RECIPE PALETTE RECOMMENDATION SYSTEM

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Abstract: In this modern world, people tend to use e-commerce applications for shopping. The main shopping for a house is based on the items needed for cooking. This paper analyzes how to improve the shopping of ingredients to make it time saving and also for easy purchase of required ingredients. To answer this question, a person's choice of selection tends to be easy when those items are recommended automatically by the e-commerce application's recommendation system. The first kind of this technique is to recommend the user with the ingredients based on the similar items purchased by similar users. The second kind is to recommend based on the ingredients liked or based on its popularity. This provides the user with more appropriate choice for purchase in less time. Then the easy purchase of ingredients can be achieved based on the recipes provided or by creating own recipes for frequent purchase. Then the vendor has the problem of stock management which can be solved by data analysis and by providing statistical data for improved sales. As a result best recommendation can be provided for the user with improved purchase experiments

*Keywords***: cart, customers, recommended**

1.   Introduction

In this busy world, all people are running fast, and they have no time to purchase everything separately in a grocery shop, so they prefer places where they can buy all of their needs in one place. In the same way in future, people will prefer everything to buy online instead of going to grocery shops or supermarkets to consume their time. To satisfy the people's comfort, we were designed a web page where they can purchase the ingredients needed for their recipe and also ingredients not related to their recipes. They can purchase all the ingredients needed for their recipes in one place without leaving any ingredients and prevent them from buying too many excesses. They can remove the ingredients for the recipe if they are not needed.E-commerce applications are more growing in this generation as most of the people don't have the time to go and shop anywhere for their daily necessities. An E-commerce recommendation system is used to purchase the products that are needed for the customers. So, by having a note of these concepts, the web application created. we have all kinds of cooking needs like a huge supermarket and a well-organized manner. Suppose if a person is new to purchasing ingredients, they can provide a recipe book.

They can add additional recipes, modify the existing by adding ingredients, or remove them according to personal needs, and also, these ingredients can add to the cart. Ingredients are separated based on the category to make customer user-friendly. This helps in buying all the necessary items without leaving any ingredients. We have also decided to recommend the recipes for the customers based on their search for easy purchasing.

2.   Existing System

In today's generation, most people don't like going to different shops for vegetables, fruits, groceries, and other household needs; instead, they prefer going to a particular supermarket to get all these at a time. The next generation is far different and likes to buy things online. In international and national projects, they have not categorized. In today's generation, most people don't like going to different shops for vegetables, fruits, groceries, and other household needs; instead, they prefer going to a particular supermarket to get all these at a time. The next generation is far different and likes to buy things online. Till date, online shopping sites provide separate websites to satisfy all these needs in India. On taking a note on international websites, they provide the same, and with an additional recipe book activity, those who cannot cook can take a look at it. In international and national projects, they have not categorized. If, the user likes or dislikes the recipe based on the response from the user, the authors can recommend it to other users at the same time other users' data is not required. The similarity is computed by using either cosine similarity or Pearson Correlation [3]. We have implemented a content-based recommended system because the authors lack user profiles at this stage, and most importantly user activity information [4]. Instantly mapped to the user based on the items selected [6]. One can also attempt to recommend a recipe that is perceptually similar to what the user has previously viewed [5]. According to the user web browsing history and search queries both the recommendation quality and the system scalability can be managed and also map users using Deep Learning approach along with items to a latent space where the similarity of the user is maximized [7].

In addition, based on the user interests, a profile has been constructed for the user and ranked based on the user profile as well as depends on the popularity user get a new recipe [8]. How likely a content item is relevant to a particular user is by using item-level dwell time as a proxy to quantify. In order to this incorporating dwell time into State-of-the-art learning to rank techniques will obtain competitive performances in both

offline and online settings [9]. Can also calculate based on the active user than the other user suggesting the recipes which they required for [10].

3.   Proposed System

By having a note on these concepts, the web application we create must have all kinds of cooking needs like a huge supermarket and in a well-organized manner. Suppose if a person is new to purchasing ingredients, they can be provided with a recipe book in which they can add additional recipes, modify the existing by adding ingredients or removing them according to personal needs and also these ingredients can be added to the cart. They can purchase the ingredients too that are not relevant to the recipes and those ingredients are separated based on the category to make customer user-friendly.

