LOW-LEVEL DESIGN

Store Sales Prediction

Document Version Control

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01.10.2021	V1.0	Initial HLD- V1.0	Nikhil Patil

Contents

1.0 Introduction

1.1 What is Low-Level Design Document?

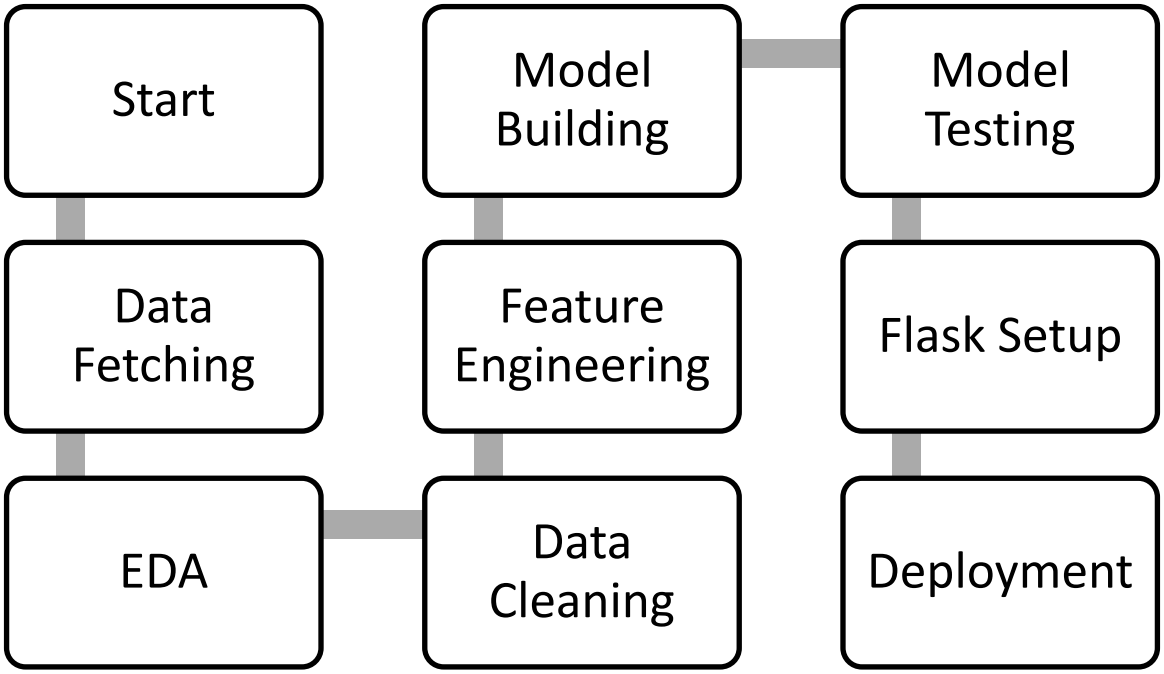
The goal of LLD or Low-Level design document (LDD) is to give the internal logical design of the actual program code. Low-Level design is created based on the High-Level design. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly can directly code the program from the document.

1.2 Scope

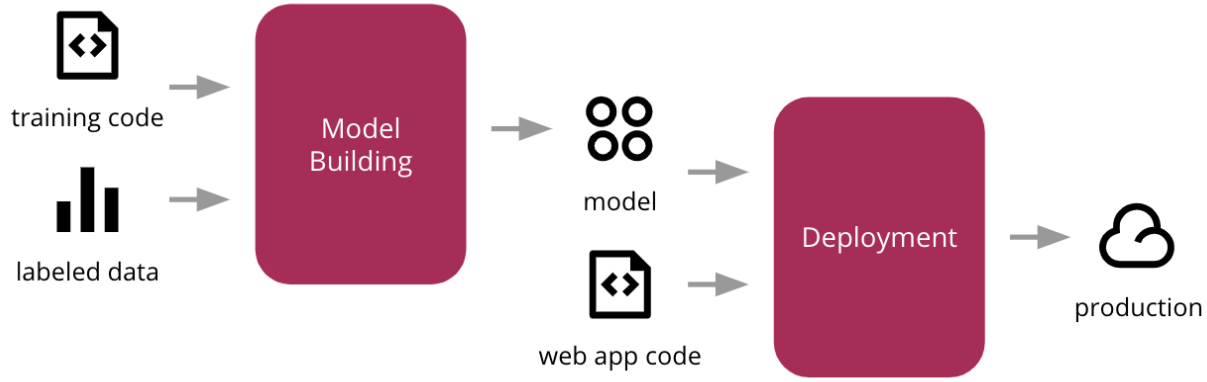
Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. This process can be used for designing data structures, required software architecture, source code, and ultimately, performance algorithms. Overall, the data organization may be defined during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

2.0 Architecture

2.1 Process Flow



2.2Model Training and Evaluation



3.0 Architecture Description

3.1 Data Collection

We used Big Mart outlet sales data as a dataset for this project where the dataset consists of 12 attributes. There is another dataset for validation purpose. The information each dataset available in Comma-Separated-Values (CSV). Here we use dataset contains 8523 observations and test dataset contains 5681 observations.

3.2 Exploratory Data Analysis

Exploring the data by visualizing the distribution of values in some columns of the dataset, and the relationships between 'Item Outlet Sales' and other columns.

3.3 Data Pre-processing

Data preprocessing is the process of transforming raw data into an understandable format. In data pre-processing all the processes required before sending the data for model building are performed. New attributes were added named ''Outlet years", where the given establishment year is subtracted from the current year. Then mapping of "Fat content" is done based on 'Low', 'Reg' and 'Non-edible'.

3.5 Model Building

After data pre-processing is done, we will split the dataset into training set and validation set. Then processed data is used to give accurate results by applying multiple algorithms. An effective model can predict accurate results by finding exact insights of data. We will calculate RMSE score for each model and select the model with the best score.

3.6 Data Validation

Here Data Validation will be done on the test set.

3.7 Deployment

We will use Heroku platform for the deployment of this project

4.0 Unit Test Cases

The client will be filled the required feature as input and will get results through the web application. The system will get features and it will be passed into the backend where the features will be validated and preprocessed and then it will be passed to a hyperparameter tuned machine learning model to predict the final outcome.