HEART ATTACK ANALYSIS AND PREDICTION

Dashboard Link: https://app.powerbi.com/view?r=eyJrIjoiMWYzMmRjMzItNGRiNC00M2VjLWFkMGUtNDA4ZDJiMjlkNzIxIiwidCI6IjBlMGRiMmFkLWM0MTYtNDdjNy04OGVjLWNlYWM0ZWU3Njc2NyIsImMiOjEwfQ%3D%3D

Introduction

To analyze the data set for Heart attack analysis and prediction. We develop a data visualization from the data set using Microsoft Power BI. Therefore, we will have a better visualization of the data.

Objective

To study

- Who has a higher tendency to get a heart attack by age and gender?
- What is the relation between heart attack and the symptom faced by the patients?

Discussion of The Result of The Data

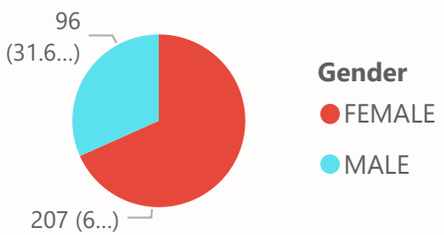
The data visualization for the heart attack classification shows the patients' count by gender, age group, chest paint type, fasting blood sugar level, cholesterol level, the blood pressure level, and the percentage of maximum heart rate achieved to the theoretical maximum value.

The data shows 68.23% of the patient are female, and the highest age group for the patients is 51 to 60 years old. In addition, most of the patients go through atypical angina with 143 patients, followed by non-anginal pain, typical angina, and asymptomatic with 87, 50, and 23 in number respectively. We also can see 258 out of 303 patients have a high fasting blood sugar level which is the majority. Next, more than half (155 out of 303) of the patients have high cholesterol levels, 98 medium, and 50 low, and for blood pressure level 135 patients have normal or low blood pressure, and 71 have hypertension stage one, and 97 have hypertension stage 2 or hypertension crisis. The majority of patients have a dangerous percentage of maximum heart rate that is above 85%

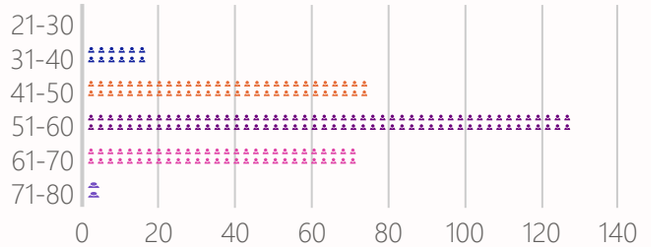
Conclusion

Here, we can see that females and people above 51 years old have a higher tendency to get a heart attack for several reasons. Also, atypical angina is a common type of chest pain for heart attack patients. Next, high blood sugar may contribute to a heart attack along with a high percentage of maximum heart rate, and cholesterol level. Besides having normal blood pressure, getting a heart attack is common if they have the other symptoms. However, the symptoms may vary for every patient.

