Low Level Design (LLD)

Shipment Pricing Prediction

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Abstract

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Shipment pricing system are new generation of traditional shipment pricing where the whole process right from tracking the shipment package till delivery of the package to the customer. Users are able to track and find the cost of their package to be shipped by any modes. Apart from interesting real-world applications of Shipment pricing systems, the characteristics of data being generated by these systems make them attractive for the research.

1. Introduction

1.1 Why this Low-Level Design Documentation?

The purpose of this documentation is detailed description of shipment prediction system which will explain the purpose and the feature of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will perform under different climatic conditions. This document is intended for both the stack holders and developers of the system and will be proposed for the higher management for its approval.

This project can be delivered in three phases

> **Phase 1: Building Machine learning model depending on the requirements.**

> **Phase 2: Integration of UI and database to all the functionalities.**

> **Phase 3: Deployment of project on cloud.**

1.1 Scope

Shipment pricing system are new generation of traditional shipment pricing where the whole process right from tracking the shipment package till delivery of the package to the customer. Users are able to track and find the cost of their package to be shipped by any modes. Apart from interesting real-world applications of Shipment pricing systems, the characteristics of data being generated by these systems make them attractive for the research. Our main aim to predict reliable model which would be used across the all situation for predicting accurate prices

1.2 Constraints

This project is based on Shipment data across all the countries, There are also many redundant data which would affect our model accuracy.

1.3 Out of scope

System will not be Perform good if there are any new labels added.

Technical Specifications

1.2 Dataset

Data	Finalized	Source
Shipment Pricing	Yes	https://www.kaggle.com/divyeshardeshana/supply-chain-shipment-pricing-data

1.2.1 Dataset Overview

17379 – rows

9 – columns

	ID	Project Code	PQ #	PO / SO #	ASN/DN #	Country	Managed By	Fulfill Via	Vendor INCO Term	Shipment Mode	...	Unit of Measure (Per Pack)	Line Item Quantity	Line Item Value	Pack Price	Unit Price	Manufacturing Site	D
0	1	100-CI-T01	Pre-PQ Process	SCMS-4	ASN-8	Côte d'Ivoire	PMO - US	Direct Drop	EXW	Air	...	30	19	551.00	29.00	0.97	Ranbaxy Fine Chemicals LTD	
1	3	108-VN-T01	Pre-PQ Process	SCMS-13	ASN-85	Vietnam	PMO - US	Direct Drop	EXW	Air	...	240	1000	6200.00	6.20	0.03	Aurobindo Unit III, India	
2	4	100-CI-T01	Pre-PQ Process	SCMS-20	ASN-14	Côte d'Ivoire	PMO - US	Direct Drop	FCA	Air	...	100	500	40000.00	80.00	0.80	ABBVIE GmbH & Co.KG Wiesbaden	
3	15	108-VN-T01	Pre-PQ Process	SCMS-78	ASN-50	Vietnam	PMO - US	Direct Drop	EXW	Air	...	60	31920	127360.80	3.99	0.07	Ranbaxy, Paonta Shahib, India	
4	16	108-VN-T01	Pre-PQ Process	SCMS-81	ASN-55	Vietnam	PMO - US	Direct Drop	EXW	Air	...	60	38000	121600.00	3.20	0.05	Aurobindo Unit III, India	
5	23	112-NG-T01	Pre-PQ Process	SCMS-87	ASN-57	Nigeria	PMO - US	Direct Drop	EXW	Air	...	240	416	2225.60	5.35	0.02	Aurobindo Unit III, India	
6	44	110-ZM-T01	Pre-PQ Process	SCMS-139	ASN-130	Zambia	PMO - US	Direct Drop	DDU	Air	...	90	135	4374.00	32.40	0.36	MSD South Granville Australia	
7	45	109-TZ-T01	Pre-PQ Process	SCMS-140	ASN-94	Tanzania	PMO - US	Direct Drop	EXW	Air	...	60	16667	60834.55	3.65	0.06	Aurobindo Unit III, India	
8	46	112-NG-T01	Pre-PQ Process	SCMS-156	ASN-93	Nigeria	PMO - US	Direct Drop	EXW	Air	...	60	273	532.35	1.95	0.03	Aurobindo Unit III, India	

1.2.2 Input Schema

Feature name	Datatype	Null/Required
Country	Text	Required
Shipment mode	Text	Required
Weight	Float	Required
Line-Item Insurance	Float	Required
Unit Price	Float	Required
Pack Price	Float	Required
Unit of measure	Float	Required
Fulfill via	Text	Required

1.3 Predicting

- ✓ **The system displays the price of shipment according tothe users input.**
- ✓ **The system presents the set of inputs required from the user.**
- ✓ **The user gives required information.**
- ✓ **The system should be able to predict the price of shipment for theinformation provided by the user.**

1.4 Logging

- ✓ **We have chosen File logging.**
- ✓ **System logs each and every system flow.**
- ✓ **Each and every user's input information is logged.**

1.5 Database

The system stores each and every data given by the user orreceived on request to the database. We have used MongoDB.

