PERSONALISED FOOD DELIVERY APPLICATION

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Abstract –
With the expansion in personalization in pretty much every administration, it has turned out to be critical that the administrations that individuals use once a day additionally give a customized feel. As per the ongoing pattern saw in the nourishment requesting and conveyance administrations, it was learned that the food shipment entreaties like Zomato, FoodPanda, Swiggy and so forth have helped their deals by an extensive scales by presenting energizing offers and promotion codes and effectively pulled in an immense number of gathering of people and they have influenced their clients to trigger conditioned on appropriating their utilization. This has prompted an expansion in the utilization of lodging nourishment which isn't solid whenever devoured every day. In this mode, there is a necessity for an application which can deliver high-quality home prepared food. Accordingly, so as to fulfill this new need, we have proposed a framework that would simply convey quality nourishment as well as would keep a beware of the client everyday utilization and satisfy the client's dietary necessity by recommending what the client ought to eat.

Keywords –
BMI (Body Mass Index)
CART (Classification and Regression)
GBRT (Gradient Boosted Regression Tree)
GPS (Global Positioning System)
SDLC (Software Development Life Cycle)

I. Introduction

Individuals favor requesting nourishment online as it is as a matter of first importance very tedious moreover manageable to swiftly choose the variety of food they must to consume. However, of late, it has been seen that devouring in food daily can hurt the prosperity of an individual to a significant degree. Individuals who work all day don't motivate enough time to return home and cook nourishment for themselves. Henceforth they arrange food on the web [5],[6],[7],[8]. In this manner, the proposed framework would effectively deal with the conveyance of home-prepared nourishment arranged via prepared experts to our clients.

It would likewise utilize a viable steering calculation so as to acquire profitability while devouring fewer assets. The proposed system would the clients to arrange nourishment on the web and it would likewise offer recommendations to the client dependent on different parameters considered. The application would incorporate different predefined layouts which would incorporate a weeks menu. The clients would most likely pick their very own bundle decision. The framework will likewise prescribe a layout dependent on different parameters like the client's Age, Height, Weight, BMI, and convenient input. The app would empower the consumers to order home-prepared nutriment of their judgment and it likewise assumes the job of a dietician.

II. Literature Survey

1. Progressed contacted based Food requesting framework for eateries, a portable based application intended to decrease the sitting tight time of clients for requesting nourishment [1]. Usually what happens is that the customer enters the restaurant and waits for the waiter to take the order and then the waiter takes this order to the kitchen and the order is prepared. This proposed system would kill all the intermediate terrain of attendant by granting a touch-based Android medium through which the consumer can place the order. The order specifications would then be automatically refreshed at the purser end and the cooking end. This scheme employed an android app which exclusively the enrolled users could handle. This app allowed it's users to book a seat, order food and browse through the menu.

2. An app for ordering food with Optimization for Delivery Routing Using GPS Technology [2].
This system was an android electronic application with a heuristic steering calculation for streamlined directing. This structure strived to surmount the limitations of the usual course by proclaiming the eatery and proffering the request and after that get it dispatched. It utilized GPS for catching the area of the client just as the eatery to get and convey the nourishment from and to its ideal area. For those people who were not considered the system permitted the admin to compose the request distinctions for those consumers who set in the appeal through the phone. To the extent, the Android application is concerned once it is introduced on the client's telephone, both the client endeavoring to arrange sustenance, just as the conveyance staff who should convey the nourishment, would get their individual request subtleties through the application.

3. Computerized Food Ordering System with Real-Time Customer Feedback [3]. This was another system that enhanced the food ordering and delivery service. It was based on android which the customers used to make orders. The server was installed at the restaurant owner's laptop to customize the menu and keep the track of the customer's records. A central database was maintained to store the restaurant menu information and order details.

4. Food Panda- A case study [1].
Food Panda is a standout amongst the most prominent nourishment requesting applications there are in the market. It works in excess of 40 nations. It came into a blast when Remerges application Retargeting supported their deals. They perceived the consumer's duration and provoked them along with the aid of customized advertisements.

Our system will be a subscription based system and will act as both - a Food Delivery Application as well as a Personal Dietician. By using the user's data such as allergies, Body Mass Index, age, diabetes status, etc., our system will be able to successfully predict and generate a food package that will take into consideration the above mentioned factors. Hence, this package will be a healthier food package than the other predefined packages.

