gender have any correlation with drug abuse cases? If so, why?

ii) How do different state locations affect the number of drug abuse cases?

DATA ANALYTICS INTERPRETATION

From the raw data set we obtained, we transformed two variables. First, we combined Pribumi Sabah and Pribumi Sarawak variables. Next, we transformed the count of drug addicts by gender and state, from whole number to percentage. We also changed the language used in the data set from Malay to English. After that, we plotted the graphs and charts as below:

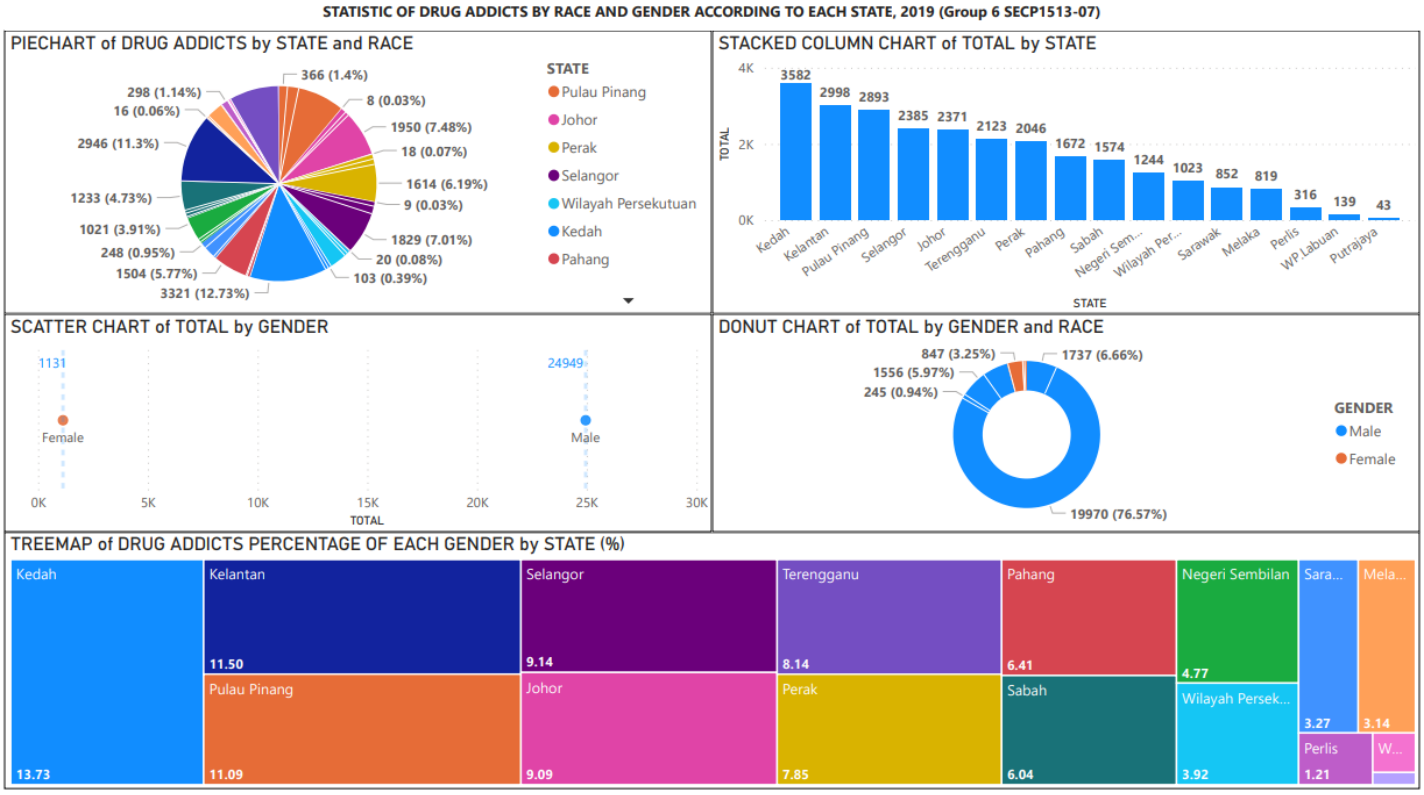

Figure 1: Dashboard page. The dashboard page also can be viewed online here.

PIE CHART

Let's have a look at this pie chart. This chart shows the result of the statistic of drug addicts by each state and their races. This pie chart refers to drug addicts in Malaysia which is a serious case in this country. The statistic mentioned all states of Malaysia that have drug addict cases which are Pulau Pinang, Johor, Perak, Selangor, Wilayah Persekutuan, Kedah, Pahang, Sarawak, Negeri Sembilan, Sabah, Kelantan, Melaka, Perlis, Wilayah Persekutuan Labuan, Terengganu, and Putrajaya and all races which are Malay, Chinese, Indians, others, and Peribumi Sabah and Sarawak.