1.6 Deployment

1. AWS

| Frond End	HTML/CSS/
Backend	Python Flask
Database	MongoDB
Deployment	AWS

2.Proposed Solution

Shipment pricing system are new generation of traditional shipment pricing where the whole process right from tracking the shipment package till delivery of the package to the customer. Users are able to track and find the cost of their package to be shipped by any modes. Apart from interesting real-world applications of Shipment pricing systems, the characteristics of data being generated by these systems make them attractive for the research. Our main aim to predict reliable model which would be used across the all situation for predicting accurate prices

Model training/validation workflow
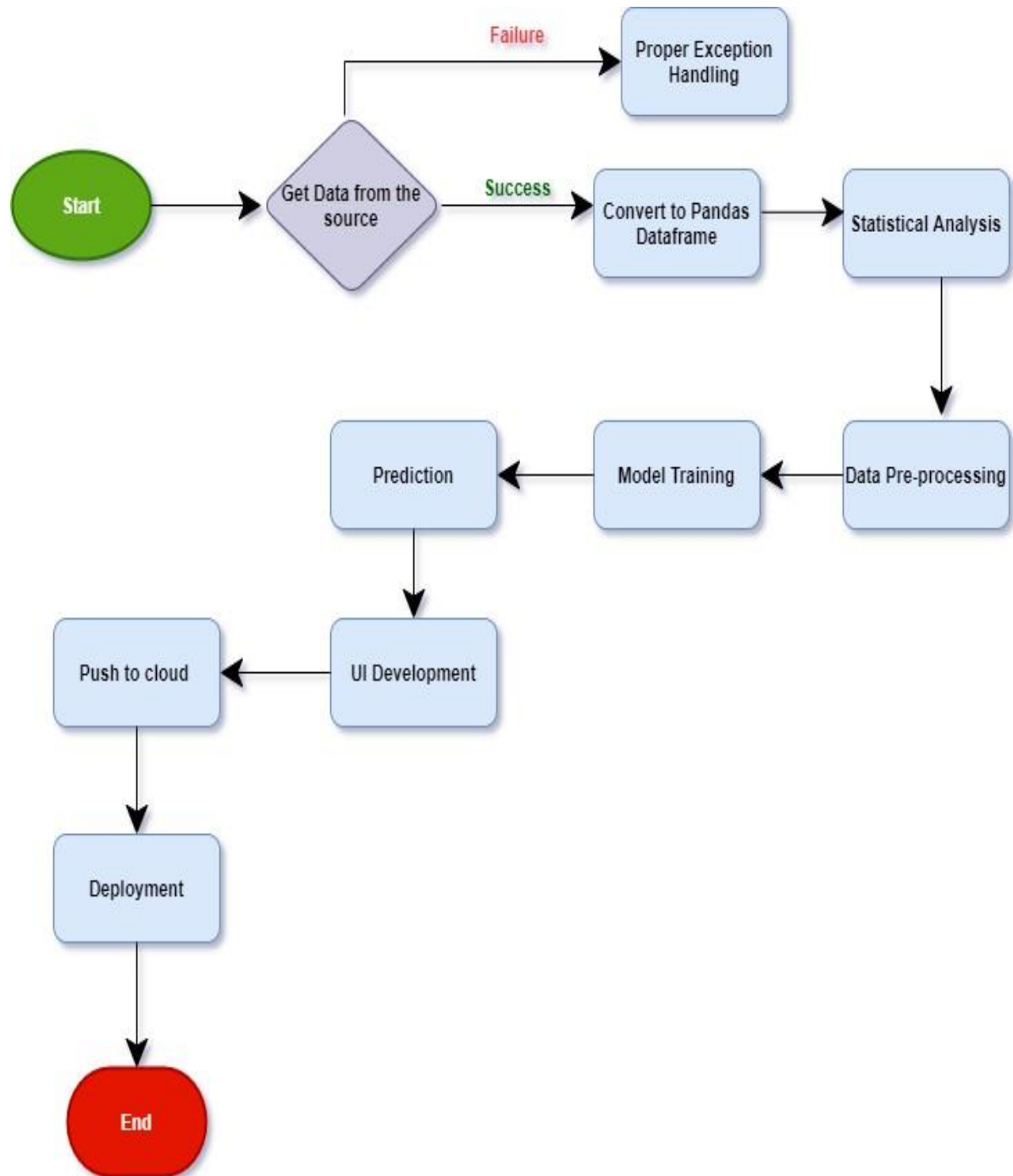
User I/O workflow
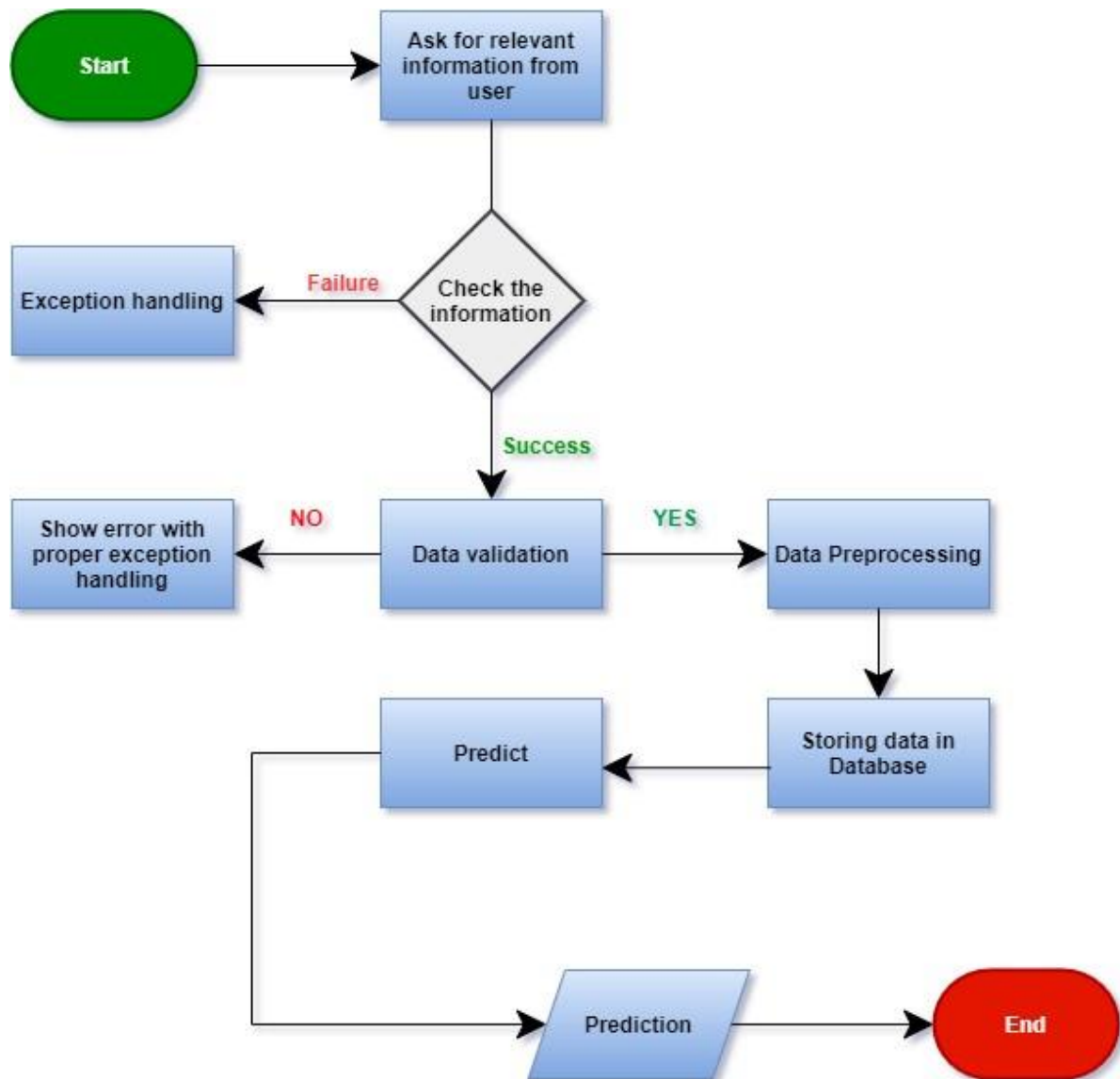
5. Test cases (if any)

Test Case Description	Pre-Requisite	Expected Result
Verify whether theApplication URL is accessible to the user	Application URL should be defined	Application URL should beaccessible to the user
Verify whether theApplication loads completely for the user when the URL is accessed	1. Application URLis accessible 2. Application is deployed	The Application should load completely for the user whenthe URL is accessed
Verify whether user is able toedit all input fields	1. Application isaccessible 2. User is logged in to the application	User should be able to edit allinput fields
Verify whether user gets Submit button to submit theinputs	1. Application isaccessible 2. User is logged in to the application	User should get Submit buttonto submit the inputs
Verify whether user is presented with recommendedresults on clicking submit	1. Application isaccessible 2. User is logged in to the application	User should be presented withrecommended results on clicking submit
Verify whether the recommended results are inaccordance to the selections user made	1. Application isaccessible 2. User is logged in to the application	The recommended results should be in accordance to theselections user made
Verify whether is going to inappropriate page or URL it should go to the desired error page.	1. Application isaccessible 2. User is logged in to the application	Recommended error page should be according to the Error/issue.