Low Level Document (LLD)

**Store Sales Prediction**

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**DECLARATION**

We declare that this written submission represents us ideas is our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources.

We also declare that we have adhered to all principles of academic honesty

and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission.

We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when

needed.

**Revision History**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Reviewer** | **Approver** | **Comments** |
| 0.1 | 15-01-2023 | Muhammed Shibil | Muhammed Shibil |  | Draft version |
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| 0.3 | 16-01-2023 | Muhammed Shibil | Muhammed Shibil |  | Suggested document format related comments like correction of version, adding one sections for open issues etc |
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10. **Introduction:**

**1.1 Scope of the Document**

* This section will cover details regarding scope of the document
* Low level design document will be at component level i.e., for website portal there will be one LLD

**1.2 Intended Audience**

* This section will cover categories of audiences who will be referring/reviewing this document

**1.3 System Overview**

* This section will capture overview of system application i.e for what system is being developed
* Who are the stake holders of system?
* What are other external Systems through which this will be interacting

1. **Project Briefing:**

A store sale prediction model is a machine learning model that is trained to predict future sales for a retail store. The model would be trained on historical sales data, and would use various factors such as past sales, weather, holidays, promotions, and economic indicators to make predictions. The goal of the model would be to accurately predict future sales so that the store can make informed decisions about inventory management and staffing.

1. **Problem Statement:**

The problem of store sales prediction involves using historical data on sales, along with other relevant information such as promotional events, competitor activity, and economic indicators, to predict future sales for a particular store or group of stores. This can be accomplished using a variety of techniques such as time series forecasting, regression analysis, and machine learning. The ultimate goal is to provide retailers with insights that can help them optimize their inventory, marketing, and other operational decisions in order to drive sales and increase profitability.

1. **Problem Solution:**

One solution for store sales prediction is to use a time series forecasting model, such as an ARIMA or a seasonal decomposition of time series (STL) model. These models use historical sales data to identify patterns and trends, and then make predictions about future sales based on those patterns. Another solution is to use machine learning techniques such as regression analysis or neural networks. These models can take into account a wide range of features, such as promotional events, competitor activity, and economic indicators, and can be trained on large amounts of historical data to make more accurate predictions. In order to make more accurate predictions, these models can also be combined with feature engineering to extract useful information from the data.

1. **Objective of the Project:**

The objective of the store sales prediction project is to use historical sales data and other relevant information to predict future sales for a particular store or group of stores. The ultimate goal of this project is to provide retailers with insights that can help them optimize their inventory, marketing, and other operational decisions in order to drive sales and increase profitability. Additionally, the project may also aim to identify key factors that drive sales, such as promotional events, competitor activity, and economic indicators, so that retailers can make more informed decisions about how to improve sales in the future. Overall, the goal of this project is to provide actionable insights that can help retailers make data-driven decisions to improve their business performance.

1. **Scope of Project:**

The scope of the store sales prediction project typically includes the following steps:

Data collection: Collecting historical sales data, as well as other relevant information such as promotional events, competitor activity, and economic indicators.

Data cleaning and preprocessing: Cleaning and preprocessing the data to ensure that it is in a format that can be used for analysis and modeling.

Exploratory data analysis: Analyzing the data to identify patterns and trends, as well as any outliers or missing values.

Modeling: Building and training models using techniques such as time series forecasting, regression analysis, and machine learning, to predict future sales.

Evaluation: Evaluating the performance of the models using metrics such as mean absolute error or root mean squared error.

Deployment: Deploying the final model in a production environment and using it to make predictions on new data.

Insights: Extract insights from the model to understand the key factors that drive sales, and provide recommendations to improve the sales.

1. **Requirements Gathering:**

* Window 10 Operating system
* Jupyter Notebook
* Few Github Non copyrighted source codes

1. **Analysis:**

artificial intelligence techniques to improve the accuracy of predictions. Incorporating more data sources to provide a more complete picture of an individual's life expectancy.

Addressing privacy and ethical concerns by implementing appropriate measures to protect users' personal information.

Providing clear and comprehensive documentation for the tool and an API for other developers to easily access and use the tool's functionality in their own applications.