Users have to register using their mail id, phone number, and new password. If they have already registered, they can log in directly. Then, users can go to the recipe module; they can select their recipe and view the chosen recipe's details. They can also add the recipe to their shopping list or edit the recipe or delete the recipe if they do not need it. If the user needs any ingredients other than the parts available in the recipe, they can go to the ingredient's module there; they can also add the ingredients to the shopping list or edit the ingredients or delete the ingredients. Then, the user can view the selected recipe/ingredients in the shopping module. They are able to view their total price too and purchase the recipe/ingredients (Fig. 3.1). Finally, they can log out from our page after the payment process gets over.
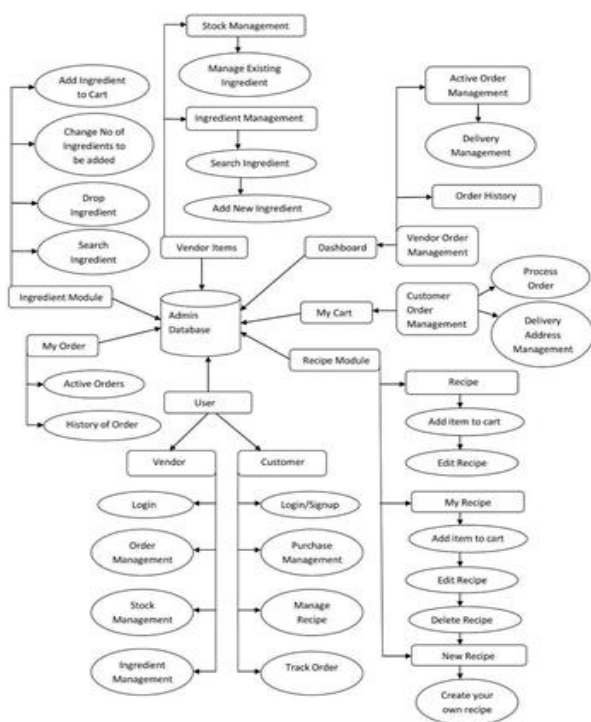
A. Architecture Diagram

Fig.3.1 Architecture diagram

B. Login Module

The Login (Fig. 3.2) has been categorized into two as Vendor Login and Customer Login. Users have to sign up if they are visiting our webpage for the first time. Once they sign up, they can login with their email-id and password for further process. The vendor login helps them to manage the orders they receive, manage the stock available in the store and manage the details about the ingredients. The customer login is provided with the access of the view recipes, add or edit recipes, view ingredients, manage cart and place the order with the address chosen for delivery. Whenever a user logs in, a session is created using firebase user authentication with static tokens and whenever the user logs out the session is cleared. The user has to sign in with the user name, mail id and password. These data are used for user authentication to create session for correct login.
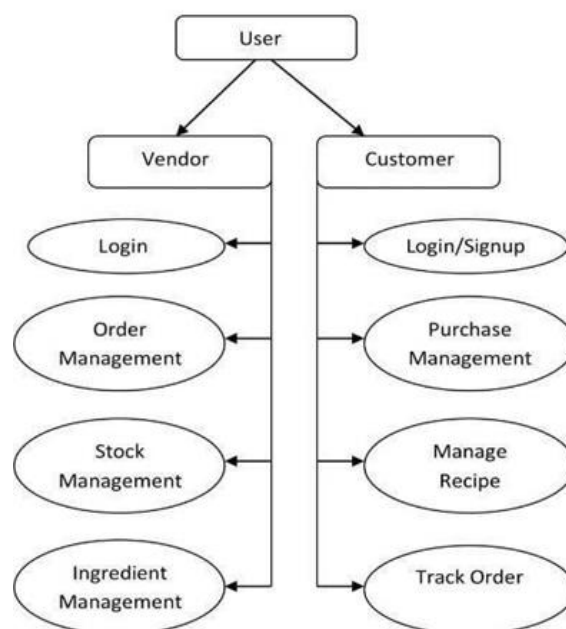

