Project report on

Food Demand Forecasting for Food Delivery Company

Submitted to

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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 fulfillment 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. For this a web application is built which is integrated with the model.

2. LITERATURE SURVEY

2.1 EXISTING PROBLEM

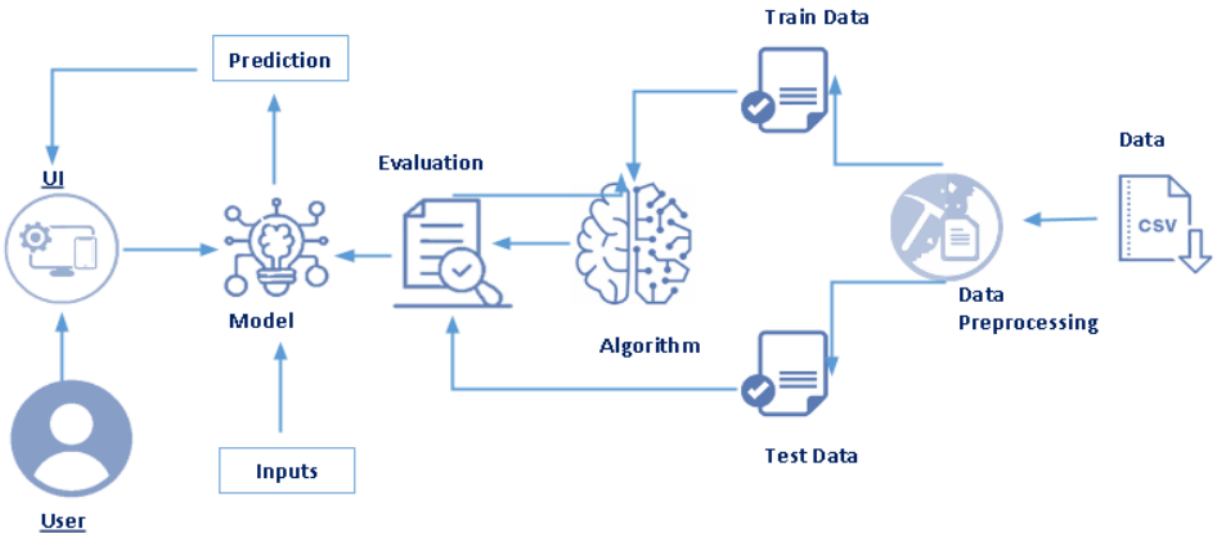
The replenishment of majority of raw materials is done on weekly basis and since the raw material is perishable, the procurement planning is of utmost importance. Also the recruiting of staff members at the fulfillment centre is an prospect wherein the prediction of orders would be beneficial. Although this is a process that can be done manually.

2.2 PROPOSED SOLUTION

Given the following information, the main task of this project is to build an machine learning model to predict the demand for the next ten weeks for the center-meal combinations in the test set.

