Low Level Design

Heart Disease Diagnostic Analysis

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Document Version	0.3
Last Revised Date	10/01/2023

DOCUMENT CONTROL

VERSION	DATE	AUTHOR	COMMENTS
0.1	06/01/2023	SIDDHARTH	Introduction, Problem Statement
0.2	08/01/2023	SIDDHARTH	Dataset Information, Architecture Description
0.3	10/01/2023	SIDDHARTH	Final Revision

Approval Status:

VERSION	REVIEW DATE	REVIEWED BY		APPROVED BY	COMMENTS

Contents

Introduction

.1 What is Low-Level design document?

The goal of the LDD or Low-level design document (LLDD) 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 programs specs. It describes the modules so that the programmer can directly code the program from the document.

.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.

.3 Project Information

Any heart issue is referred to as heart disease. The occurrence of heart disease has grown dramatically over the past few decades in India, making it the country's leading cause of mortality. This has made heart disease an important issue to address.

Therefore, it is now more important than ever to prevent cardiac disorders. In order to ensure that more people may live healthy lives, effective data-driven methods for predicting cardiac problems can enhance the overall research and prevention process

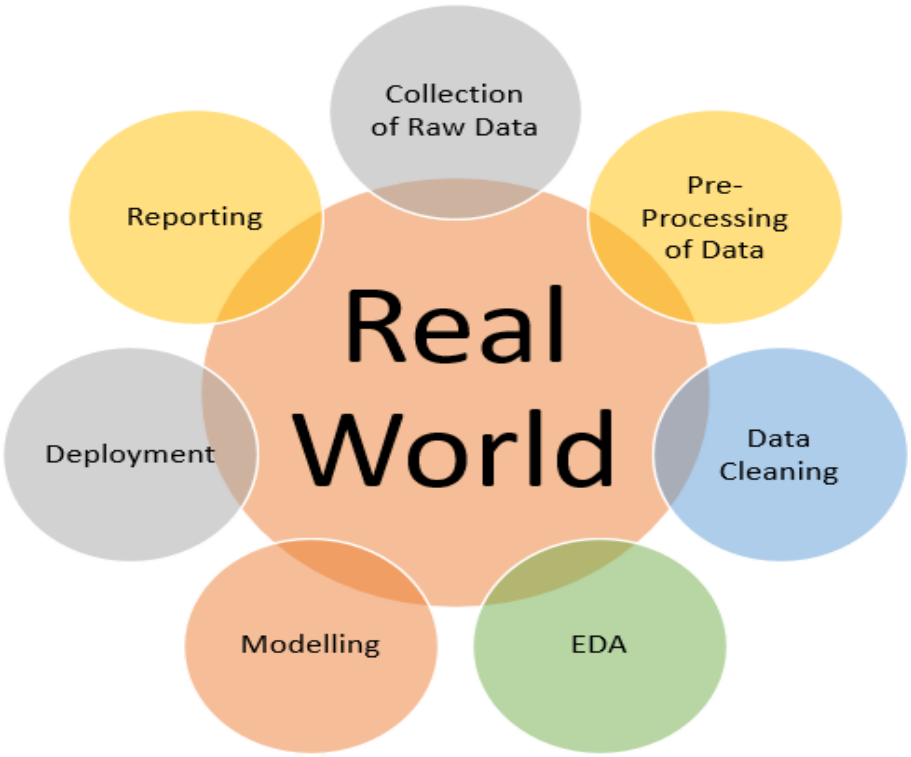
2. Problem Statement

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 analyse this health and medical data for better future preparation. A dataset is formed by taking into consideration some of the information of 303 individuals.

3. Dataset Information

- **age:** The person's age in years
- **sex:** The person's 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:** The person's resting blood pressure (mm Hg on admission to the hospital)
- **chol:** The person's cholesterol measurement in mg/dl
- **fbs:** The 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: down sloping)
- **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)

4. Architecture



4.1 Architecture Description

1. **Raw Data Collection:-**
   The Dataset was taken from I Neuron's Provided Project Description Document.
   https://drive.google.com/drive/folders/165Pjmfb9W9PGy0rZjHEA22LW0Lt3Y-Q8.

2. **Data Pre-Processing: -**
   Before building any model, it is crucial to perform data pre-processing to feed the correct data to the model to learn and predict. Model performance depends on the quality of data feeded to the model to train.
   This Process includes-
   - Handling Null/Missing Values
   - Handling Skewed Data
   - Outliers Detection and Removal

3. **Data Cleaning: -**
   Data cleaning is the process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset.

   - Remove duplicate or irrelevant observations
   - Filter unwanted outliers
   - Renaming required attributes

4. **Exploratory Data Analysis (EDA)**
   Exploratory Data Analysis refers to the critical process of performing initial investigations on data to discover patterns, spot anomalies, test hypothesis and to check assumptions with the help of summary statistics and graphical representations.

5. **Reporting**
   Reporting is a most important and underrated skill of a data analytics field. Because being a Data Analyst you should be good in easy and self-explanatory report because your model will be used by many stakeholders who are not from technical background.

   a) High Level Design Document (HLD)
   b) Low Level Design Document (LLD)
   c) Architecture
   d) Wireframe
   e) Detailed Project Report
   f) Power Point Presentation

6. **Modelling**
   Data Modelling is the process of analysing the data objects and their relationship to the other objects. It is used to analyse the data requirements that are required for the business processes. The data models are created for the data to be stored in a database. The Data Model's main focus is on what data is needed and how we have to organize data rather than what operations we have to perform.

7. **Deployment**
   We created a Power BI Dashboard