III. Proposed System

We intend to develop a system that would allow its users to order home-cooked food which will be provided by a third-party vendor. The aim is to use Decision Trees in Machine learning and building a model for the prediction of packages for the users. It would be prepared on the data gathered in a study. The main aim of the survey was to find out about the most common preferred food, the kind of cuisine people prefer, what kind of taste are people more interested in, allergies etc.

TensorFlow:

We implemented TensorFlow in our Machine Learning module of our system. TensorFlow is an open – source software library for data flow and differentiable programming over a range of tasks. TensorFlow provides stable APIs for various programming languages such as Python, C, etc.

Boosted Trees Classifier in TensorFlow:

For Boosted Trees, regression and classification are supported. The Gradient Boosted Regression Tree (GBRT) model is the industrial workhorse for machine learning. It is a type of additive model. It works by making predictions by combining decisions from various sequences of base models. Formally, it can be written as :

$$g(x) = f_0(x) + f_1(x) + f_2(x) + ...$$

where 'g' is the final classifier and it is the sum of simple base classifiers 'f_i'.
Each classifier in a boosted tree model is a simple decision tree.
We trained the Boosted Trees models in TensorFlow by following the following steps :

1. Loaded the Dataset.
2. Explored the Data.
3. Created feature columns and input functions.
4. Trained and evaluated the model.
5.

CART: Classification and Regression:

CART is only a variation of Decision Tree with a couple of favorable circumstances over ID3. It beats the restrictions of ID3 like overfitting, treatment of numeric qualities or absent abilities, testing of just a single property for satisfying on a choice and so on. It makes a double tree. The last tree is built by cost-multifaceted nature pruning. CART is also the foundation for Boosted Trees.
As CART is known for taking care of anomalies it can without much of a stretch manage downright just as consistent information.
CART is able to handle numerical as well as categorical data along with multi-output problems.
The performance of the tree is not affected by non – linear relationships between its parameters.

Some key features of this system:

1. Recommendation to the users about the best meal that is available for them based on their health details, hence acting as a dietician as well.
2. Variety of home cooked food available on a single platform

SDLC:

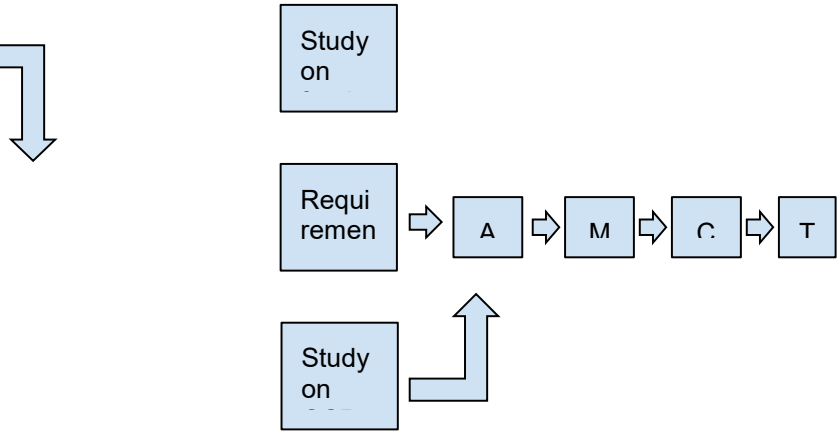


Fig 1: Software Development Life Cycle

Advantages:

1. The system will Recommend the best meal that is available for the user.
2. Our system acts as a Dietician as well as a Food ordering system
3. Home cooked food available for the users with a variety of cuisines.

Disadvantages:

1. Only available for Pune City
2. It is a subscription-based service, therefore the user would not be able to change the subscription once selected.

