

Food Demand Forecasting for Food Delivery Company using IBM Cloud

1 INTRODUCTION

1.1 Overview

A food delivery service has to deal with a lot of perishable raw materials which makes it all, the most important factor for such a company is to accurately forecast daily and weekly demand. Too much inventory in the warehouse means more risk of wastage, and not enough could lead to out-of-stocks - and push customers to seek solutions from your competitors. The replenishment of majority of raw materials is done on weekly basis and since the raw material is perishable, the procurement planning is of utmost importance, the task is to predict the demand for the next 10 weeks.

1.2 Purpose

The main aim of this project is to create an appropriate machine learning model to forecast then number of orders to gather raw materials for next ten weeks. To achieve this, we should know the information about of fulfilment center like area, city etc., and meal information like category of food sub category of food price of the food or discount in particular week. By using this data, we can use any classification algorithm to forecast the quantity for 10 weeks. A web application is built which is integrated with the model built.

2 LITERATURE SURVEY

2.1 Existing problem

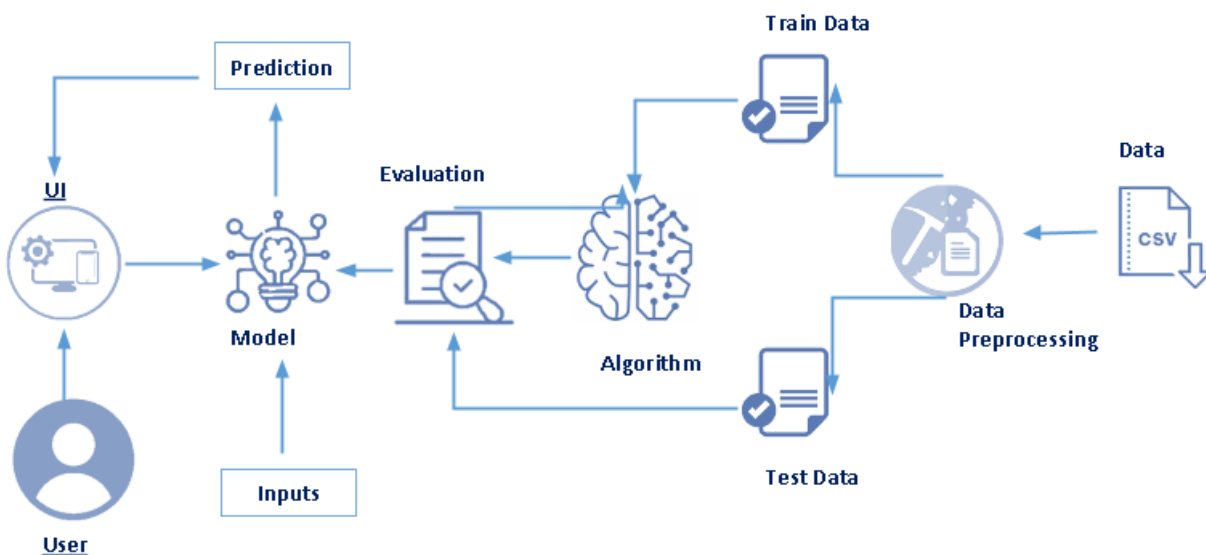
The replenishment of majority of raw materials is done on weekly basis and since the raw material is perishable, the procurement planning is of utmost importance. Secondly, staffing of the centers is also one area wherein accurate demand forecasts are really helpful. This is done through manual process.

2.2 Proposed solution

Given the following information, the task is to predict the demand for the next 10 weeks (Weeks: 146-155) for the center-meal combinations in the test set using machine learning model.

