



**SDAIA T5 BOOTCAMP**

# **CARDIOVASCULAR DISEASE**

**Written by**

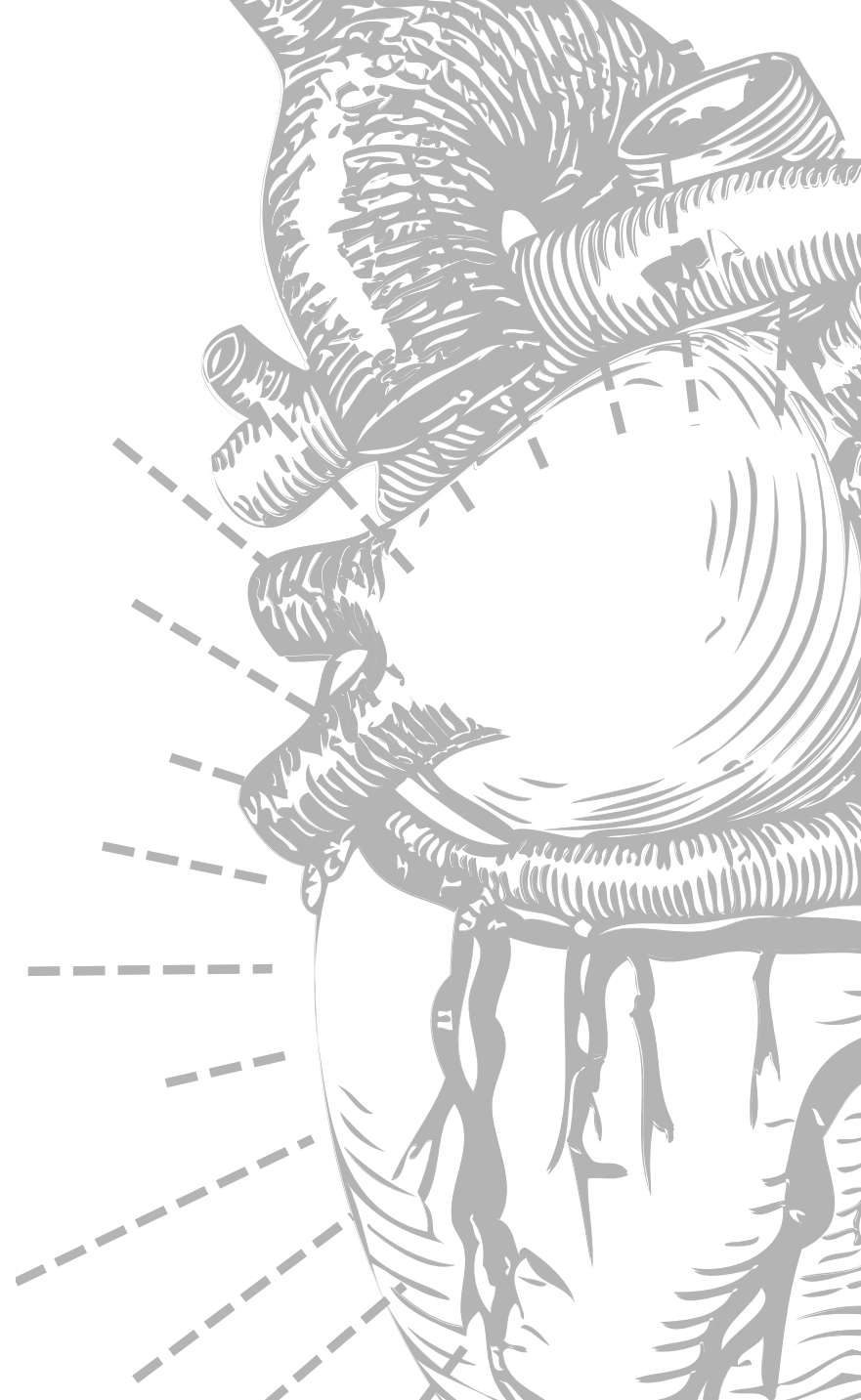
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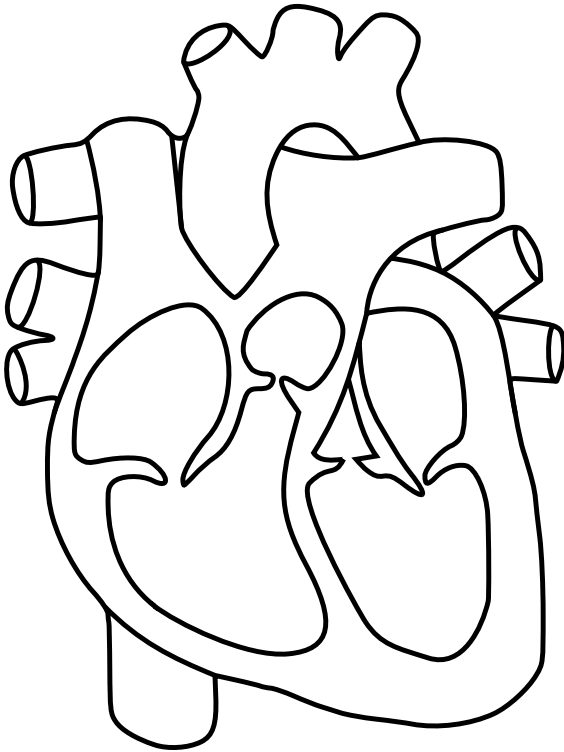