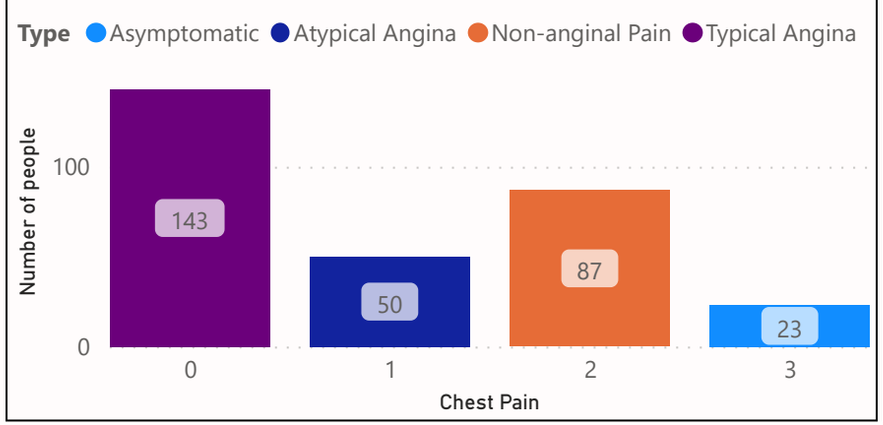
Percentage of Patient by Gender



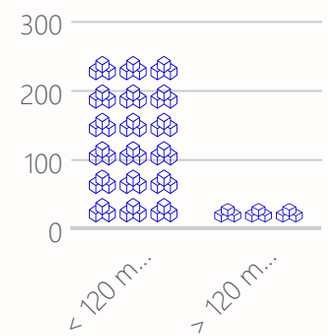
Count of patient by Age Groups



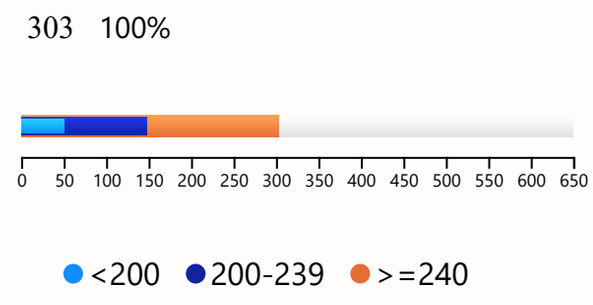
Number of Patient by Chest Pain Type



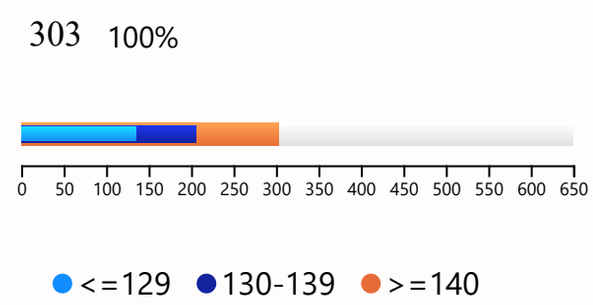
Number of Patient by Fasting Blood Sugar



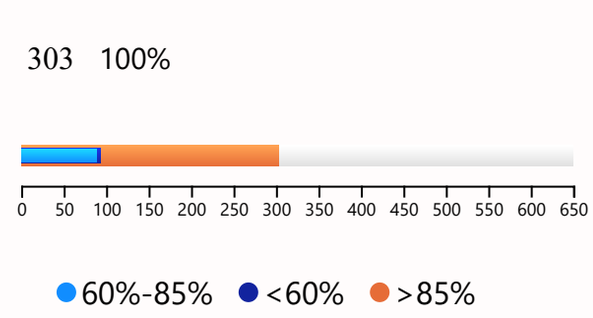
Cholesterol level (mg/dl)



Blood Pressure level (mm Hg)



Percentage of Maximum Heart Rate(MHR) Achieved to Theoretical MHR



TREND OF DATA ANALYTICS IN HEALTH SECTOR

The increasing of data in the health sector brings concern for the storage and management aspect. The data must be handled properly in order to disseminate information or knowledge for data-driven decision-making, studies in health technologies advancement, and many more. This is where the use of data analytics may take place. Data analytics is the techniques and process of extracting information from an extensive and diverse set of data from different sources. The trend of data analytics in health sectors involve health financing, population health risk analytic, performance provider and many more.

Reflection on The Trend

Data analytic did help the health sector in many aspects. Descriptive analytics can be used to describe the condition. For example, it can be used by the health organization to review the list of medicine that has been used. Diagnostic analytics can be used to help in finding the reason for an occurrence event. For example, it can be used to diagnose patients' illnesses based on the symptoms they are experiencing. Predictive analytics can be used to predict the event or condition that may occur such as the estimated financial cost for the following cost. It can help the organization to be prepared. Prescriptive analytics can be used to indicate plans of action. It can help to optimize the decision-making process by providing the action suggestion based on the data received. Data analytics did help in managing the data efficiently to gain useful information and allow the decision-making process to be a data-driven decision so that the health sector can be improved in multiple aspects.

MICROSOFT POWER BI

Microsoft Power BI is a platform used for data visualization and data analytics. It is a business intelligence tool with multiple services to assist the business organization. Information can be visualized in several ways, each of which can provide a specific insight. It is important to understand and present the data with proper visualization because it is the best way to identify and interpret information.

This software can be used to connect, manage, and import the data from excel, word etc into the application or website to make data visualization and converts the different types of data sources into interactive dashboards and reports. Before converting the data, the user must know the types of data used and their relationships to each other. These means quantitative, discrete, continuous, and categorical for data type and nominal comparison, time series, correlation, ranking, deviation, distribution, and part-to-whole relationships for relationships.

It is a scalable platform under the Microsoft Power Platform which is helpful and easily used to organize data for companies. Besides that, each relationship can be associated with a specific chart type such as bar chart (comparison), pie chart (part-to-whole relationships), line chart (time series), scatterplot chart (correlation), bubble chart (comparison/ranking), and heat map variations (categorical). In Microsoft Power BI, there are three distinct functions which are report site, data site, and model site. The model site can create relationships between tables such as one-to-many, one-to-one, many-to-one, and many-to-many. We are advised not to use more than 6 colors for one chart and distractive fonts for the data to avoid difficulty for the user to observe the data.

Reflection from The Talk

From this talk, I learned that obtaining extra skills such as learning to use Microsoft Power BI for data visualization is very important to be able to stay competitive in the IT field, and being able to organize data is very important to deliver a clear message thus making you look more competent and trustworthy to take on more challenging task in the future. Moreover, I feel that Microsoft Power BI and Microsoft Excel will be or is already two of the most important software that companies will use for data organization and visualization and by being able to excel in using the software we will be able to aid our future companies or businesses in the future.

GROUP DETAIL

Group leader: Nurul 'Afifah bt Mohamad Yusof (A21EC0120)

Group Member:

- Ain Safiah bt. Manan (A21EC0155)
- Luqman Hakim b. Md Said (A21EC0050)
- Kagineswaran A/L Tamil Vanan (A21EC0035)

Task distribution

- 'Afifah - Trend of data in health sector, and work compilation
- Luqman - Data conversion and the visualization
- Kagineswaran - What, when, and where to use power BI (industrial talk7)
- Ain - Narrative of analytics