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PA1469: Mobile Application Development

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Submission/change history (latest entry on top)	
Date	**Changes made**
2022-12-4	Initial submission.

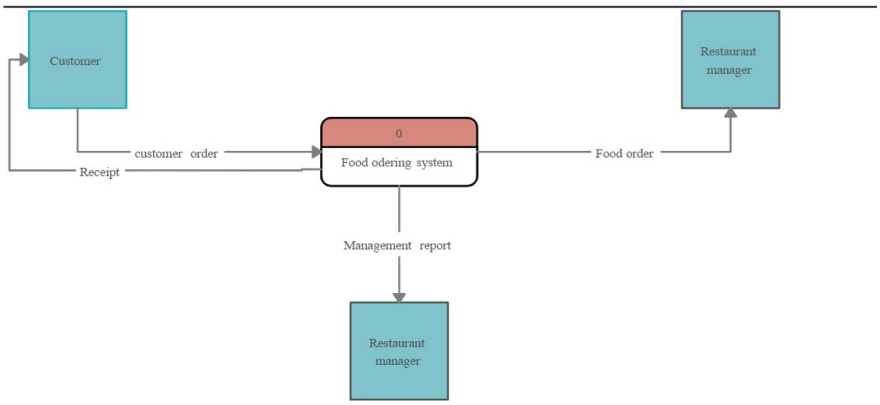
todos [inline]In the table above, you should briefly describe the revision history of your submission.

1 App's Context and Data

Covid 19 is considered one of the most catastrophic events in the history of mankind, but for app developers, it is a revolution that exponentially increases the number of internet users. The impact of the covid night is so huge that it can be seen in various sectors mainly in the online delivery sector. Based on the data, an app named 'FoodKart' powered by Artificial intelligence has been planned and developed to meet consumers' growing demand. The main operations of this app are based on providing quality service in the food delivery sector. Foodkart also tends to increase the variety and quality of different types of foods from various restaurants without visiting them.

Context diagram

The overall operations of food kart are mainly based on providing a platform between the consumers for a variety of food and restaurants to increase sales. Food kart is more focused on consumer sentiment than other food delivery apps. This can be achieved using booming technologies such as artificial intelligence and natural language processing. However, a basic operational diagram of the food kart is given below.



As a platform food kart provides services to restaurants by researching the customer's sentiments. Initially, customers go through different types of dishes in the interface of the food kart from various restaurants. After selecting, customers order dishes through food kart, which will be sent digitally to the restaurant's managers. A report containing customers' expectations and sentiments using artificial intelligence is also shared with the restaurant owner.

Technical diagram and proposed structure

From the diagram, a technical context of the working of the application can be shown. The interaction of the customers in the platform is expected to develop using java language. However, order requests from the users and delivering requests to the respective restaurants as well as responding to the status of the order types of operations will be carried out using API calls through the internet.

