Low Level Design (LLD)

Ecommerce Customer Review Rating System

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Document Version Control

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15th Jun 2022	1	First Draft	Rahul Goyal
16th Jun 2022	2	Added Architecture	Rahul Goyal
17th Jul 2022	3	Added Architecture Description	Rahul Goyal
18th Aug 2022	4	Added Unit Test Cases	Rahul Goyal
10th Sep 2022	5	Restructure and reformat LLD	Rahul Goyal

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1. Introduction

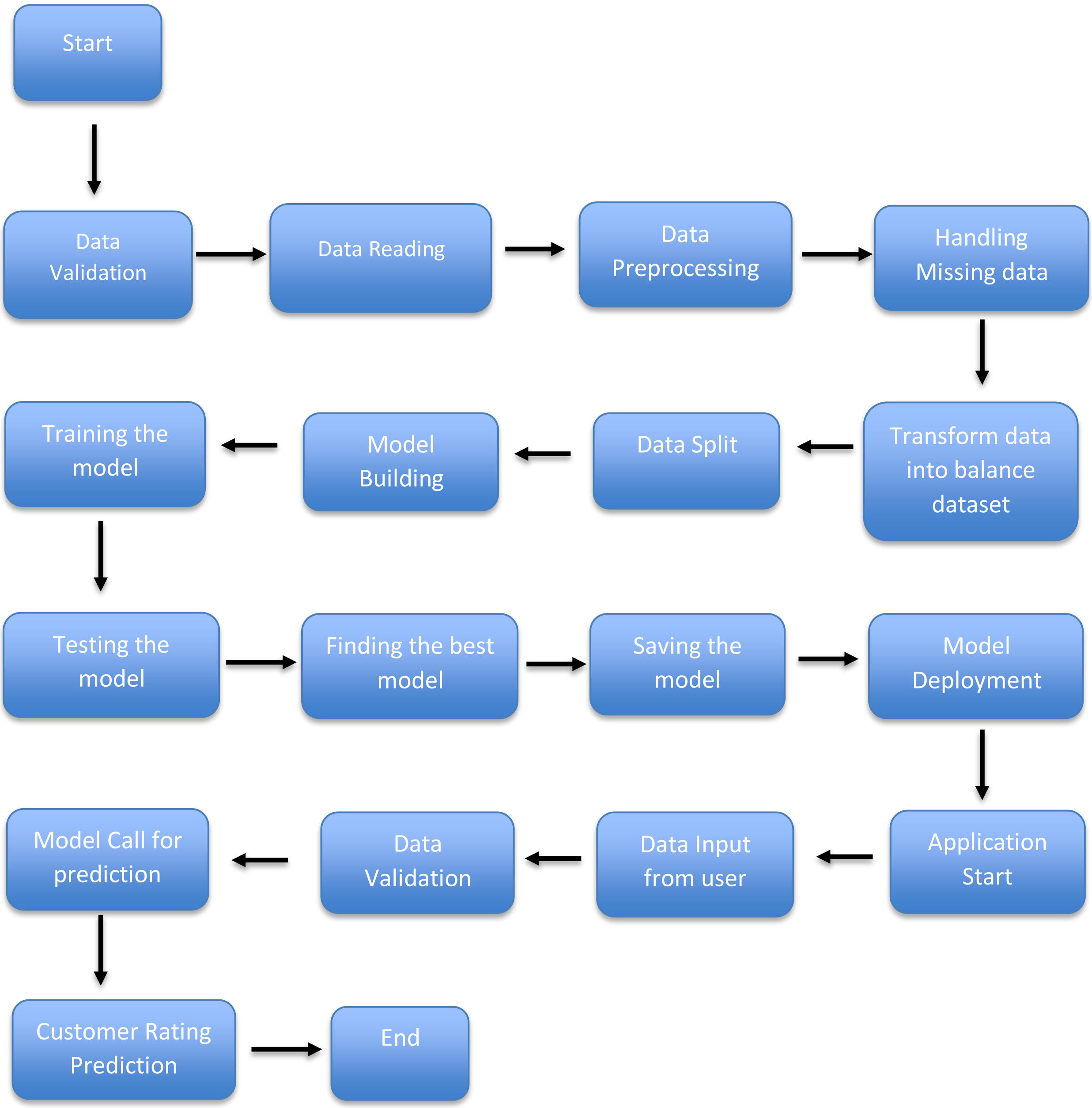
1.1 What is Low-Level Design Document?