3. THOERITICAL ANALYSIS

3.1 BLOCK DIAGRAM



3.2 HARDWARE/SOFTWARE DESIGNING

- IBM Cognos Analytics
- IBM Cloud
- Jupyter notebook
- Pycharm

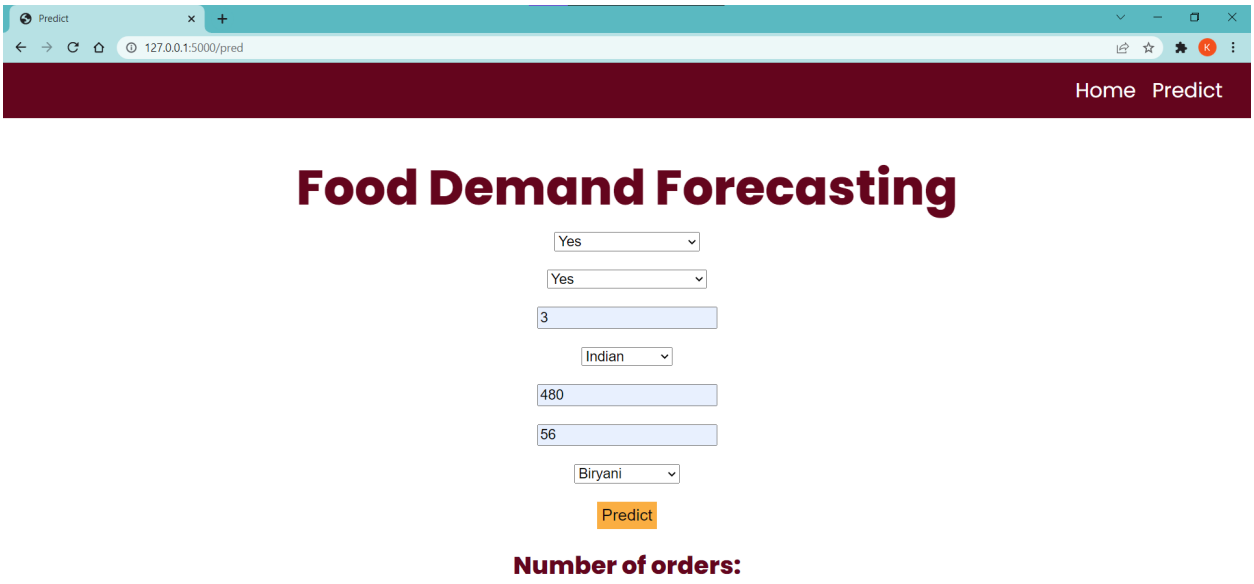
4. FLOWCHART

- 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.

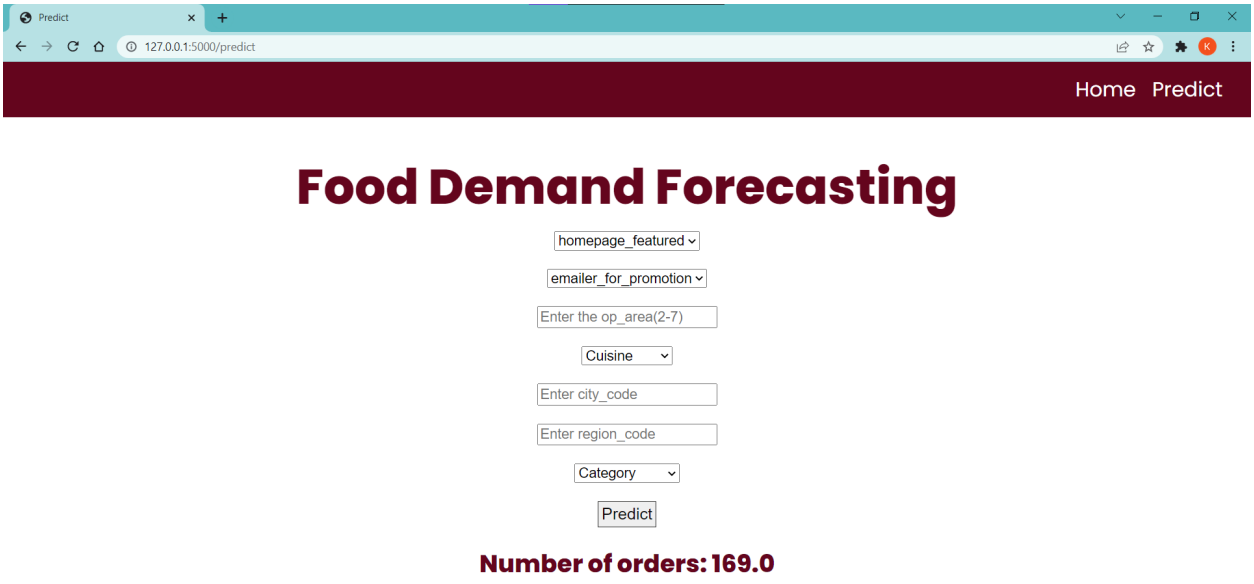
5. EXPERIMENT AND RESULTS

We have made an accurate predictive system for the analysis and prediction of the food demand for different food items at different places.

(fig1. Homepage)



(fig2. Predict page)



(fig3. Output)

6. ADVANTAGES/DISADVANTAGES

Advantages:

1. Food wastage will be minimized.
2. Simple and easy to use framework.

Disadvantages:

1. The output obtained may not be precised, due to the use of limited datasets**.**

7. APPLICATIONS

This project focuses on one food delivery client, which delivers food in many different cities through distribution networks and fulfillment centers.

8. CONCLUSION

The main moto behind this project is to reduce food wastage.The availability of the food items makes the society better. Our purposed model would definitely come handy to a company for predicting then number of food orders and help them to serve their customers better.

9. FUTURE SCOPE

1. Working on the frontend to make the framework more dynamic.
2. In the future, we also plan to improve forecasting accuracy and research on the efficiency of store management.

10. BIBILOGRAPY

1. https://smartinternz.com/ibm-build-a-thon-2021
2. https://cloud.ibm.com/
3. https://www.kaggle.com/kannanaikkal/food-demand-forecasting

GITHUB LINK
https://github.com/smartinternz02/SBSPS-Challenge-8325-Food-Demand-Forecasting-for-Food-Delivery-Company-using-IBM-Cloud