Module 1:

Statement of Work

November 6, 2020

Contents

[**1.0** **Problem Statement** 1](#_Toc55585654)

[**3.0** **Data** 1](#_Toc55585655)

[**4.0** **Data Analysis Approach** 2](#_Toc55585656)

# **1.0 Problem Statement**

Princess Margret Hospital (in partnership with the UHN Echocardiography Lab) aims to save lives through early detection of heart murmur. With the heart murmur dataset provided by the Hospital, Researchers aim to detect early signs of heart murmur. In the hopes that this study would lead to better preparation and precaution for identified patients.

This study aims to identify the valve measurements that indicates two distinct heart defects, namely: congenital defect (Class 1) and heart valve defects (Class 2). For the purpose of this study normal valve measurement (Class 0) would be disregarded and precision and recall would be used to measure results.

The objective of the problem statement is to identify a pre-diagnosis of potential heart issues in potential patients. If Princess Margret can easily detect and diagnose these patients, it would result in increased awareness and prevention, and ultimately a reduced mortality rate for cardio-pulmonary patients.

# **3.0 Data**

Indicated in the Problem Statement, the focus of this study is to identify unique measurements of congenital defect (Class 1) and heart valve defects (Class 2), this is a Binomial classification structure. The naming convention for this study is as follows:

Class 1 – Congenital Defect

Class 2 – Heart Valve Defect

There are 40 cell measurements in the database. Along with 5000 individuals documented in the dataset. The researchers have identified two constraints with the data:

1. The dataset cannot be increased
2. The dataset cannot have additional features

And three assumptions about the dataset:

1. That the data has been vetoed and cleaned
2. That the Murmur data is based on individual patient data
3. That there are 40 cell measurements in the dataset

# **4.0 Data Analysis Approach**

The Researchers will utilize Python for the data analysis and Power BI for the data visualization.