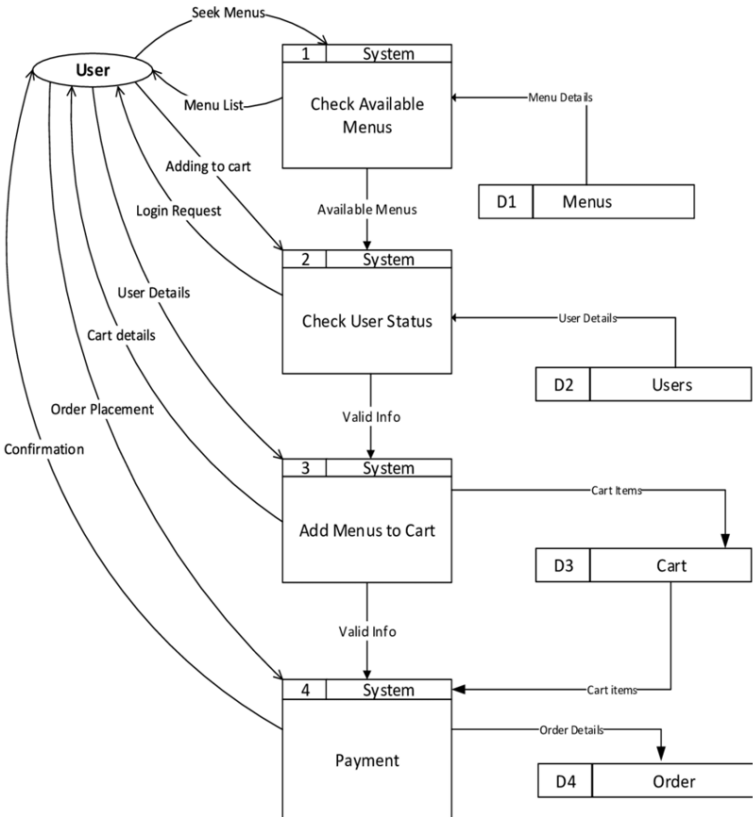


Figure 1: Working of Application

Data collection

Data collection is one of the most important steps to get valid information about the customer. Food kart tends to collect and protect user data using a stable structure that is impossible to crack. However, our platform collects users' basic information such as mobile phone number, email, name, GPS location, and some sensitive data such as card details, etc.

Source of the data

Data Collected	Source Of Data
Mobile Number	Input from user
Email	Input from user
Name	Input from user
GPS location	External Website or Google gps location
Card Details	Input from user

Data Life Cycle

The basic information of the user tends to store in the local device of the customer and will not be deleted if the customer closes the application. However, sensitive data is reset after some duration because of maintaining the user's device.

Features and API Mapping

Due to the different types of features and functionalities in the food kart, it is supposed to map the user's information to Apis which exponentially decreases the complexity of the application. For example, to verify the authenticity of the customer it is important to send OTP to the customer's device. This feature is implemented using the API of a third party, Mostly probably services of the Google Cloud Platform (GCP) can be introduced in Food Kart as a third party to serve location purposes. The main reason behind selecting GCP is its accuracy and API mapping techniques. To get the location of the user it is important to map the customer using the GPS information which requires third-party API mostly google maps for better evaluation.

Features	API / Library
Authentication of customer(OTP's)	Nexmo verify, D7 Verify, etc.
Google cloud services	Google cloud APIs
GPS information	Google Map API

2 UI Design and Screen Flow

Wire frames

story 1

Khalid ibn al-Walid, a Retired army general. His family and grandchildren visited him to surprise him with an unplanned event. As always surprises end with a fine family dinner. So, he wanted to order food online so that he can be at ease with taste. He needs an app without any complicated interfaces to order food.