Business Strategy:

Use Case Diagram for the proposed system:

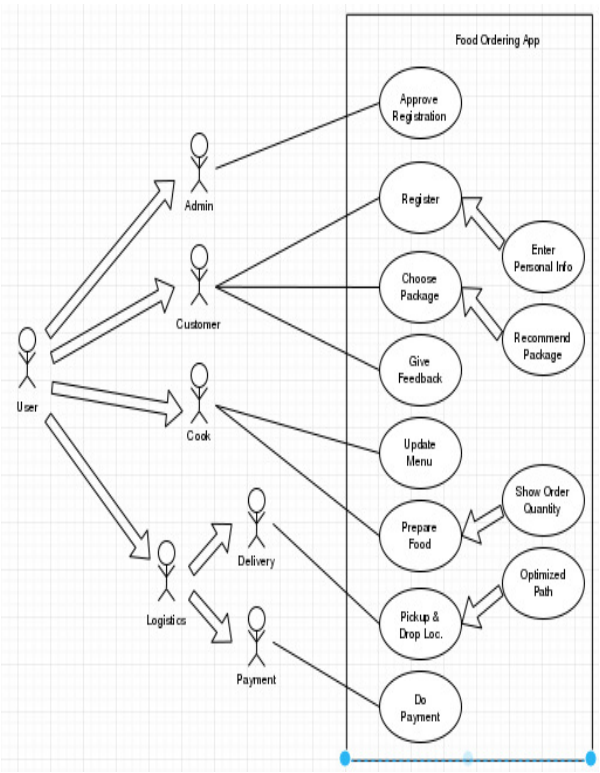
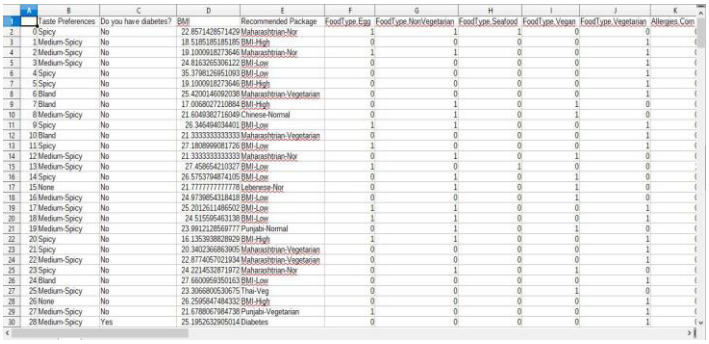


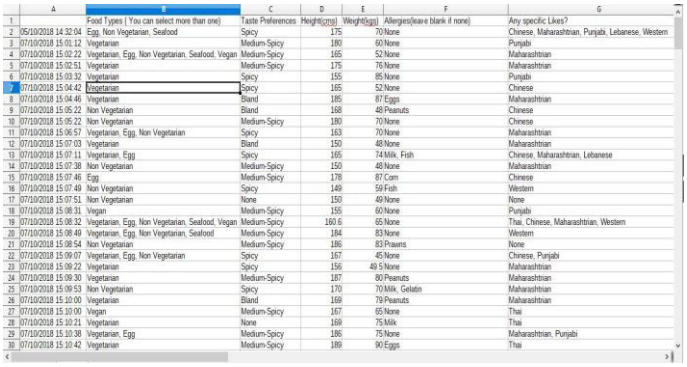
Fig 2: Use Case Diagram

Screenshots:

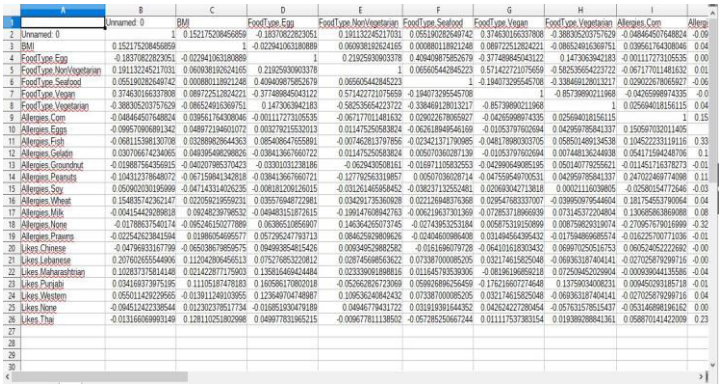
1. Dataset



2. User Data:



3. Correlation Values:



IV. Conclusion

This research proposed and developed an Android-based app that uses machine learning for predicting the recommendations for the user. Using the following system the users could not only get food delivered regularly but also would get a sort of consulting about their day to day diet, this would help people who cannot cook or don't get enough time to cook themselves their own food.

Apart from that, the users need not worry about their allergies too, the app would only suggest the food that is good for the user's health.

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