



# FOOD RECOMMENDATION ENGINE

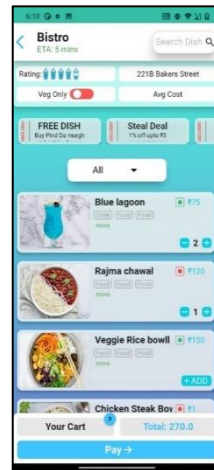
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## Problem Statement

- A person is indecisive on what to order in a restaurant.
- We propose to build a recommendation system for ordering food at a restaurant
- The recommendations will be based on users past ordering history.

## Background

- In modern day restaurants menus are becoming vast and ever so complicated.
- Looking at the menu one cannot decide what to eat.
- The solution we have come up is to develop a food recommendation engine for restaurants.



## Dataset and Features/Project Requirements

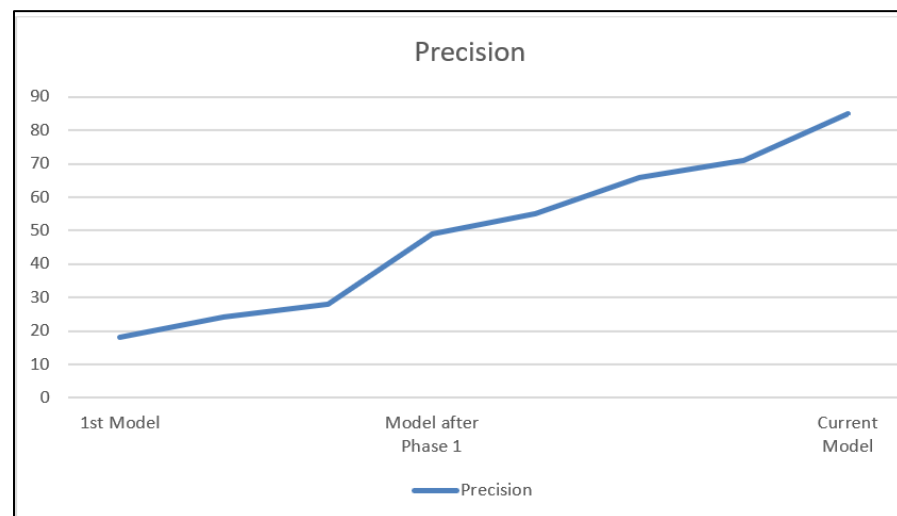
- The project makes use of a database of food recipes, published by Food.com. and Each recipe, is considered to be a food item available on the restaurant menus. (1)
- The system must make an accurate taste profile for each user and Recommend dishes based on their personal taste profile. (2)

## Design Approach/Methods

- The proposed approach to deal with this is to make use of a complex model and this model makes use of the outputs from multiple models and thus recommend dishes to the user most accurately.
- The proposed recommendation system consists of 3 different sub-modules, namely,
  - 1.Recommended for you
  - 2.Similar Items
  - 3.Frequently bought together items

## Results and Discussion

- As a measure of the precision of each model, we calculate the ratio between the number of dishes ordered by the user out of all the recommendation made to them and the number of orders made by the user, and this is used to compare across all the developed models.
- The precision is average of the precision of recommendations made to 5 random users who have at least 5 orders. The users are kept constant for most accurate comparison.



## Summary of Project Outcome

- Over the course of this project multiple models are developed with significant improvement being done every time a new model is developed.
- The evolution of precision of our models is highly significant, since starting from the first model with a precision 18% up to the final model with a precision of 85%

## Conclusion and Future work

- Models performed well with users who had abundant of data giving a high accuracy whereas the model struggled with users who did not have significant amount of data to work with, which is a commonly faced problem.
- Future work could include involving other useful parameters such as cost of food, time the food was ordered, etc., for better recommendations.

## References

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