High Level Documentation

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 High-Level Design Documentation

The purpose of this High-Level Design (HLD) Document is to add the necessary detail to the current project description to represent a suitable model for coding. This document is also intended to help detect contradictions prior to coding, and can be used as a reference manual for how the modules interact ata high level.

The HLD will:

- **Present all of the design aspects and define them in detail**
- **Describe the user interface being implemented**
- **Describe the hardware and software interfaces**
- **Describe the performance requirements**
- **Include design features and the architecture of the project**
- **List and describe the non-functional attributes like:**
  - **Security**
  - **Reliability**
  - **Maintainability**
  - **Portability**
  - **Reusability**
  - **Application compatibility**
  - **Resource utilization**
  - **Serviceability**

1.2 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

2)General Description

2.1 Product Perspective

This Shipment pricing system is a machine learning based model which will predict the freight cost which would be beneficial for the customer to know the cost in prior. Organization makes sure that the predicted freight cost are reliable to user for accurate predictions.

2.2 Problem statement

The market for supply chain analytics is expected to develop at a CAGR of 17.3 percent from 2019 to 2022, more than doubling in size. This data demonstrates how supply chain organizations are understanding the advantages of being able to predict what will happen in the future with decent degree of certainty. Supply chain leaders may use this data to address supply chain difficulties, cut costs, and enhance service levels all at the same time. The goal here is to build an end-to-end regression task. Here the user will provide the data and the result will be given by the bestperforming hyper tuned Machine Learning model. The user will also get privileges to choose the deployment options.

2.3 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

2.3 Further Improvements

As the data is not very huge our main aim is to complete this use case with machine learning algorithm as a best optimized solution, In future if we are expected to get more data and different categories, if needed we might use deep-learning algorithm to get best solution.

2.4 Data Requirements

Data requirements completely depend on our problem statement.

2.5 Tools used

2.6 Constraints

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

2.7 Assumptions

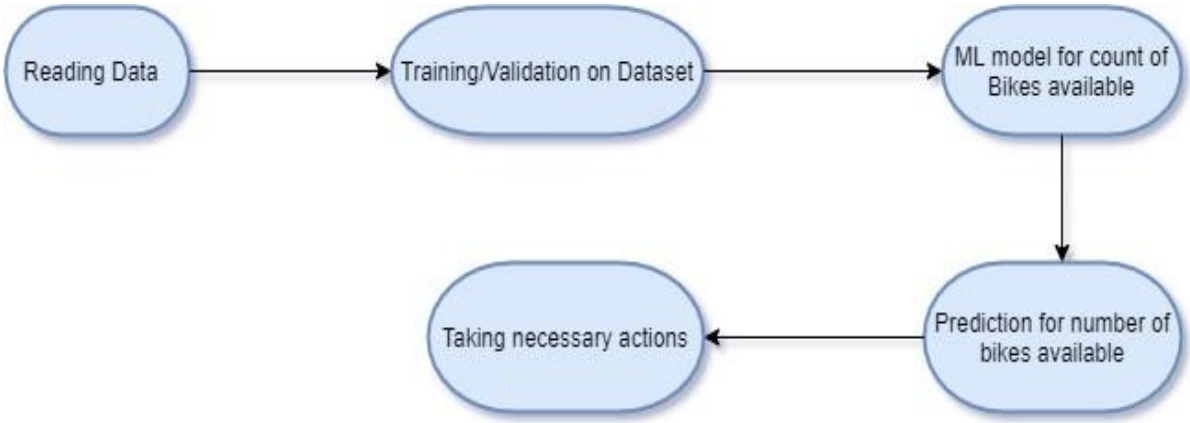
The main objective of the project is to implement the use case as previously mentioned (2.2problem statement). This system will help us to predict the shipment prices a by the user. We assume that the system will help the organization to know the exact freight cost for the user.