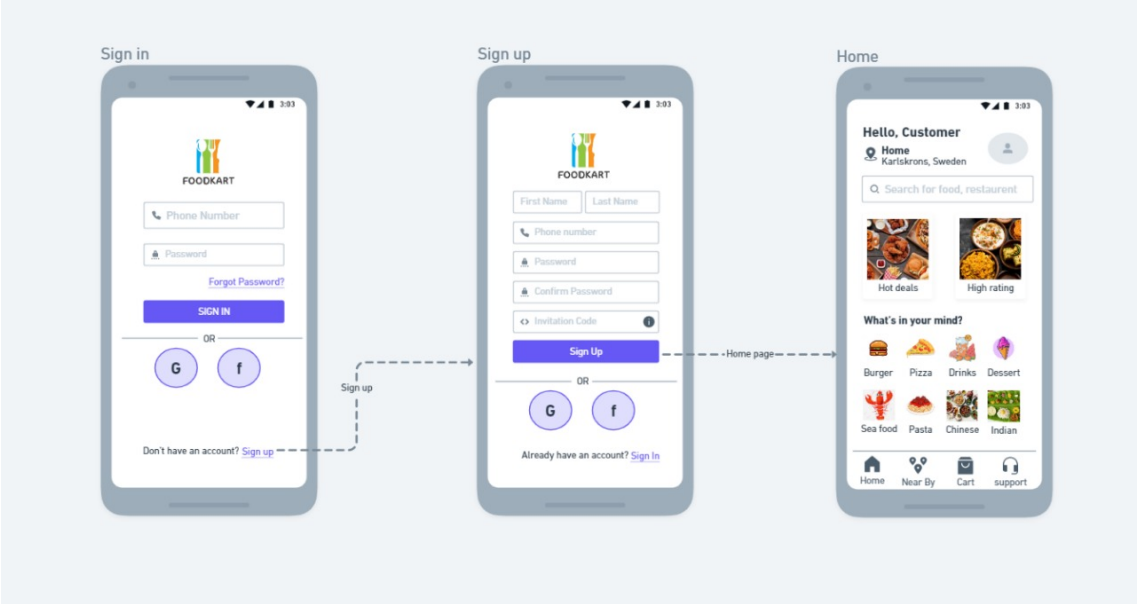


Figure 2: Wireframe 1

story 2

Mahesh babu and Namrata have married recently and have a busy life as they both are software engineers. Having a date night is a dream for both but due to their busy work schedule, it has been hard to do so. For reducing food preparation time, they needed an online food ordering app with great options to select their desired food.

