

SYNOPSIS
ON
HEART DISEASE

SUMMITTED FOR PARTIAL FULFILMENT OF DIPLOMA IN IT ENABLE
SERVICES & MANAGEMENT

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HEART DISEASE

Introduction

According to the World Health Organization, every year 12 million deaths occur worldwide due to Heart Disease. The load of cardiovascular disease is rapidly increasing all over the world from the past few years. Many researches have been conducted in attempt to pinpoint the most influential factors of heart disease as well as accurately predict the overall risk. Heart Disease is even highlighted as a silent killer which leads to the death of the person without obvious symptoms. The early diagnosis of heart disease plays a vital role in making decisions on lifestyle changes in high-risk patients and in turn reduce the complications. This project aims to predict future Heart Disease by analysing data of patients which classifies whether they have heart disease or not using machine-learning algorithms.

Motivation

Machine learning techniques have been around us and has been compared and used for analysis for many kinds of data science applications. The major motivation behind this research-based project was to explore the feature selection methods, data preparation and processing behind the training models in the machine learning. With first hand models and libraries, the challenge we face today is data where beside their abundance, and our cooked models, the accuracy we see during training, testing and actual validation has a higher variance. Hence this project is carried out with the motivation to explore behind the models, and further implement Logistic Regression model to train the obtained data. Furthermore, as the whole machine learning is motivated to develop an appropriate computer-based system and decision support that can aid to early detection of heart disease, in this project we have developed a model which classifies if patient will have heart disease in ten years or not based on various features (i.e., potential risk factors that can cause heart disease) using logistic regression. Hence, the early prognosis of cardiovascular diseases can aid in making decisions on lifestyle changes in high-risk patients and in turn reduce the complications, which can be a great milestone in the field of medicine.

Objectives

The main objective of developing this project are :

1. To develop machine learning model to predict future possibility of heart disease by implementing RandomForestClassifier.
2. To determine significant risk factors based on medical dataset which may lead to heart disease.
3. To analyse feature selection methods and understand their working principle.
4. The main objective of this research is to develop a heart prediction system. The system can discover and extract hidden knowledge associated with diseases from a historical heart data set
5. Heart disease prediction system aims to exploit data mining techniques on medical data set to assist in the prediction of the heart diseases.
6. Provides new approach to concealed patterns in the data.
7. Helps avoid human biasness.
8. Reduce the cost of medical tests.

System Requirement

- Software requirements

Operating System Any OS with clients to access the internet

Jupyter notebook

Pandas

Numpy

Scikit learn

Seaborn

Python 3

Flask

Heroku

- Hardware requirements

For application development, the following Software Requirements are:

Processor: Intel or high RAM: 1024 MB

Space on disk: minimum 100mb

For running the application:

Device: Any device that can access the internet

Minimum space to execute: 20 MB

The effectiveness of the proposal is evaluated by conducting experiments with a cluster formed by 3 nodes with identical setting, configured with an Intel CORE™ i7-4770 processor (3.40GHZ, 4 Cores, 8GB RAM, running Ubuntu 18.04 LTS with 64-bit Linux 4.31.0 kernel)

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