The goal of LLD or a Low-Level Design Document (LLDD) is to give the internal logic design of the actual program code for Product Rating Prediction System. LLDD describes the class diagrams with the methods. It describes the modules so that the programmer can directly code the program from the document.

1.2 Scope

This system will be a Web application. This system will be designed to predict the product rating out of 1-5 for better classification of customer based on the low/high rating. This process can be used for designing source code and performance algorithms.

2. Architecture



3. Architecture Description

3.1 Data Description

Brazilian E-commerce dataset is the publicly available dataset with the information related to customer, order, product, geolocation, order items, review, seller, order payments. The information each category contains is in Comma Separated Values (CSV) file format. The combined categories contain 1,17,013 rows and 43 labels.

3.2 Data Transformation

In Data transformation we will merge all the CSV files into one CSV file and save the complete dataset at one place.

3.3 Data Pre-processing

In Data pre-processing step we will handle the missing values (if any), removal of unnecessary features, renaming the features etc.

3.4 Exploratory Data Analysis (EDA)

In EDA we will analyse and understand the data more closely to get the insights. We will use different libraries like matplotlib, seaborn etc to visualize the data, understand the correlation and get the relationship between the features.

3.5 Transform Data

In transform data step, we will transform the categorical features into numerical features using encoding technique. Checking the correlation of the features with the label, removing the unnecessary features. Saving the final data frame in the CSV file.

3.6 Model Building

After data split into train and test data, we will find the best model. We will calculate the confusion matrix, AUC scores and accuracy scores for model and select the best model with the best score. Best model will be saved to use for the recommendation.

3.7 Model Deployment

Deploying the model using flask to create an application for the product rating prediction.

3.8 Data from user

After creation of the application, here we will have the data input directly from the user based on the features in the model.

3.9 Data Validation

Here, data validation will be done, given by the user.

3.10 Model call for prediction

Based on the data given by the user, respective model will be loaded and will be used to predict the product rating with confidence level.

3.11 Product Rating Prediction

After calling the model, product rating will be predicted along the confidence level.

4. Unit Test Cases

Test Case Description	Pre-Requisite	Expected Result
Verify whether the Application URL is accessible to the user	1. Application URL should be defined	Application URL should be accessible to the user
Verify whether the Application loads completely for the user when the URL is accessed	1. Application URL is accessible 2. Application is deployed	The Application should load completely for the user when the URL is accessed
Verify whether user can see input fields.	1. Application is accessible 2. User is logged in to the application	User should be able to see input fields on logging in
Verify whether user can edit allinput fields	1. Application is accessible 2. User is logged in to the application	User should be able to edit all input fields
Verify whether user gets Submit button to submit the inputs	1. Application is accessible 2. User is logged in to the application	User should get Submit button to submit the inputs
Verify whether user is presented with recommended results on clicking submit	1. Application is accessible 2. User is logged in to the application	User should be presented with recommended results on clicking submit
Verify whether the recommended results are in accordance with the selections user made	1. Application is accessible 2. User is logged in to the application	The recommended results should be in accordance with the selectionsuser made

Verify whether KPIs modify as per the user inputs for the product rating	1. Application is accessible 2. User is logged in to the application	KPIs should modify as per the user inputs for the product rating
Verify whether the prediction result indicate customer satisfaction level or not.	1. Application is accessible 2. User is logged in to the application	The predicted result should indicate whether customer is satisfied or not.