# WHAT WE'LL DISCUSS TODAY

## *Cardiovascular Disease Guide*

- Introduction
- Preprocessing
- Visualisation
- Models
- Important Features
- Demo
- Conclusions





# INTRODUCTION

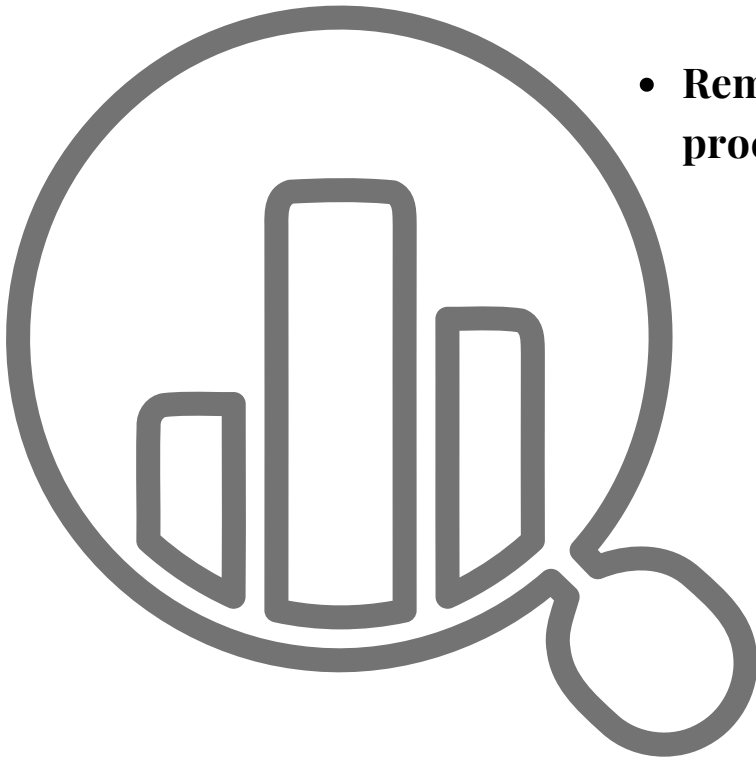
**Cardiovascular diseases are conditions that affect the structures or function of your heart,**