Fig. 3.2 - Login module

C. Recipe Module

Once they login they can select their recipe and view the details. By selecting manage recipe they can edit or delete recipe or add to shopping list. In this recipe module (Fig. 3.3), list of recipes will be displayed to the customers they can choose accordingly and also customers search the recipe they are in need of. If they select the particular recipe, the customers can view the details and ingredients required for their recipe along with the quantities, they can increase/decrease the count according to their needs and also, they can review their price for the ingredients individually .Once the customers view the particular recipe details, then they will be recommended with the similar recipes for further purchasing which will be easier for them to select the recipes and time-consuming tool. They can edit the recipes on their

own based on their requirements for future references. The lists of ingredients that are added to cart are displayed in table format with specified name, quantity, unit and count of ingredients that are added. We can easily drop any ingredient as described in (Fig. 3.3), if the users are not in need of it. List of ingredients with specified amount and quantity are displayed. Filtering specific ingredient can also be processed using search option. In this new recipe, the customers can add a new recipe on their own wish which will be useful for future purpose and there are no other restrictions for adding the recipe based on the user's wish. In my recipe, the customers can view their recipes that they added to newly.
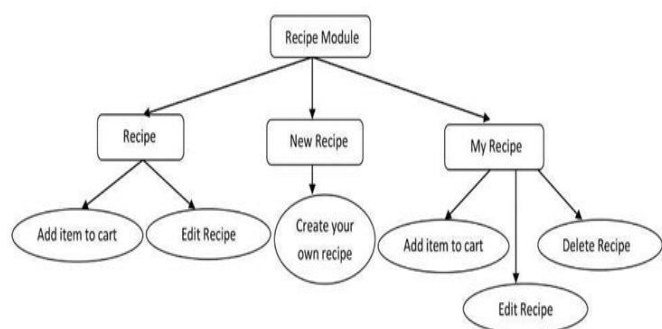
Fig. 3.3 - Recipe module

D. Ingredients Module

In ingredients module (Fig. 3.4) they can add the ingredients that are not related to the recipes. User can also add or delete ingredients. Based on their needs they can increase the quantity. There are 8 divisions, fruits, vegetables, non-veg, pulses, grains, flour, dairy Products, spices. They can also add or drop the ingredients according to their needs. All those ingredients will be listed below the category they belong to.
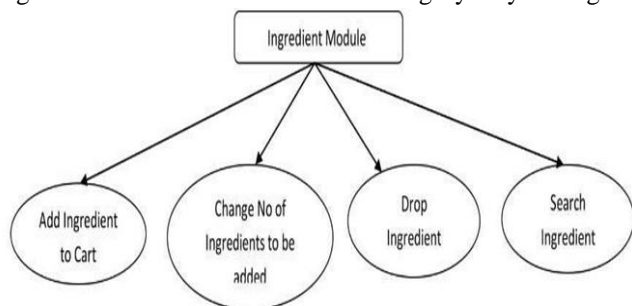
Fig. 3.4 - Ingredients module

E. Shopping Module

In this module (Fig. 3.5), the items selected in recipe/ingredients module will be added to shopping list. Here user can visible the total cost for their purchase. Once their purchase of recipe/ingredient over they can logout from the page. In my cart, they can choose the ingredients very easily and add the ingredients to cart for their purchasing; also they can drop if they are not needed. Once the customers purchase the recipe/ingredients the items added to the cart will be displayed as a table format along with the name of the recipes they chosen, ingredients needed for the recipes and also

