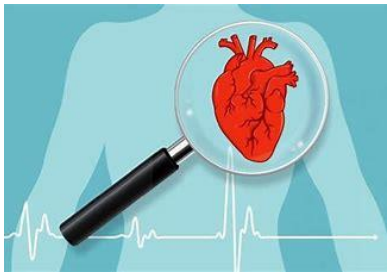
Low Level Design (LLD)

HEART DISEASE DIAGNOSTIC ANALYSIS



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Document Version Control

Date	Version	Description	Author
30-11-201	1.0	Abstract, Introduction Problem Statement	Somay
2-12-2021	1.1	Data set information	Somay
3-12-2021	1.2	Final Revision	Somay

Contents

Abstract

Heart disease may be a term covering any disorder of the center. Heart diseases became a serious concern to take care of as studies show that the number of deaths thanks to heart diseases have enhanced considerably over the past few decades in India Asian country it's become the leading reason behind death in India. A study shows that from 1990 to 2016 the death rate thanks to heart diseases have enhanced around thirty fourth from a hundred and 55.7 to 209.1 deaths per one large integer population in Asian country.

Thus, preventing heart diseases has become quite necessary. sensible data-driven systems for predicting heart diseases will improve the complete analysis and bar method, ensuring that additional folks will live healthy lives.

1 Introduction

1.1 Why this Low-Level Design Document?

The goal of the Low-level Design document (LDD) is to relinquish the inner logic form of the actual program code for the heart unhealthiest Diagnostic Analysis dashboard. LDD describes the class diagrams with the ways and relations between classes and programs specs. It describes the modules that the engineer can directly code the program from the document.

1.2 Scope

Low-level style (LLD) may be a component-level style method that follows a step- by-step refinement method. the method is used for planning information structures, needed package design, ASCII text file and ultimately, performance algorithms. Overall, the information the info the information organization could also be outlined throughout demand analysis and so refined throughout data style work.

1.3 Project Description

Heart disease (HD) is one in all the foremost common diseases today, associate degreed an early identification of such a sickness may be a crucial task for several health care suppliers to forestall their patients for such a sickness and to avoid wasting lives.

The health care industries collect large amounts of {information} that contain some hidden information, that is helpful for creating effective selections. For providing applicable results and creating effective selections on information, some information science techniques have to be compelled to be used. the info analysis predicts the probability of patients obtaining cardiopathy. It allows vital data. E.g., Relationships between medical factors associated with cardiopathy and patterns, to be established. The obtained results have illustrated that the designed diagnostic system will effectively predict the danger level of heart diseases

2 General Description

2.1 Product Perspective & Problem Statement

The goal of this project is to analyse to predict the probability of heart disease occurrence, based on a combination of features that describes the disease. To achieve the goal, we used a data set that is formed by taking into consideration some of the information of 303 individuals. The problem is based on the given information about each individual we have to calculate that whether that individual will suffer from heart disease or not.

3 Dataset Information

Index	age	sex	cp	trestbps	chol	fbs	restecg	thalach	exang	oldpeak	slope	ca	thal	target
0	63	1	1	145	233	1	2	150	0	2.3	3	0	6	0
1	67	1	4	160	286	0	2	108	1	1.5	2	3	3	2
2	67	1	4	120	229	0	2	129	1	2.6	2	2	7	1
3	37	1	3	130	250	0	0	187	0	3.5	3	0	3	0
4	41	0	2	130	204	0	2	172	0	1.4	1	0	3	0
5	56	1	2	120	236	0	0	178	0	0.8	1	0	3	0
6	62	0	4	140	268	0	2	160	0	3.6	3	2	3	3
7	57	0	4	120	354	0	0	163	1	0.6	1	0	3	0
8	63	1	4	130	254	0	2	147	0	1.4	2	1	7	2
9	53	1	4	140	203	1	2	155	1	3.1	3	0	7	1
10	57	1	4	140	192	0	0	148	0	0.4	2	0	6	0

The dataset consists of 303 individuals' data. There are 14 columns in the dataset, which are described below.

1. ***Age***: displays the age of the individual.

2. ***Sex***: displays the gender of the individual using the following format:
   1 = male
   0 = female

3. ***Chest-pain type***: displays the type of chest-pain experienced by the individual using the following format:
   1 = typical angina
   2 = atypical angina

3 = non — anginal pain

4 = asymptotic

4. ***Resting Blood Pressure***: displays the resting blood pressure value of an individual in mmHg (unit)

5. ***Serum Cholesterol***: displays the serum cholesterol in mg/dl (unit)

6. ***Fasting Blood Sugar***: compares the fasting blood sugar value of an individual with 120mg/dl.
   If fasting blood sugar > 120mg/dl then: 1 (true)
   else: 0 (false)

7. ***Resting ECG:*** displays resting electrocardiographic results
   0 = normal
   1 = having ST-T wave abnormality
   2 = left ventricular hypertrophy

8. ***Max heart rate achieved:*** displays the max heart rate achieved by an individual.