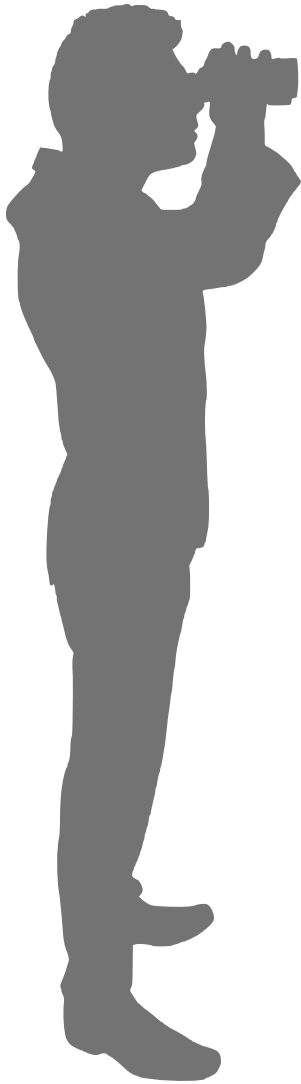
**Such as :**

- Abnormal heart rhythms, or arrhythmias
- Aorta disease and Marfan syndrome
- Congenital heart disease
- Coronary artery disease (narrowing of the arteries)
- Deep vein thrombosis and pulmonary embolism
- Heart attack
- Heart failure
- Heart muscle disease (cardiomyopathy)
- Heart valve disease
- Pericardial disease
- Peripheral vascular disease
- Rheumatic heart disease
- Stroke
- Vascular disease (blood vessel disease)

# PRE PROCESSING

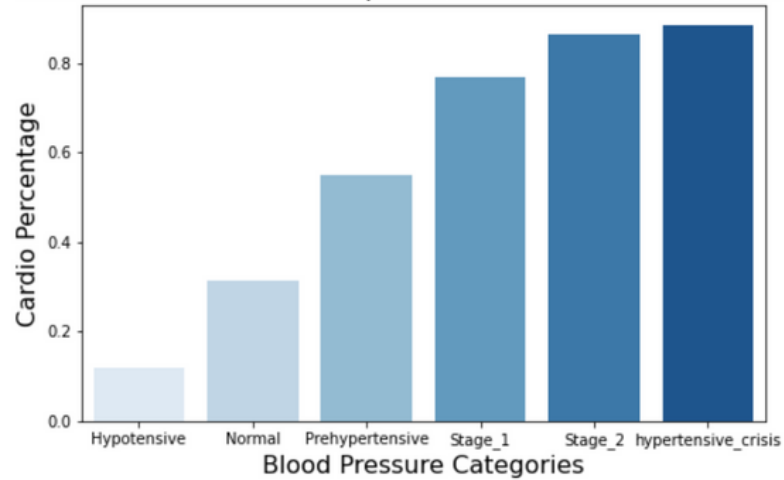
- Calculated the Age by years
- Calculated the BMI by dividing the weight in kilograms by the height in meters squared
- Removed the un-useful data within the data analysis process which is the ID column



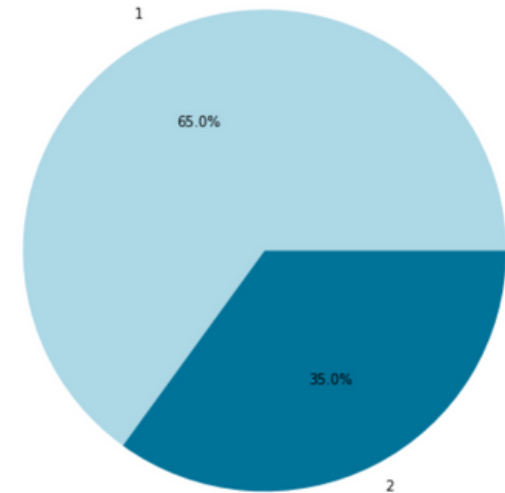


# VISUALISATION THE DATA

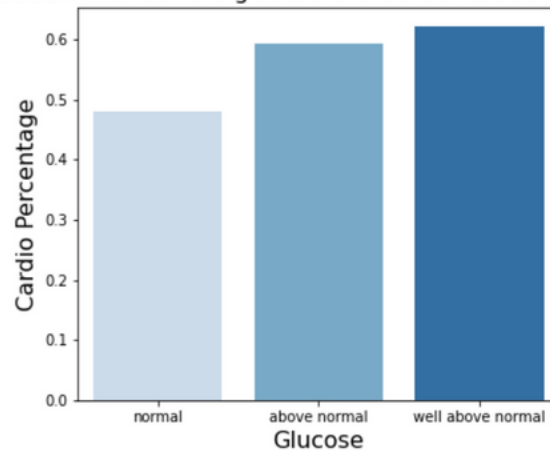
Relation between the blood pressure and cardiovascular diseases