ingredients which are not included in the recipes but the customers select the ingredients to cart all those will be listed, quantities, number of counts they purchase and amount will be displayed and also total amount to be paid by the customer with the history of orders and active orders.
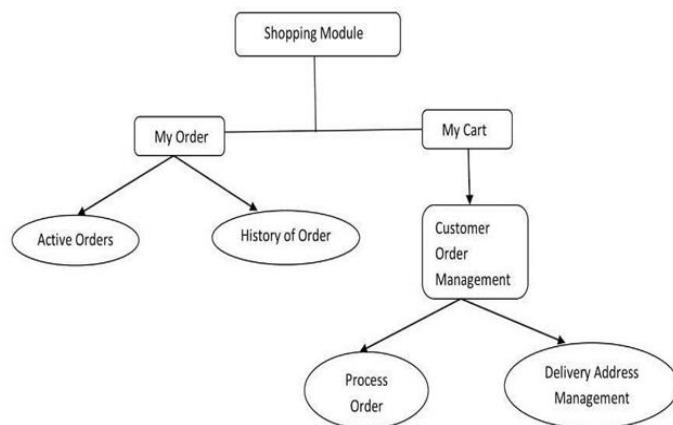

Fig. 3.5 - Shopping module

F. Dashboard Module

In this dashboard (Fig. 3.6) the authors can see the details of the customers such as whether they ordered/delivered (i.e.) status of the customers, what item they purchased, for how much money the customer purchased all these details will be displayed here. The status of the order is managed here. So, the customer's active orders and the order histories are being displayed. The vendor updates the status of the order as delivered when the order reaches the customer so that the order is being acknowledged by both the vendor and the customer.
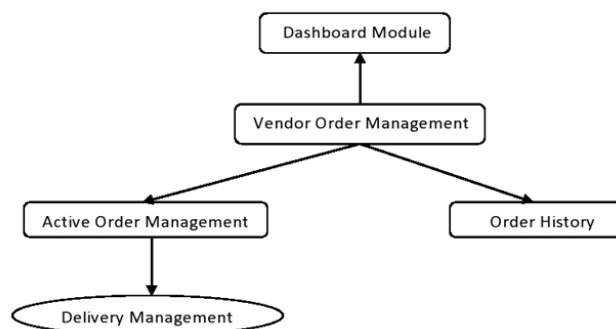

Fig. 3.6 - Dashboard module

G. Vendor Items Module

In this the vendor can manage the stocks and inventory so that the stocks are managed well. New products can be added by the vendor as described in (Fig. 3.7) and can change the stock items count, price and so on. The vendor can also change the already exist items count, price and quantity. So that, a stock can be maintained and the profit rate can also fluctuate. To find a specific item one can use a search option available .
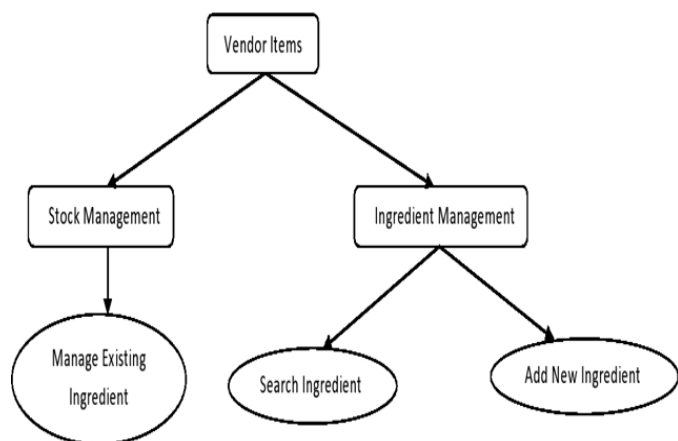
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Fig. 3.7 - Vendor module

