

# **Computer Engineering Department**

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UNIVERSITY OF MUMBAI

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A Project Report on

# **A Two Level Statistical Model for Big Mart Sales Prediction**

Submitted in partial fulfillment of the degree of  
Bachelor of Engineering(Sem-7)  
in

**Computer Engineering**

By

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# **1. Project Conception and Initiation**

# 1.1 Abstract

- Sales is a lifeblood of each and every company and sales forecasting Plays a vital role in conducting any business.
- Good forecasting helps to develop and improve business strategies by increasing the knowledge.
- sales forecasting is sales prediction that is based on the available resources from the past

# 1.2 Objectives

- To plan for timely procurement of raw material of right quality to be available at the right time. Raw material management can save company a lot of money by maintaining sufficient stocks to produce stocks as per sales prediction.

# 1.3 Literature Review

- Business data mining - A machine learning perspective  
Bose, Indranil, and Radha K. Mahapatra, Information & management, (3), pp.Vol. 39211-225, February, 2001.
- Is Combining Classifiers with Stacking Better Than Selecting the Best One?  
Deroski, Saso and Bernard Enko.”, Machine learning, Vol. 54(3), pp. 255-273, March.
- A Survey on Retail Sales Forecasting and Prediction in Fashion Markets  
Beheshti-Kashi and Samaneh, Systems Science & Control Engineering, Vol. 3, pp. 154

# 1.4 Problem Definition

- Accurate sales forecast is an important tool for companies to have. It helps CEOs gauge the demand for their products. It helps companies better manage inventory. Sales forecasting allows companies to see into the future and strategically plan their moves to increase growth. we will develop web.

# 1.5 Scope

- In this paper, prediction of sales of a product from a particular outlet is performed via a two-level approach that produces better predictive performance compared to any of the popular single model predictive learning algorithms.
- The approach is performed on Big Mart Sales data of the year 2013. Data exploration, data transformation and feature engineering play a vital role in predicting accurate results.
- The result demonstrated that the two-level statistical approach performed better than a Single model approach as the former provided more information that leads to better prediction.