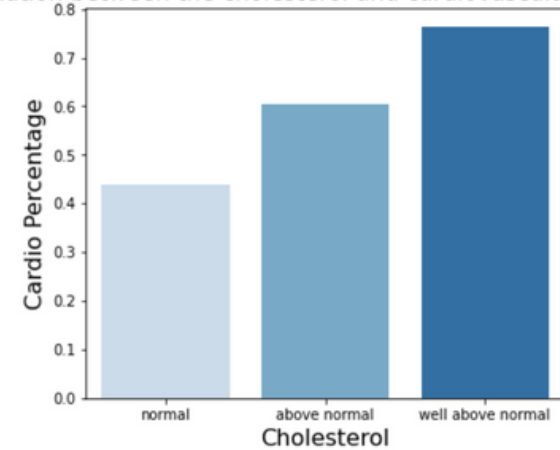
Distribution of Genders



Relation between the glucose and cardiovascular diseases



Relation between the cholesterol and cardiovascular diseases



## MODELS



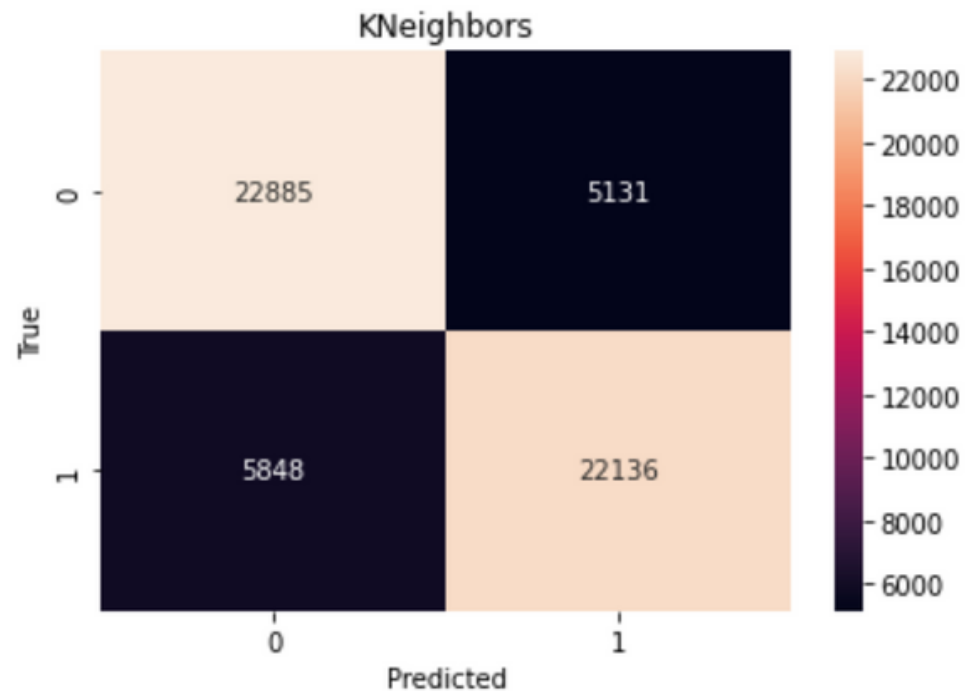
	Recall	Accuracy	Precision
Knn	0.79	0.80	0.81
D.T.	0.95	0.97	0.99
Logistic	0.67	0.72	0.74
R.F.	0.96	0.97	0.98
XGB	0.68	0.73	0.76
LGBM	0.70	0.74	0.76