4.　　Methodology

Users have to register using their mail id, phone number and new password. If they have registered already, they can login directly. Then user can go to recipe module, there they can select their recipe and view the details of the selected recipe. They can also able to add the recipe to their shopping list or edit recipe or delete the recipe if they not need that particular recipe. If the user needs any ingredients other than the ingredients available in the recipe, they can go to the ingredients module there also they can add the ingredients to the shopping list or edit the ingredients or they can delete the ingredients. Then the user can view the selected recipe/ingredients in the shopping module. They can able to view their total price too and purchase the recipe/ingredients to be delivered to the respective address. Finally, they can logout from our page after payment process gets over.
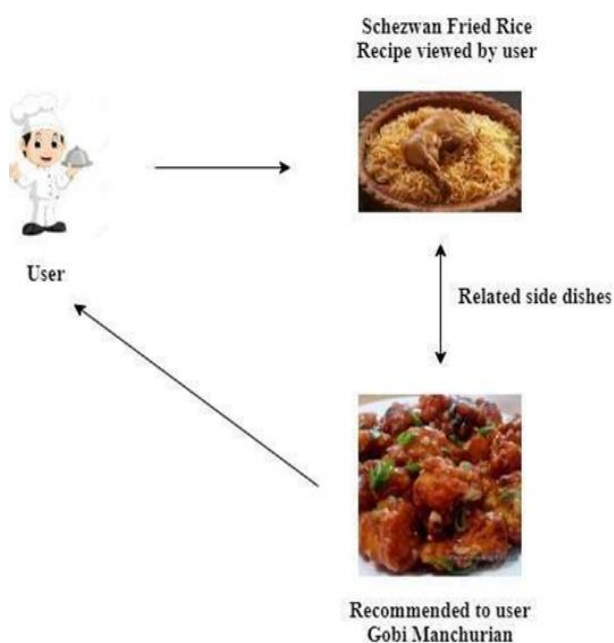
Fig. 3.8 - Content Based Filtering

Content Based Filtering (Fig. 3.8) is used to recommend the user with the related option of viewing the similar recipes which provides us with more ideas of recipes to be purchased. This improves the viewing of website and increases the commercial supply as many may be interested and more items will be purchased.

Fig. 3.9 – Real Time Process

The main overall concept is that the products are delivered to the customers through the ─online recipe palate‖ so that it reaches them at right time in a easy manner as shown in (Fig. 3.9). This is developed for a single city with single shop which can be upgraded to multiple shops in multiple cites for further development.
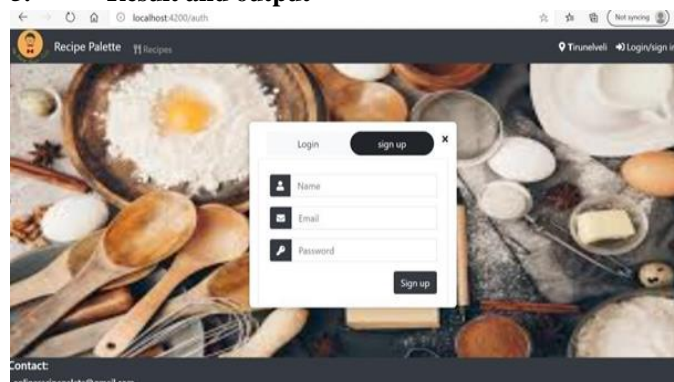
5.　　Result and output

