**PROJECT PROPOSAL**

**Prediction of Heart Failure**

**Group No: 18**

**Members:**

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**Objective:**

To predict the risk of getting a heart disease based on other contributing factors.

Based on the data from different countries, we are doing predictive analysis which can used to identify risks for Canadian

**About the Project:**

According to a recent study, it is now a known fact that after cancer, heart disease is the second leading cause of death in Canada. As per the most recent data from 2012/13, about 2.4 million (8.5%) Canadian adults aged 20 years and older live with diagnosed ischemic heart disease, including 578,000 (2.1%) with a history of a heart attack whereas about 669,600 (3.6%) Canadian adults aged 40 years and older live with diagnosed heart failure1.

The government, and in fact, people around the world have been trying to take different measures to combat with this issue however this still is, undeniably, one of the deadliest health issues. Our project, however, takes the advantage of the available data and use it to predict the chances of heart failure with some basic health statistics like Blood pressure/Cholesterol etc., which play a vital role in diagnosing the possibility of this disease.

The five datasets used for its curation are:

* Cleveland: 303 observations
* Hungarian: 294 observations
* Switzerland: 123 observations
* Long Beach VA: 200 observations
* Stalog (Heart) Data Set: 270 observations

**Motivation:**

* According to the most recent data from 2012/13, about 2.4 million (8.5%) Canadian adults aged 20 years and older live with diagnosed ischemic heart disease, including 578,000 (2.1%) with a history of a heart attack.
* About 669,600 (3.6%) Canadian adults aged 40 years and older live with diagnosed heart failure.
* About 158,700 (6.1 per 1,000) Canadian adults aged 20 years and older received a new diagnosis of ischemic heart disease. Specifically, about 63,200 (2.3 per 1,000) adults had a first heart attack.
* Approximately 92,900 (5.2 per 1,000) Canadian adults aged 40 years and older received a new diagnosis of heart failure.
* Using appropriate analysis and strategies, millions of lives could be saved each year by early detection of the disease, and treatment.

**Data Science Insight:**

In today’s time, health data has undeniably emerged as one of the strongest weapons against eradicating or combating with various deadly and/or non-deadly diseases. That is exactly what will help us to predict the possibility of heart failure and in turn, can be used to save life.

In order to achieve this objective, we will be taking the following approach:

* Observe and understand the data provided.
* Analyse the data and gain meaningful insights.
* Build a model based on this data and train it to predict such cases in future according to the input data given by the person from the platform.

Following methods and tolls will be used to execute this project:

* Data Cleaning (MS Excel, Python)
* Exploratory Data Analysis (Python)
* Data Visualization (Python, Excel, Tableau)
* Build and apply suitable algorithms (Python)

**Success Criteria:**

* An appropriate model to predict the risk based on historical data.

**Expected Project Start and End Date:**

* Project start date is 15th March 2022, and it should end on 15th April,2022.

**Expected Products:**

* Graduation level project.
* Predictive analysis of the risk of heart disease.
* To understand and reporting the other factors contributing the risk of heart disease through visualization.

**References:**

* 1[Heart disease in Canada: Highlights from the Canadian Chronic Disease Surveillance System, 2017 - Canada.ca](https://www.canada.ca/en/public-health/services/publications/diseases-conditions/heart-disease-canada-fact-sheet.html)
* https://www.kaggle.com/fedesoriano/heart-failure-prediction

**Resources:**

* Python, Excel, and Tableau

**Dataset:**

* https://www.kaggle.com/fedesoriano/heart-failure-prediction