## KNEIGHBORS CLASSIFIER

Def : Classify point based on k-nearest neighbors based on their distances

Recall : 0.79

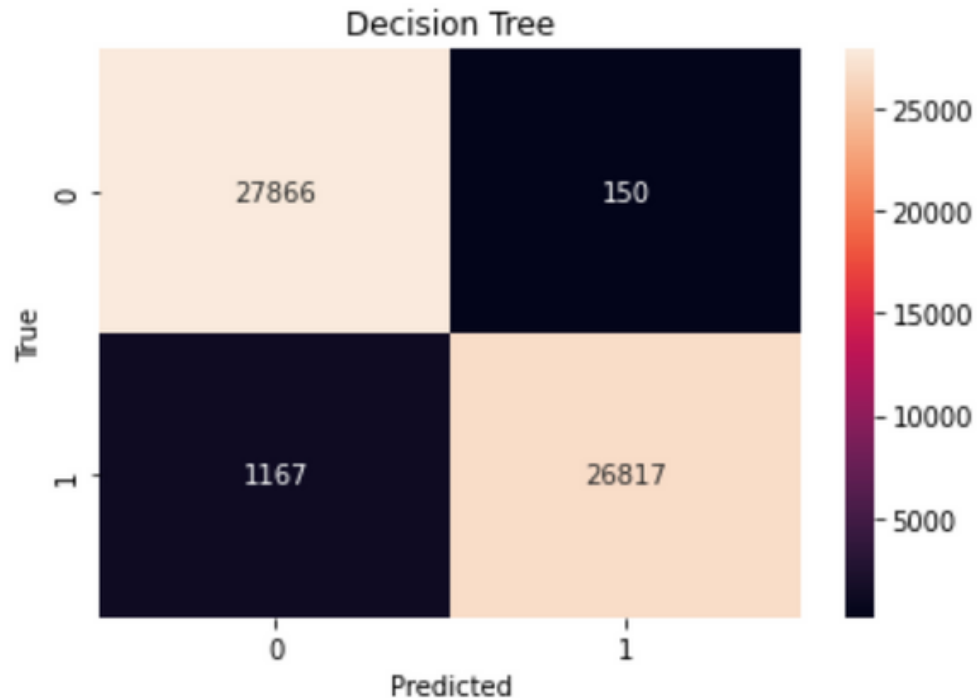




## DECISION TREE

Def : Decision tree builds classification or regression models in the form of a tree structure.