# 1.6 Technology stack

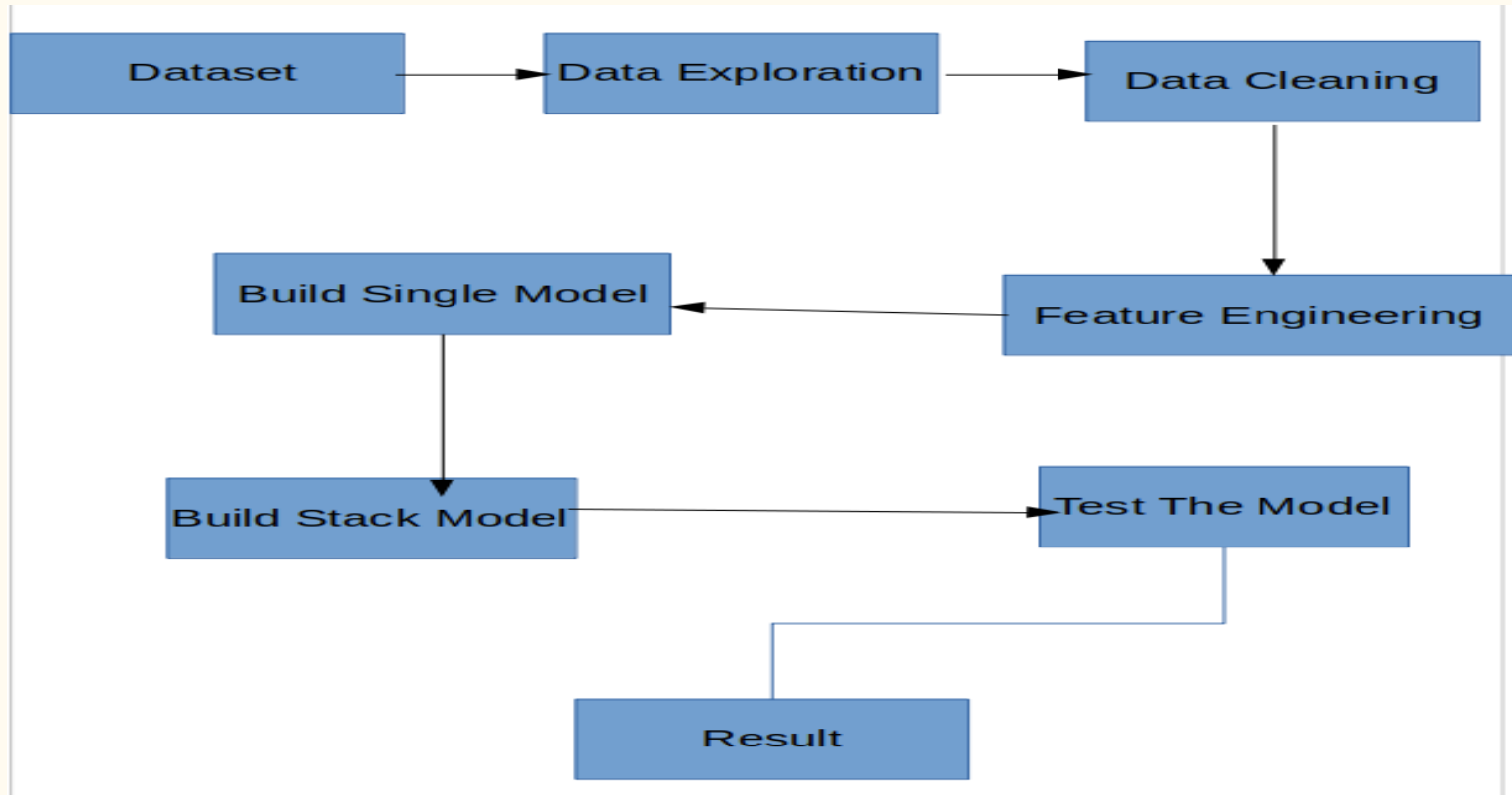
- GOOGLE COLAB
- PYTHON FLASK

# 1.7 Benefits for environment & Society

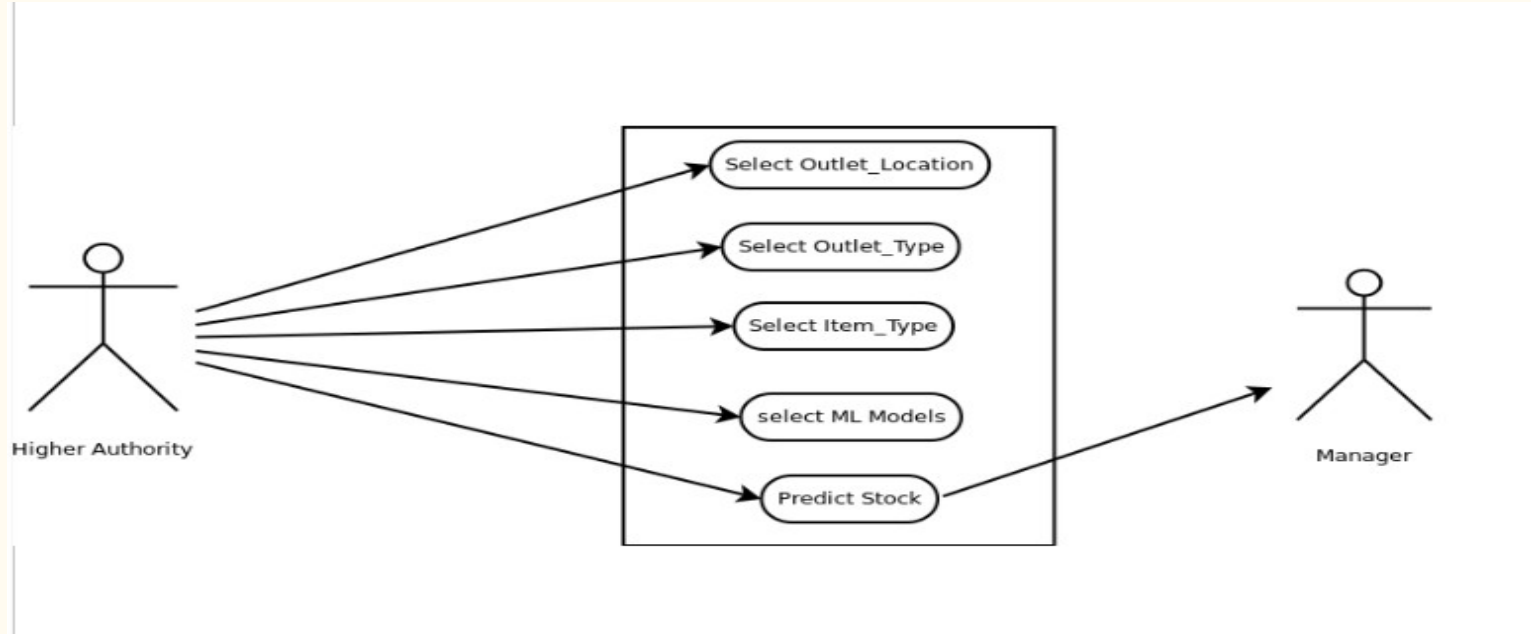
- Two-Level Statistical Prediction Model systems help the big mart Manager to get sales prediction for future, helps big mart manager to take correct decisions and redefine the sales management
- A Two-Level Statistical Model provide prediction helps to manage buisness.

## **2. Project Design**

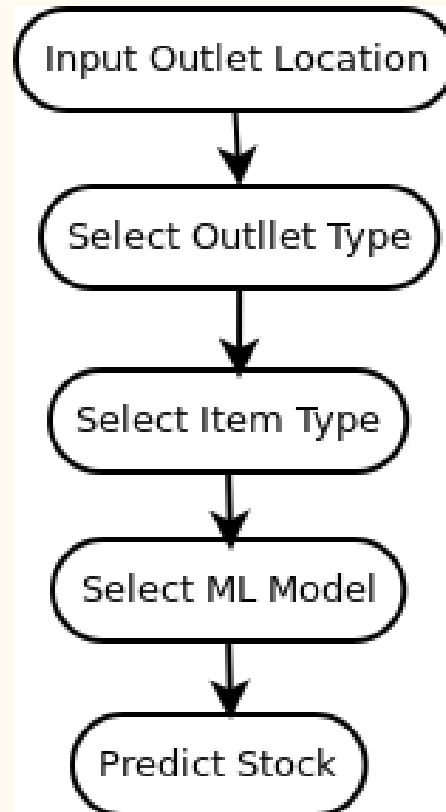
## 2.1 Proposed System



## 2.2 Description Of Use Case



## 2.3 Activity diagram



## 2.4 Module-1

- Dataset Generation

We have studied and done research on big mart sales and we had downloaded the dataset from [www.kaggle.com](https://www.kaggle.com).

The dataset has following attributes :Item\_Identifier,Item\_Weight,Item\_Type,etc.

# Module-2

- User-interface:

We will create UI in which we will be able to perform operations like selection Of Models, selection of location of outlet and selection of outlet and selection of Item and display the sales of that outlet.



# Module-3

- Machine learning Module.

We are using two models: 1)Linear Regression.  
2)Support Vector Regression.

## 2.5 References

- Business data mining - A machine learning perspective  
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## **3.Planning for next semester**

# Planning

We Will implement two way statistical model by combining ml models  
Like linear regression, support vector regression to predict sales of  
Particular product in particular region.

**Thank You**