9. ***Exercise induced angina***:
   1 = yes
   0 = no

10. ***ST depression induced by exercise relative to rest***: displays the value which is an integer or float.

11. ***Peak exercise ST segment***:
    1 = upsloping
    2 = flat
    3 = down sloping

12. ***Number of major vessels (0–3) coloured by fluoroscopy***: displays the value as integer or float.

13. ***Thal*** : displays the thalassemia :

    3 = normal

    6 = fixed defect

    7 = reversible defect

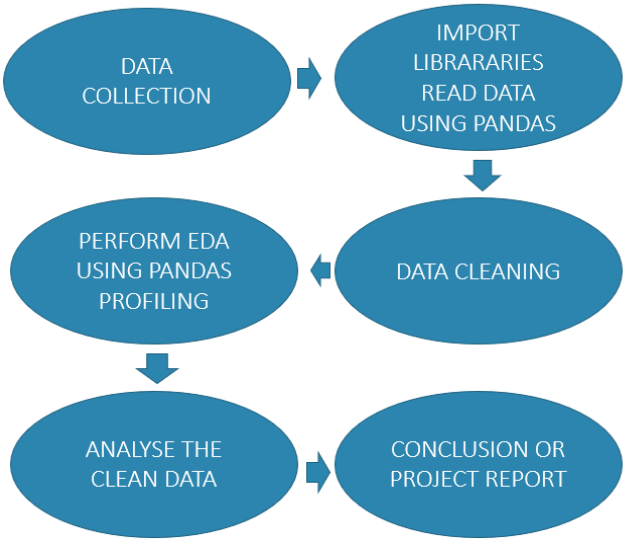
14. ***Diagnosis of heart disease***: Displays whether the individual is suffering from heart disease or not:

    0 = absence

    1, 2, 3, 4 = present.

4. Architecture

- DATA COLLECTION: WE COLLECT THE DATASET FROM GIVEN RESOURCE
- IMPORT LIBARARIES: IMPORT LIBRARARIES AND READ THE DATA USING PANDAS
- EDA: PERFORM EDA USING PANDAS PROFILING
- DATA CLEANING: CHECK NULL VALUES, MISSING VALUE, AND OUTLIERS OR UNNECESSARY VALUE IN THE GIVEN DATA SET
- ANALYSE THE DATA: ANALYSE THE DATA USING SEABORN AS WELL MATPLOT LIBARARIES AND CREATE A GRAPH TO UNDERSTANDING THE DATA.
- CONCLUSION: USING GRAPH AND OTHERS FACTORS AND CREATE A PROJECT REPORT OR CONCLUSION

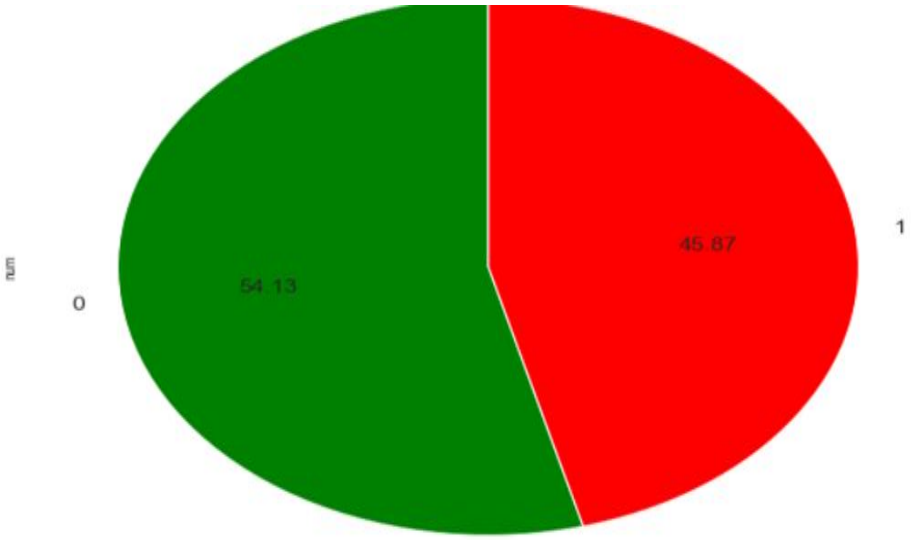


5. Deployment

Prioritizing knowledge and analytics couldn't return at a more robust time. Your company, regardless of what size, is already collection knowledge and possibly analysing simply some of it to unravel business issues, gain competitive blessings, and drive enterprise transformation. With the explosive growth of

enterprise knowledge, info technologies, and also the high demand for analytical skills, today's handiest IT organizations have shifted their focus to enabling

self-service by deploying and EDA at scale, in addition as organizing, orchestrating, and unifying disparate sources of knowledge for business users and consultants alike to author and consume content.



45.87% Of the patients detected with heart disease.