# Food Demand Forecasting

## INTRODUCTION

### Overview

Demand forecasting is a key component to every growing online business. Without proper demand forecasting processes in place, it can be nearly impossible to have the right amount of stock on hand at any given time.
A food delivery service has to deal with a lot of perishable raw materials which makes it all the more important for such a company 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.

### Purpose

The client is a meal delivery company which operates in multiple cities. They have various fulfillment centers in these cities for dispatching meal orders to their customers.
The replenishment of majority of raw materials is done on a 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.

## LITERATURE SURVEY

### Existing Problem

The client wants to forecast the demand in these centers for next 10 weeks so that these centers can plan the stock of raw materials accordingly.

### Proposed Solution

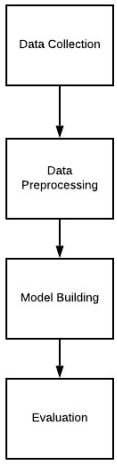
The evaluation metric for this competition is 100*RMSLE where RMSLE is Root of Mean Squared Logarithmic Error across all entries in the test set.

## Theoretical Analysis

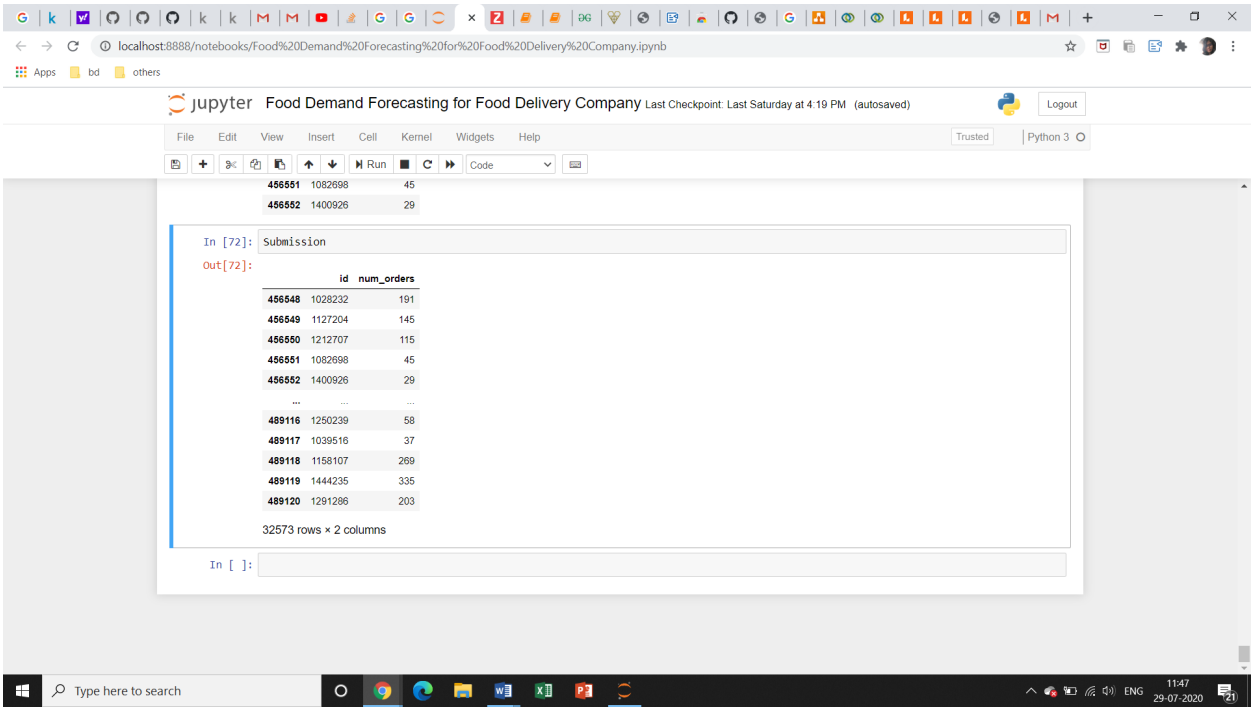
### Block Diagram

https://app.lucidchart.com/documents/view/5d08a33e-881d-43c7-bb96-720feed5ff30/0_0

### Flowchart



# RESULT




Food prediction is made for next 10 weeks.

# Advantages & Disadvantages

## Advantages

- Efficient use of resources
- Reduces wastage of food

## Disadvantages

- Accuracy may be improved
- More efficient models could be used

## Applications

1. Distribution of food in schools
2. Distribution of food in government canteens and hospital canteens
3. Distribution of food in old age homes,orphnages,places of worship and others.

## Conclusion

Using machine learning food prediction for upcoming 10 weeks is done successfully for the client.

## Future Scope

Machine learning can be used for prediction of resources which will help in better utilization of resources and will benefit future generations to come.

## Bibliography

1.https://thesmartbridge.com/documents/spsaimldocs/Machinelearning.pdf
2.https://www.kaggle.com/kerneler/starter-food-demand-prediction-bee0ea15-3

## Appendix

**Source code**

**https://github.com/SmartPracticeschool/llSPS-INT-3196-Food-Demand-Forecasting-for-Food-Delivery-Company/blob/master/Food%20Demand%2**

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