Recall : 0.95



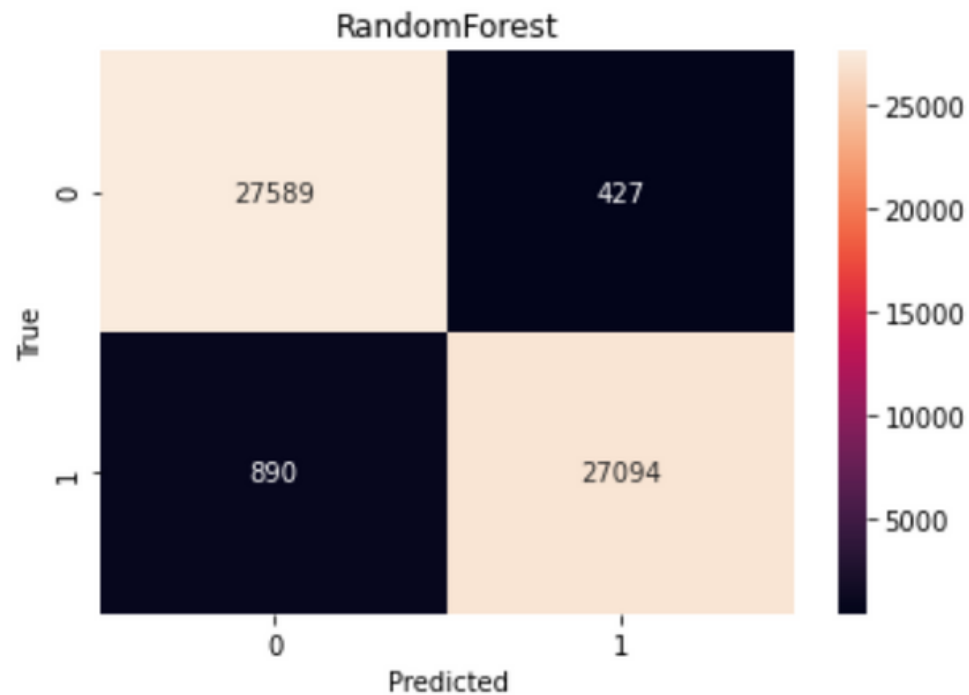


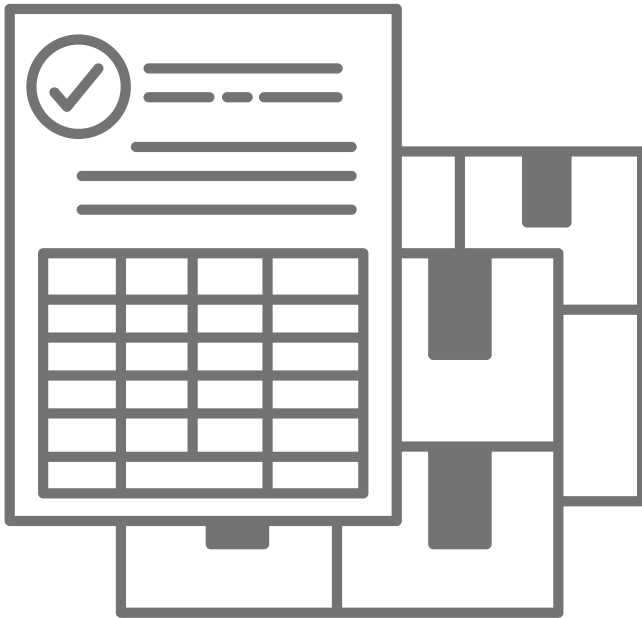


## RANDOM FOREST

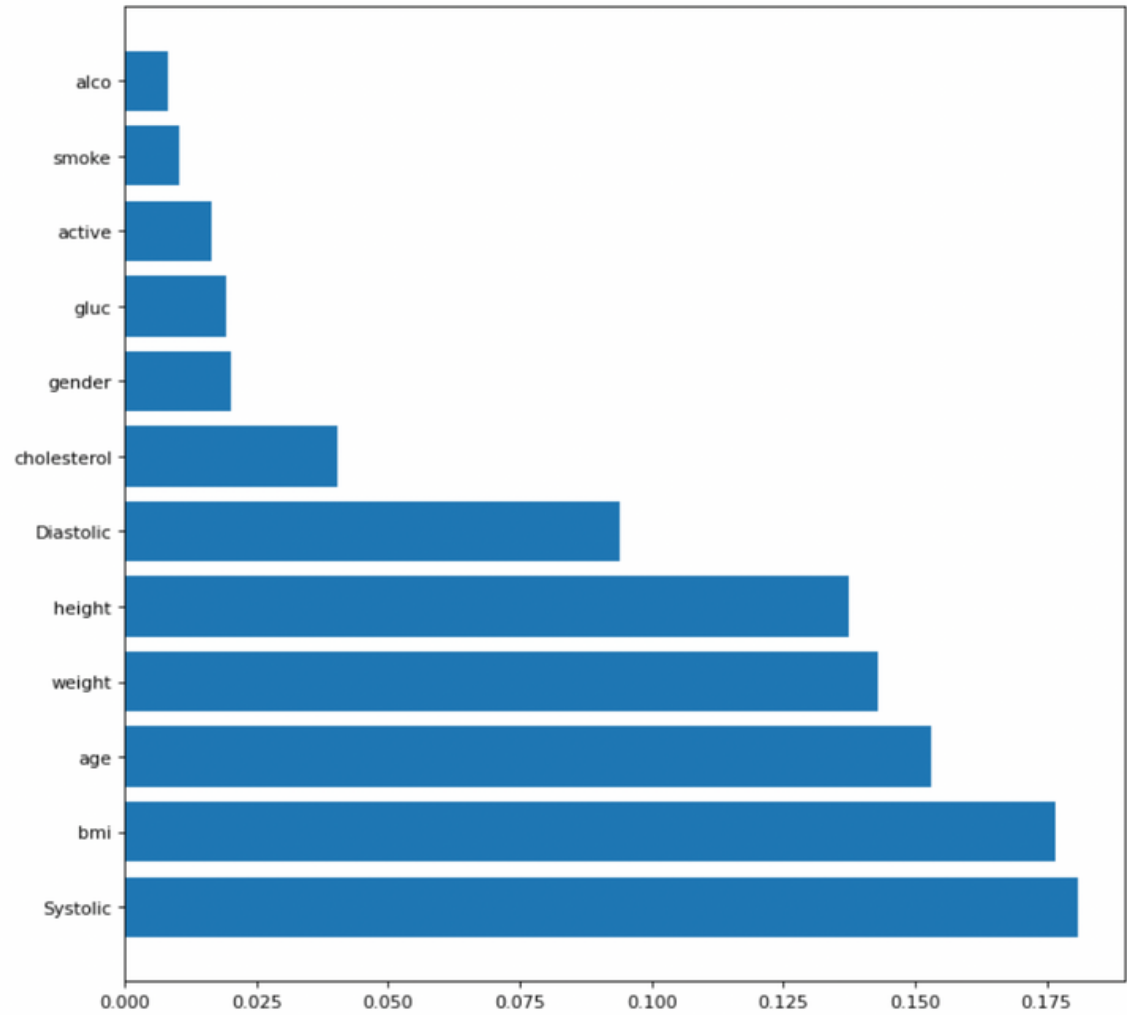
Def : Randomly creates and merges multiple decision trees into one “forest” .