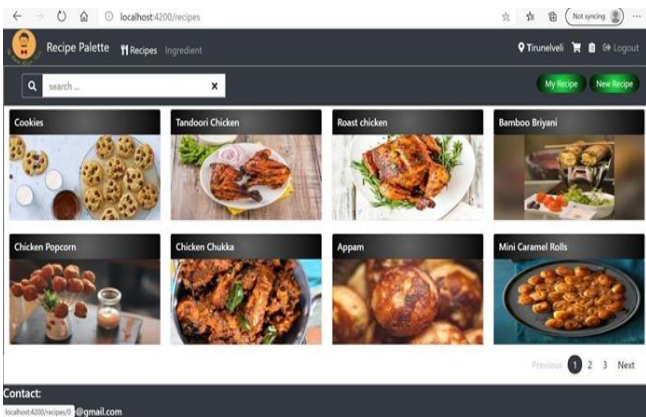Fig. 4.1 - Sign up

Fig. 4.2 – Login
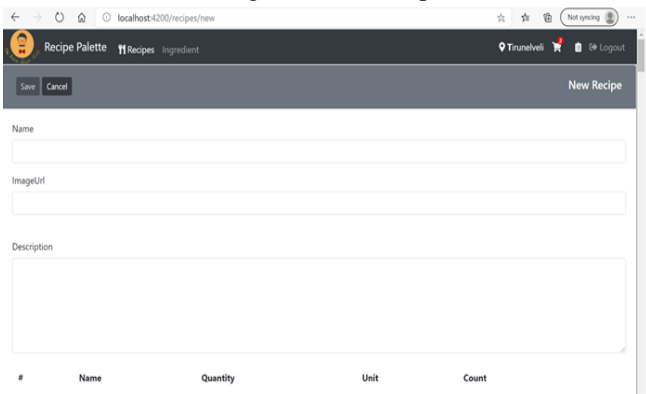
Fig. 4.3 - All Recipes

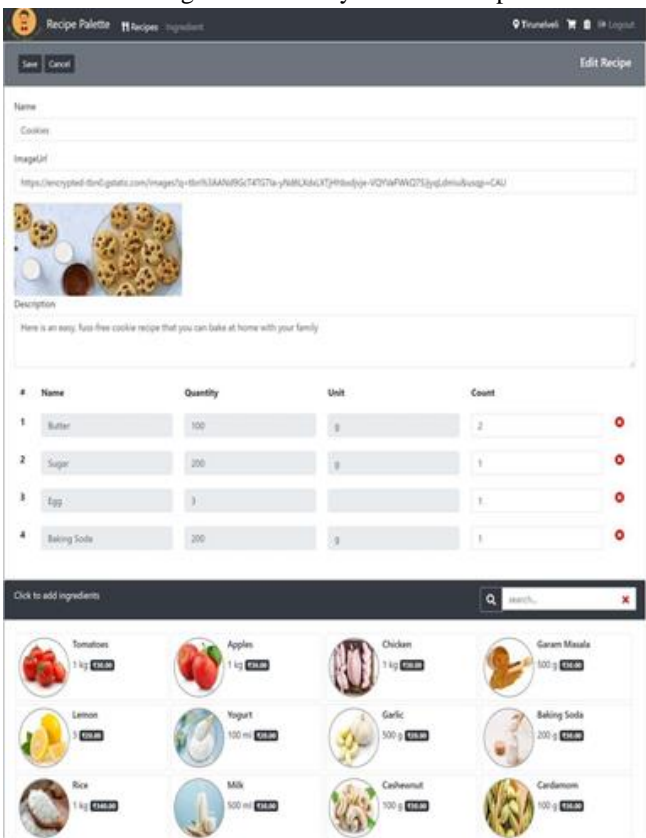Fig. 4.4 - Create your own Recipe
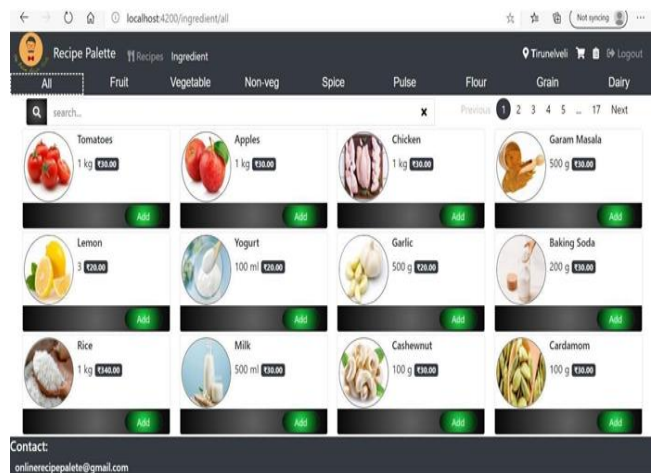