From the pie chart, it is clear that the majority of drug addicts in Kedah is Malay which is 12.73%, 0.53% is Indians and Chinese which is 0.39%. Next, the state that has least drug addicts is Putrajaya which is only 0.16% of Malay people.

SCATTERPLOTS

Next, we have scatterplots. The relationship in the scatterplots is between the total number of drug addicts and gender of each of drug addicts. This scatterplots shows positive, linear and weak relationship. In general, males are more tend to be drug addicts than females.

TREEMAP

To illustrate my points, let's take a look at the tree map. It is about the percentage of each gender that are involved in drug addicts by state. From the tree map, we can conclude that state with the majority of drug addicts is Kedah which is 13.73% of male and female. The second state with the majority of drug addicts comes from Kelantan which is 11.50% of male and female. Lastly, the state that has the least drug addicts is from Putrajaya which is only 0.16% of male and female.

STACKED COLUMN CHART

Looking at the Stacked column chart, it shows the total number of drug addicts by each state in the year 2019. From the chart, we can conclude that the state with the most number of drug addicts is Kedah with a total of 3582 drug addicts regardless of race followed by the state of Kelantan with 2998 drug addicts. The least total amount of drug addicts by state is in Wilayah Persekutuan Putrajaya with only 43 drug addicts in its area which is followed by the second least which is Wilayah Persekutuan Labuan.

DONUT CHART

Lastly, let us look at the Donut chart. Here it is displayed to us that in the year 2019, the total number of drug addicts by each gender and race are as follow, which are 76.57% Malay males, 6.66% Indian males, 5.97% Pribumi Sabah and Sarawak males, 5.53% Chinese males, and lastly, 0.94% males with other races of the total number and percentage of drug addicts. While for females there are only 3.25% Malay females, 0.42% Chinese females, 0.38% Pribumi Sabah and Sarawak females, 0.2% Indian females from the total number and percentage of drug addicts.

We can make a conclusion that Malay males with a whopping 76.57% is the majority of the total drug addicts in Malaysia while the group with least total number of drug addicts are the Indian females with only a total of 0.2%.

CONCLUSION

In this conclusion, we will cover what are the answers for our questions in the introduction based on our results and study. In fact, we will also provide a clear conclusion about our data and how useful is the data visualization.

To bring things to a close, does gender have any correlation with drug abuse? Based on our study and dataset, our answer will be yes because according to the dataset, males are more likely to abuse drugs than females do where about 96% of the drug cases were involved by males. Based on some studies and research, the reason why males are more drug addicted than females maybe is because of curiosity and their false sense of pride when it comes to their friends' provocation and teasing. Some of them might even think that drug abuse is a new trend so that they will be curious and they are more willing to try and take risks. On the other hand, some of them might be facing peer pressure as the rapid progress of society nowadays. Information becomes easier to get for everyone and competitions are more cutthroat. Imagine that many of the males are the primary breadwinner and under this humongous pressure, they have no one and nowhere to relieve their stress. Therefore, drug abuse is one of the ways that they can do it when it comes to relieving stress, which is not a great idea to do.

On the other hand, how do different state locations affect the number of drug abuse cases? From the dataset and the results, the state from the north side of Peninsular Malaysia has a higher percentage of drug addiction cases and the reason why probably is because the north side of Peninsular Malaysia is close to the nation border which other states are way further compared to those states. In fact, Johor which is also near the nation border has a high percentage of drug addiction cases too. Thus, we can conclude that states near the nation border will have a higher percentage of drug addiction as maybe it's easier for drug smuggling to occur.

Data visualization aids in telling stories by transforming data into a more understandable format and showing trends and outliers. It enables us to present information in a captivating and easy to understand manner. It's all about presenting data in a very visual format, like a chart or a map, so anyone viewing it can better understand the significance of that data.

REFERENCES

- ONLINE DASHBOARD PAGE

After creating the dashboard using Microsoft Power BI, we published the dashboard online. This is the link to access our published online Dashboard Page. The link is public and all the graphs, charts, and data are accessible here:
https://app.powerbi.com/view?r=eyJrIjoiMTczMmJhNjQtNTIxYi00OTdjLWFlMzItYzc5YWQ1ZGE1ZGQ4IiwidCI6IjBlMGRiMmFkLWM0MTYtNDdjNy04OGVjLWNlYWM0ZWU3Njc2NyIsImMiOjEwfQ%3D%3D
(if the link above doesn't work, please click here)

- OUR DATA SET

This is the raw data set we used for this assignment:
https://www.data.gov.my/data/ms_MY/dataset/statistik-penagih-dadah-mengikut-bangsa-jantina-dan-negeri/resource/22ee2118-2b0e-46f0-af11-21c1c05f87d0

- TRANSFORMED DATA SET

This is the data set that we have transformed:
https://docs.google.com/spreadsheets/d/13haf9sNLxzrrYvaHiu_fbaNCKQDfmeqRfI3SHFVJwso/edit?usp=sharing