3)Design Details

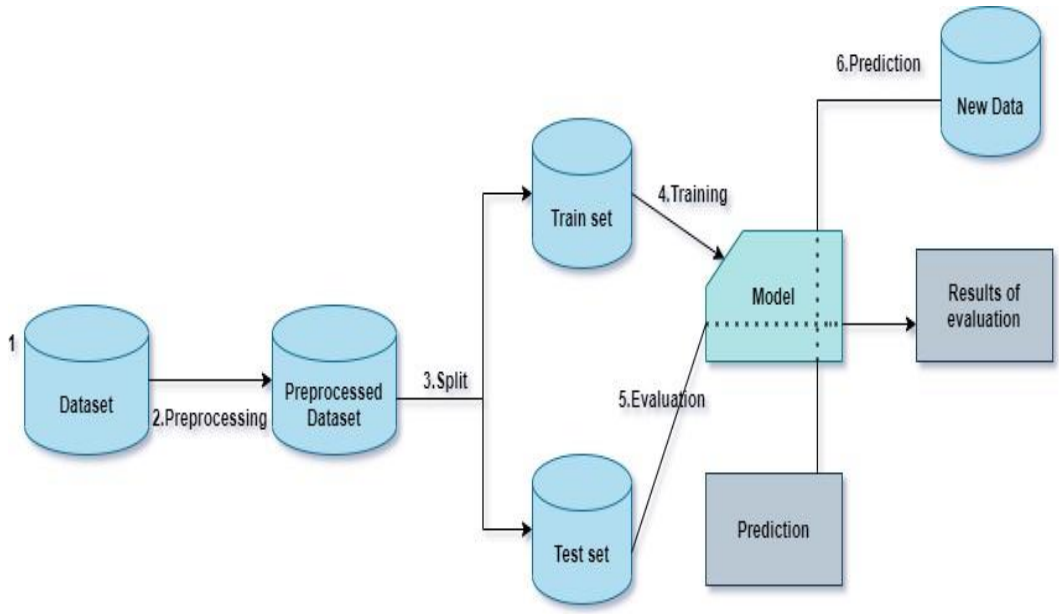
3.1 Process flow

Based on the use-case, we will use a machine learning base model. Below is the process flow diagram is as shown below.

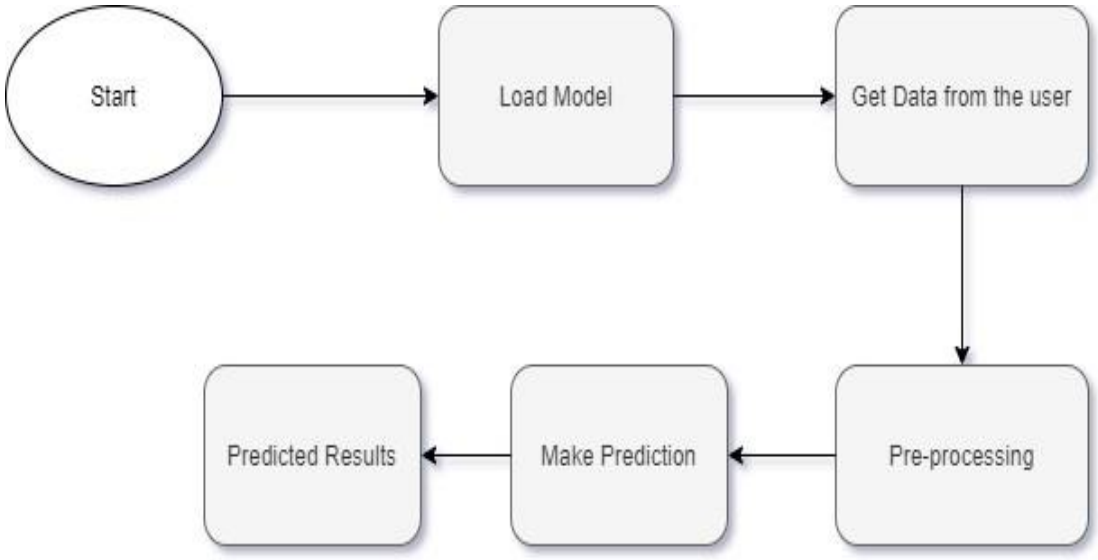
Proposed methodology



3.1.1 Model Training and Evaluation



3.1.2 Deployment Process



3.2 Event log

The system should log every event so that the user will know what process is running internally.

Initial Step-step description:

- **The system identifies at what step logging required**
- **The system should be able to log each and every system flow.**
- **Developer can choose logging method. We chose File logging.**
- **System should not hang as we have used file logging. Logging just because we can easily debug issues so logging is mandatory to do.**

3.3 Error Handling

Should error be encountered, an explanation will be displayed as to what wentwrong? An error will be defined as anything that falls outside the normal and intended usage.

4) Performance

4.1 Reusability

The code written and the components used has the ability to bereused with no problems if there is similar problem statement.

4.2 Application Compatibility

The different components for this project will be using Python asan interface between them. Each component will have its own task to perform, and it is the job of the Python to ensure proper transfer of information.

4.3 Resource Utilization

When any task is performed, it will likely use all the processingpower available until that function is finished.

4.4 Deployment

5 Conclusion

This shipment pricing prediction system helps the user to track and also get to know the freight cost by our organization which would benefit huge shipment companies and the customers who use it in regular to ship package. This would help organization to boost the profit.