3 THEORITICAL ANALYSIS

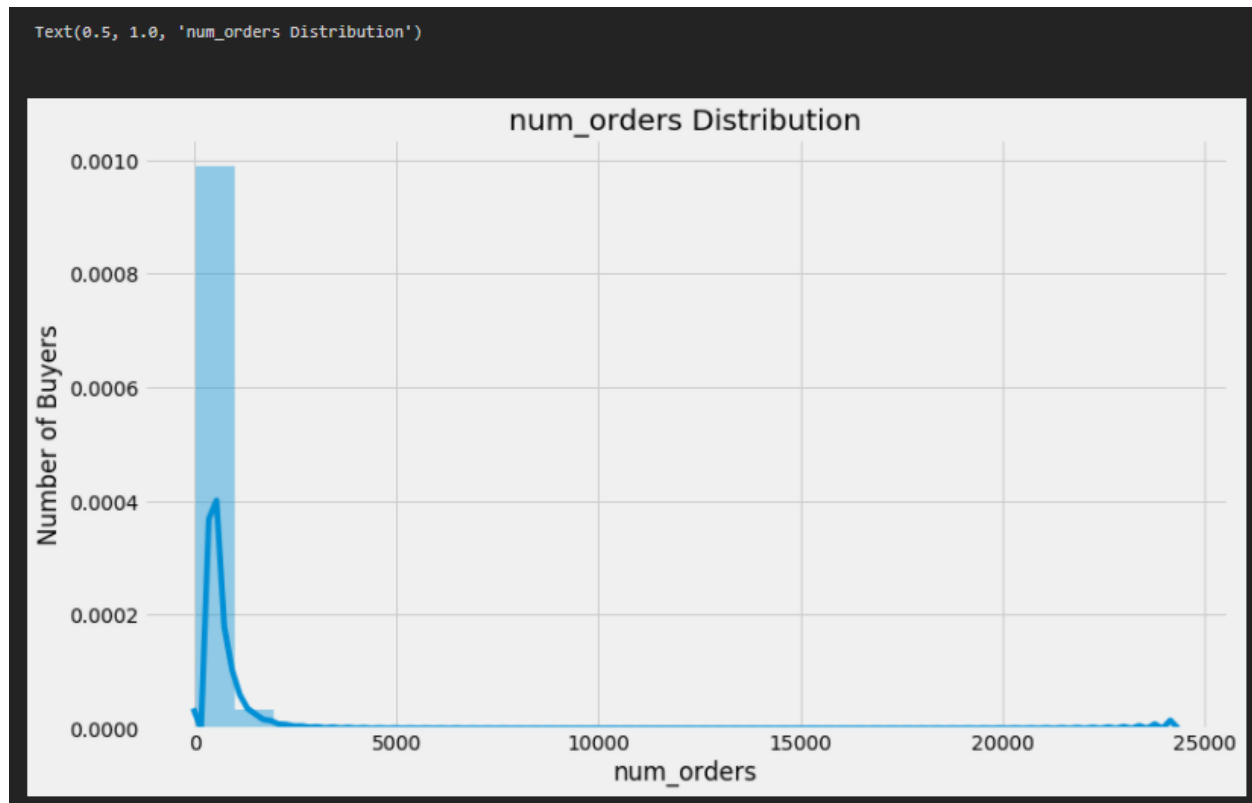
3.1 Block diagram



3.2 Hardware / Software designing

- Anaconda.
- Jupyter notebook.
- Spyder IDE.
- Numpy.
- Pandas.
- Matplotlib.
- Seaborn.
- Sklearn/Scikit-learn.
- Flask.

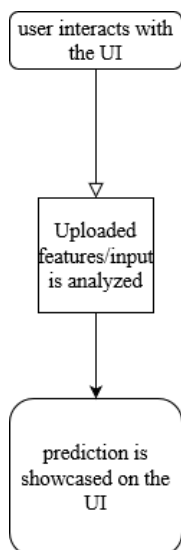
4 EXPERIMENTAL INVESTIGATIONS



5 FLOWCHART

Project Work Flow:

- The user interacts with the UI (User Interface) to upload the input features.
- Uploaded features/input is analyzed by the model which is integrated.
- Once the model analyses the uploaded inputs, the prediction is showcased on the UI.



6 RESULT

home page featured
Homepage featured

emailer for promotion
emailer for promotion

Op_code

city_code

region_code

cuisine
Cuisine

category
Category

Submit

Prediction is: 270.3658336583366

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7 ADVANTAGES & DISADVANTAGES

Advantages:

Easy to use and deploy.

Disadvantages:

Requires maintaing dataset and regular update and testing.

8 APPLICATIONS

Food demand forecasting for meal delivery compan

9 CONCLUSION

Preformed food demand forecasting for food delivery company using IBM Cloud

10 FUTURE SCOPE

Improvement in UI/UX and setting up ml-pipeline can be done as futute improvement.

11 BIBILOGRAPHY

- <https://smartinternz.com/ibm-build-a-thon-2021>
- https://www.kaggle.com/kannanaikkal/food-demand-forecasting?select=fulfilment_center_info.csv

APPENDIX

A. Source Code

https://github.com/smartinternz02/SBSPS-Challenge-5858-Food-Demand-Forecasting-for-Food-Delivery-Company-using-IBM-Cloud/blob/main/ibm_food.ipynb