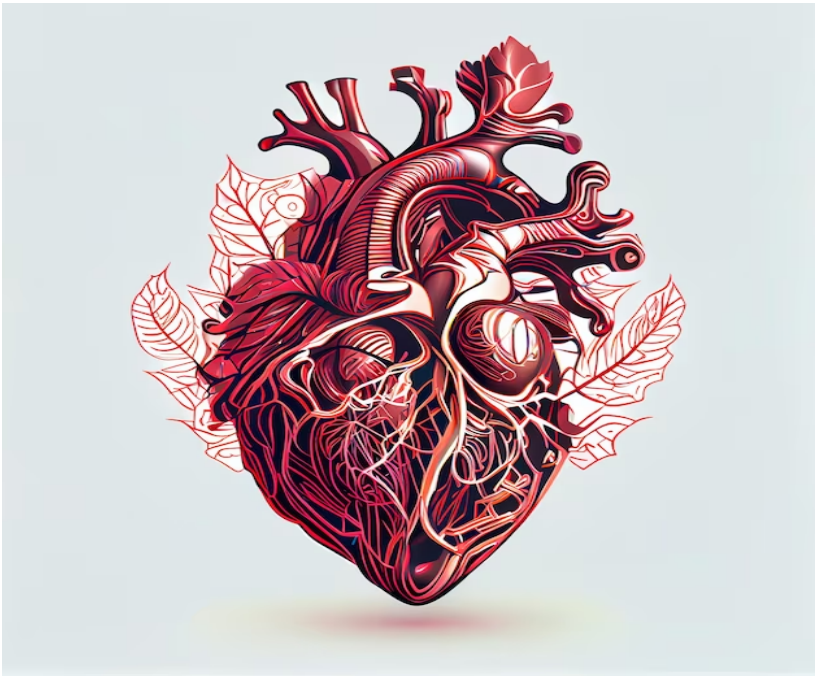


Low-Level Design (LLD)

Heart Disease Diagnostic Analysis

Revision Number: 1.1

Last Date of Revision: 25/9/2023

Sameer Singh

Document Version Control

Date Issued	Version	Description	Author
24.09.2023	1.0	Introduction, Problem Statement, Data information	Sameer Singh
25.09.2003	1.1	Architecture Description, Final Revision	Sameer Singh

Contents

1 Introduction

1.1 Why this Low-Level Design Document?

The goal of the LDD or Low-level design document (LLD) is to give the internal logic design of the actual program code for the House Price Prediction dashboard. LDD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

1.2 Scope

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code, and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

2 Problem Statement

Health is real wealth in the pandemic time we all realized the brute effects of covid-19 on all irrespective of any status. You are required to analyze this health and medical data for better future preparation.

3 Data Information

There are a total of 14 features/columns.

age: person age in years

sex: person sex (1 = male, 0 = female)

cp: The chest pain experienced (Value 1: typical angina, Value 2: atypical angina, Value 3: non-anginal pain, Value 4: asymptomatic)

trestbps: person's resting blood pressure (mm Hg on admission to the hospital)

chol: person cholesterol measurement in mg/dl

fbs: person's fasting blood sugar (> 120 mg/dl, 1 = true; 0 = false)

restecg: Resting electrocardiographic measurement (0 = normal, 1 = having ST-T wave abnormality, 2 = showing probable or definite left ventricular hypertrophy by Estes' criteria)

thalach: The person's maximum heart rate achieved

exang: Exercise induced angina (1 = yes; 0 = no)

oldpeak: ST depression induced by exercise relative to rest

slope: the slope of the peak exercise ST segment (Value 1: upsloping, Value 2: flat, Value 3: downsloping)

ca: The number of major vessels (0-3)

thal: A blood disorder called thalassemia (3 = normal; 6 = fixed defect; 7 = reversable defect)

num: Heart disease (0 = no, 1 = yes)

3 Architecture

3.1 Architecture Description

- ### Data Collection

  The Dataset has been taken from Ineuron Project Description Document.

  https://drive.google.com/drive/folders/165Pjmfb9W9PGy0rZjHEA22LW0Lt3Y-Q8?usp=sharing

- ### Data Pre-processing

  Data preprocessing is the process of transforming raw data into an understandable format. It is also an important step in data mining as we cannot work with raw data. The quality of the data should be checked before applying machine learning or data mining algorithms.

Pre-processing of data is mainly to check the data quality. The quality can be checked by the following:

- Accuracy: To check whether the data entered is correct or not.
- Completeness: To check whether the data is available or not recorded.
- Consistency: To check whether the same data is kept in all the places that do or do not match.
- Timeliness: The data should be updated correctly.
- Believability: The data should be trustable.
- Interpretability: The understandability of the data.

There are 4 major tasks in data preprocessing – Data cleaning, Data integration, Data reduction, and Data transformation.