Recall : 0.96

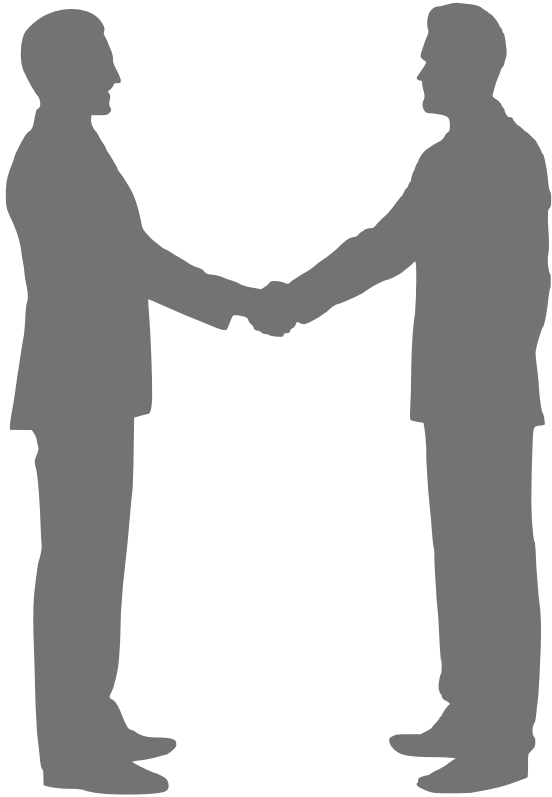




## IMPORTANT FEATURES



## CONCLUSIONS



PREDICTIONS CAN STRONGLY AID IN THE MEDICAL FIELD FOR EARLY ASSESSMENT AND INTERVENTIONS TO DELIVER THE PROPER CARE POSSIBLE FOR PATIENTS.

BY IMPROVING THEIR LIFESTYLE AND ACTIVITY, EATING HABITS, DIET CONTROL, WEIGHT CONTROL, REGULAR CHECKUPS, AND EARLY DETECTION AND PREDICTION OF CVD CASES CAN BE CONTROLLED AND WELL-TREATED.



*Quote of the Day*

**IT IS HEALTH THAT IS  
REAL WEALTH AND  
NOT PIECES OF GOLD.**

**MAHATMA GANDHI**



THANK YOU