Fig. 4.6 - Modify the recipe to your liking

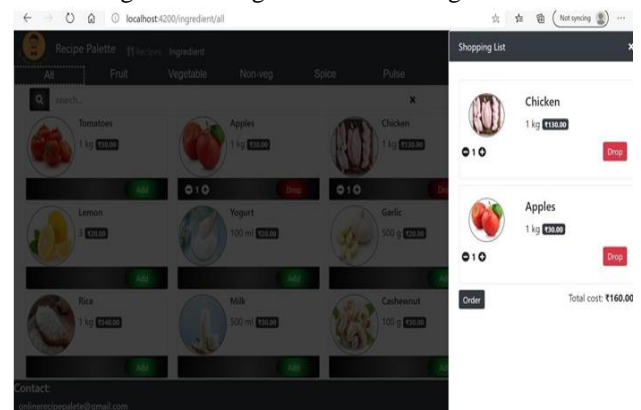Fig. 4.7 - Categorized view of Ingredients
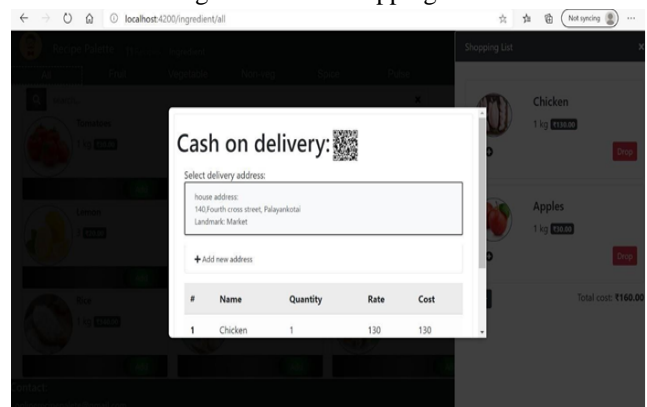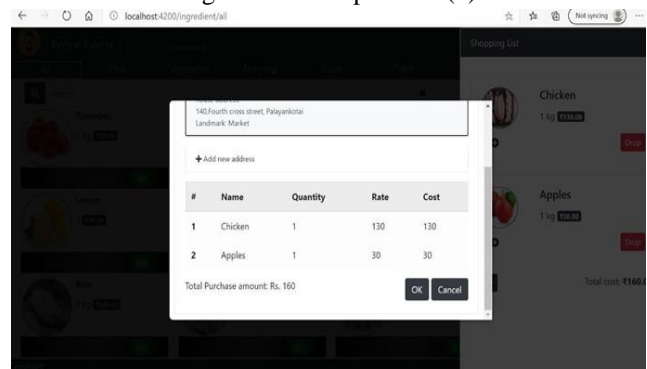

Fig. 4.8 - Your shopping cart

Fig. 4.9 - Order preview (1)

Fig. 4.10 - Order preview (2)
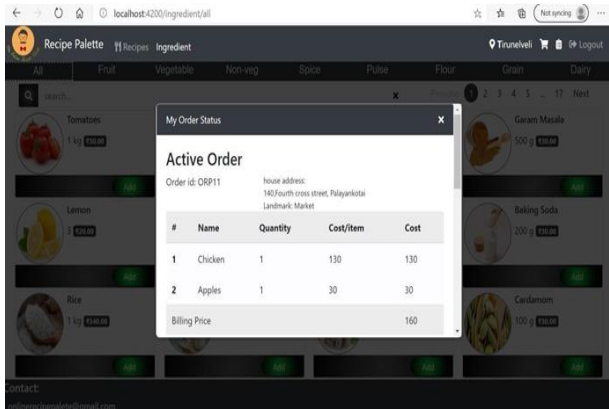
Fig. 4.11 - Active orders preview

Fig. 4.12 - Order history preview

Fig. 4.13 - Current order management
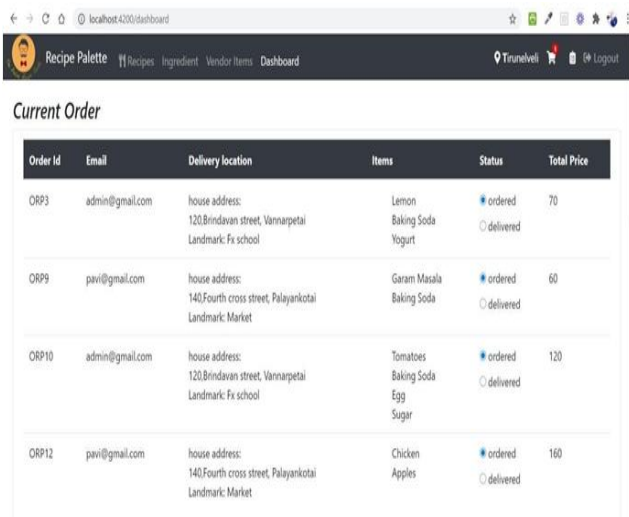by vendor