- ## Exploratory Data Analysis (EDA)

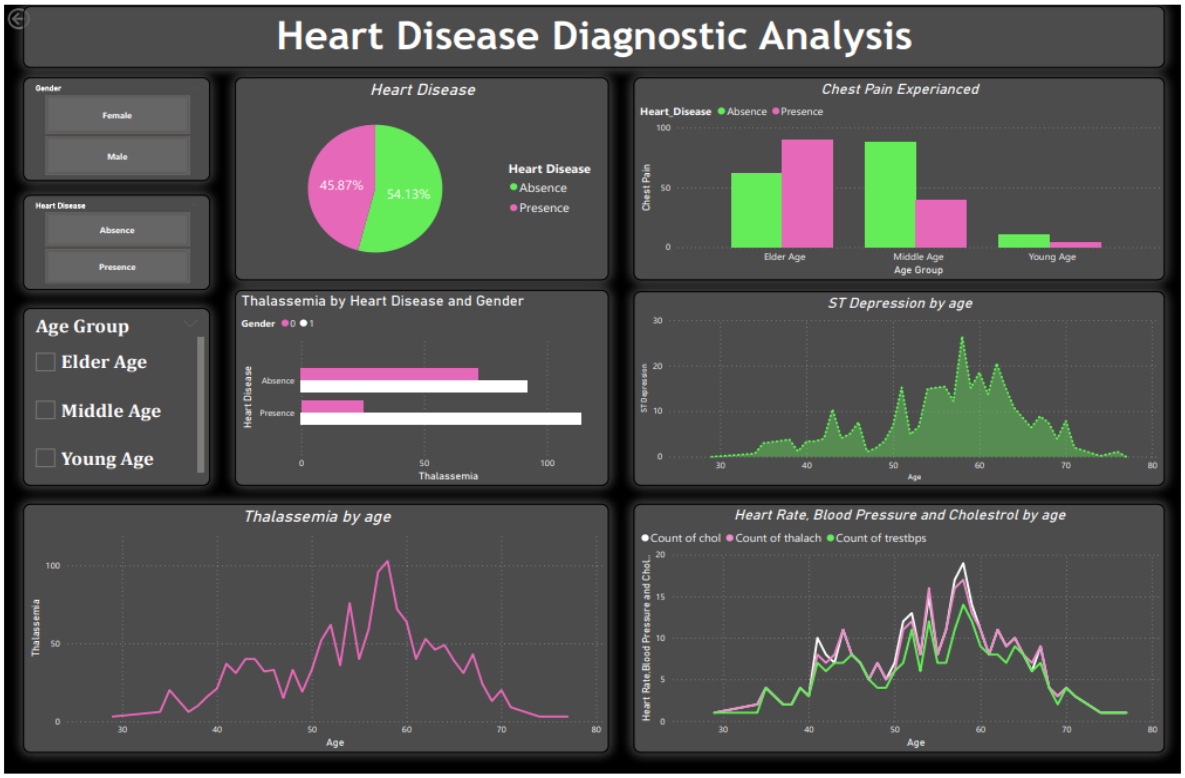
  Exploratory Data Analysis (EDA) is a process of describing the data by means of statistical and visualization techniques in order to bring important aspects of that data into focus for further analysis. This involves inspecting the dataset from many angles, describing & summarizing it without making any assumptions about its contents.

- ## Data Modelling

  Data modeling is the process of creating a visual representation of either a whole information system or parts of it to communicate connections between data points and structures. The goal is to illustrate the types of data used and stored within the system, the relationships among these data types, the ways the data can be grouped and organized, and its formats and attributes.

- ## Data Reporting

Data reporting is the process of collecting and presenting data in a structured format to facilitate data-driven decision-making. The goal of data reporting is to make data easily understandable and accessible to stakeholders, such as managers, executives, and clients. This involves selecting and analyzing relevant data and presenting the results in a clear, concise, and visually appealing way. Data reporting is often part of a business intelligence program, and includes everything from pixel-perfect reports for regulatory bodies, as well as ad hoc reports generated through self-service data analytics as business users have questions.


Heart Disease Diagnostic Analysis
Gender
Female
Male
Heart Disease
Absence
Presence
Age Group
Elder Age
Middle Age
Young Age
Heart Disease
45.87%
54.13%
Heart Disease
Absence
Presence
Chest Pain Experianced
Heart_Disease Absence Presence
Chest Pain
Elder Age
Middle Age
Young Age
Age Group
Thalassemia by Heart Disease and Gender
Gender 0 1
Heart Disease
Absence
Presence
Thalassemia
ST Depression by age
ST Depression
Age
Thalassemia by age
Thalassemia
Age
Heart Rate, Blood Pressure and Cholestrol by age
Count of chol Count of thalach Count of trestbps
Heart Rate,Blood Pressure and Chol...
Age