**Problem statement:**

Heart disease has been a major health issue for many years globally and it has affected many peoples’ lives. A question that comes to mind is “how can heart disease be predicted before it occurs?” thus, through supervised machine learning and setting a target of 1 (heart disease detected) and 0 (no heart disease) it is has become possible to meet the goal of detecting heart disease at any stage and making it more predictable.

Firstly, to solve this problem a wide array of data has to be pulled from the heart disease dataset which has been [referred from Kaggle](https://www.kaggle.com/datasets/yasserh/heart-disease-dataset/data) and this includes the data of 303 individuals comprising of individuals with heart disease (target outputs:1) as well as individuals with no heart disease (target outputs:0).The data has been balanced to prevent unfair biases that could corrupt the data by means of having an even share of test participants with those with heart disease (target outputs:1) being 165 and those with no heart disease (target outputs:0) being 138.

Secondly, the data being used comprised of multiple data ranging from age, sex to more technical subjects such as cholesterol to resting heart rates to ensure the covering of as much risk factors as possible to make it easier to detect patterns wherever necessary to know for example : if someone’s cholesterol is at 320, whilst being a 21 year old male it could mean that they are very likely to have heart disease or become stricken with the disease at a later stage in life no further changes are made.

In conclusion, we designed a machine learning model that predicts the likelihood of heart disease in individuals based on this key indicators. We used a dataset that consist of age,sex, chest pain type, resting blood pressure, cholesterolfasting blood sugar, resting electrocardiographic results, maximum heart rate achieved, exercise Induced, oldpeak, slope, number of major and output. This problem is common in health facilities, where the key indicators can help heath facilities in assessing patient risk and planning preventive care strategies.