Fig. 4.14 - Order History management
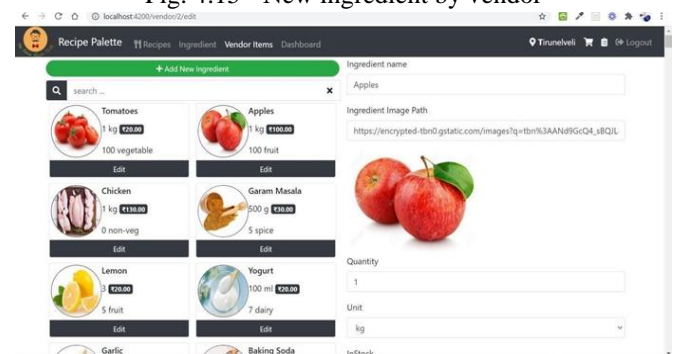By vendor

Fig. 4.15 - New ingredient by vendor

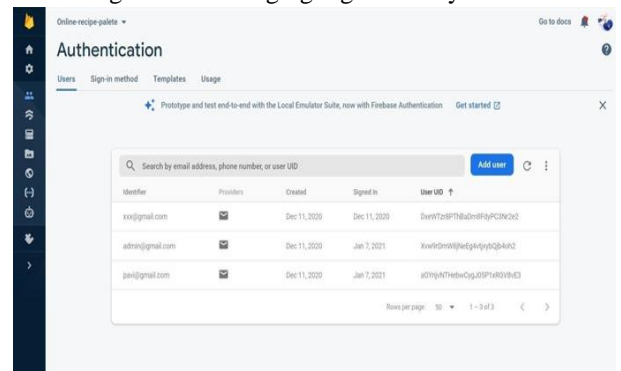Fig. 4.16 - Managing ingredient by vendor

Fig. 4.17 - User Authentication

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Once they sign-up(Fig. 4.2), then the customers can login with their details for future needs. The user should sign up with their details for the first time(Fig. 4.1). In this recipe module (Fig. 4.3), list of recipes will be displayed to the customers they can choose accordingly and also customers search the recipe they are in need of. In this new recipe (Fig. 4.4) the customers can add a new recipe on their own wish which will be useful for future purpose and there are no other restrictions for adding the recipe based on the user' s wish. If they select the particular recipe, the customers can view the details and ingredients required for their recipe along with the quantities, they can increase/decrease the count according to their needs and also, they can review their price for the ingredients individually (Fig. 4.5). The lists of ingredients that are added to cart are displayed in table format with specified name, quantity, unit and count of ingredients that are added (Fig. 4.6). In ingredients module (Fig. 4.7), there are 8 divisions, fruits, vegetables, non-veg, pulses, grains, flour, dairy Products, spices. From these sets they can choose the ingredients very easily and add the ingredients to cart for their purchasing, also they can drop if they are not needed (Fig. 4.8). Once the customers purchase the ingredients the items added to the cart will be displayed as a table format along with the name of the recipes they chosen(Fig. 4.9) and (Fig. 4.10). (Fig 4.11) and (Fig 4.12) describes the active orders and history of orders of the customers. In this dashboard the vendor can see the details of the customers such order (Fig. 4.13) and (Fig. 4.14). This ingredients inventory management, the vendor can change the ingredients on our own interest (Fig. 4.15) and (Fig. 4.16). Firebase Authentication is used to create sessions for the users (Fig. 4.17).

6.   Conclusion

Our main objective is to make customers user-friendly, save their time by purchasing online, and help the shop owners by giving an alert message about a stack sold and stock available in the shop. To save the customers time by buying all the ingredients needed for their recipes and other ingredients not related to their recipes, all this can also be purchased at the same place. And also, avoid buying ingredients with too many excesses needed for their recipes.

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