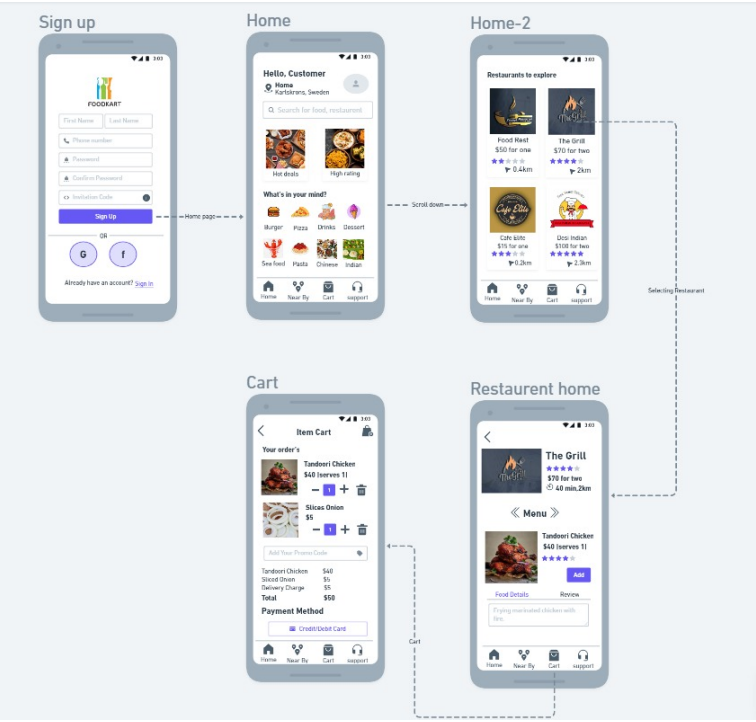


Figure 3: Wireframe2

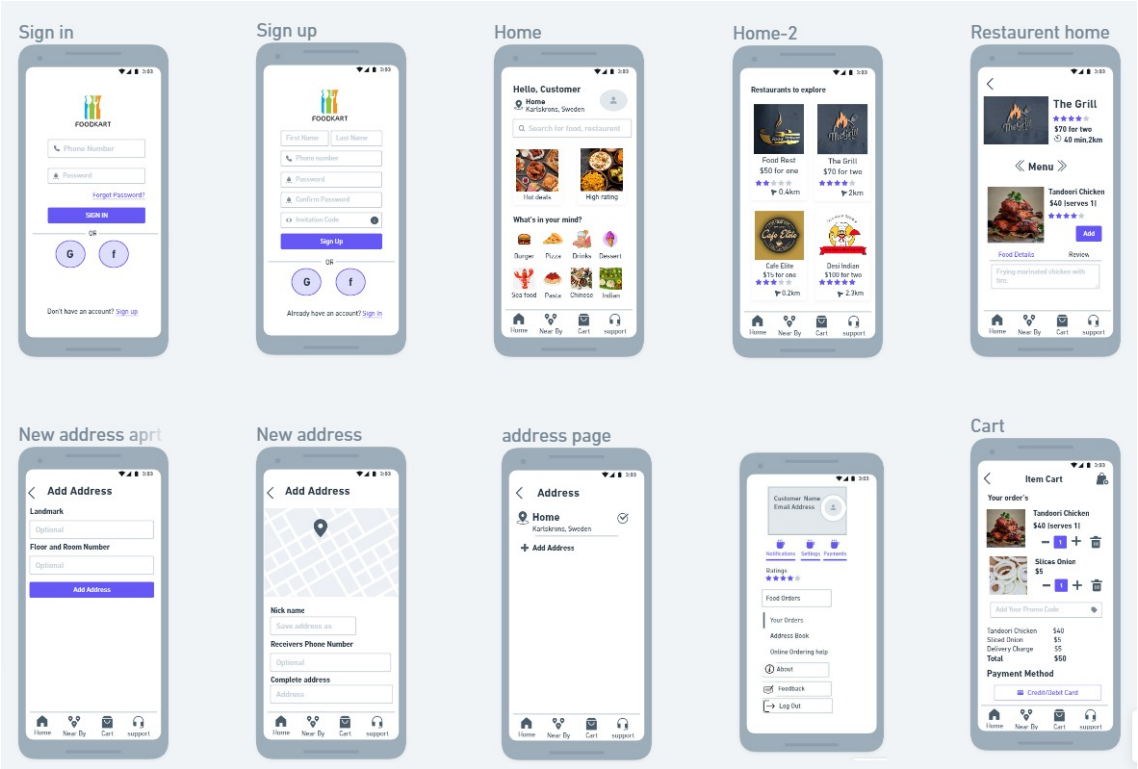


Figure 4: Activity flow

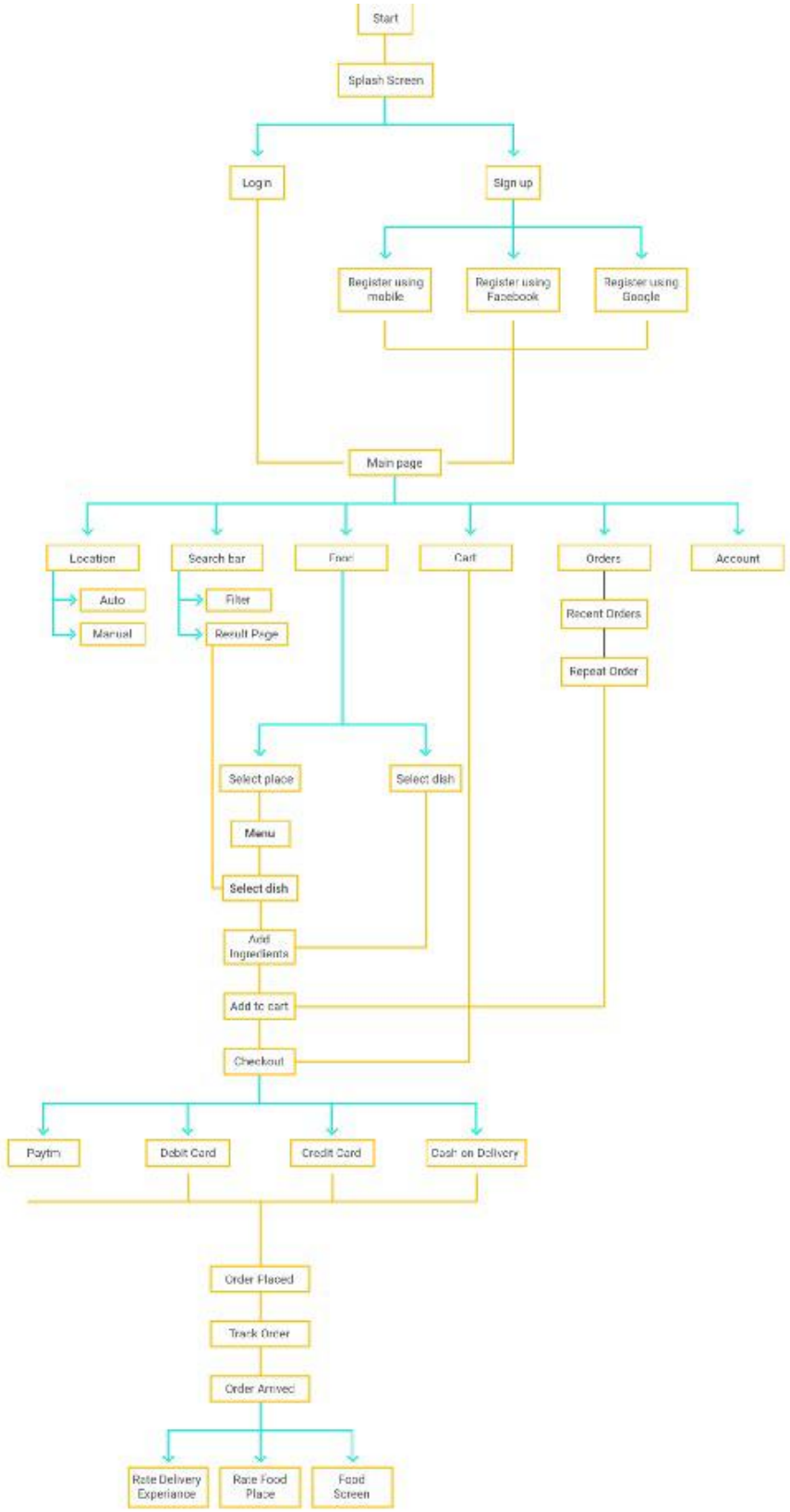


Figure 5: Flow chat about Foodkart's screen flow

3 Design Evaluation

How are design consistency and ease of use ensured in UI?

Consistency in UI design of FoodKart is concerned with making sure elements in a customer interface are uniform. They'll look and behave the same way. This helps constantly prove a customer's assumptions about the user interface right, creating a sense of control, familiarity, and reliability. After customer design, some more aspects on which the UI of the food kart is also concerned

1. Visual Hierarchy

   In this we have concentrated on the following aspects

   - Using size and scale to draw focus
   - Using color and brightness to make things stand out

2. Stay In Grids
3. Color Consistency

   In this step various elements such as colors, similarity in style, and especially solid choices are developed which helps to create a memorable impression. Keeping the style typed digital and print media avoids downgrading the platform. Colors are great to make your UI design look consistent.

4. Use Fonts Carefully

   In food kart Fixed fonts are very important, as too much use can lead to confusing and dirty looks, so we have used the same font style to get the same information. A style category is decided which will be stuck throughout the entire flow.

5. Using A Logical Progression Workflow

Activities/actions carried out to ensure a consistent user interface?

Some activities are added to the platform which increases the consistency as well as the efficiency of the user interface. The following steps are given below

- Suggestion system

  From different platforms, it has been noticed that to increase the consistency of the user, it is important to provide the best suggestions to the user. In Foodkart, an efficient suggestion system will be developed that helps in providing suggestions such as suggesting food items in the search bar, suggesting food items to the user based on their sentiments, etc

- Augmented UI

  This is one of the key features that has been implemented in this platform. Which augments the UI from the previous screen. As we all know sometimes less UI is better which means frequently changing the UI will disrupt the attention of the customer. That's the reason a standardized UI is implemented which developed from its previous screen and maintains a similarity that helps in maintaining user attention.

Has the UI design been evaluated in some form, and what were the outcomes of that evaluation war?

To evaluate the UI design in a better way all the elements are categorized into 3 components that play a critical role in both UI design and user experience. After evaluating these components necessary changes were made to combat issues The components are

given below.

- Input controls

  These are some elements that are designed and developed for taking input from the users. However, it is important to receive correct and validated input from the user. To keep track of customer input data validation some functions will declare which primary aim is to validate user inputs such as user name, strong password, correct mobile, and email id, etc. some more input elements are checkboxes, radio buttons, drop-down lists, list boxes, buttons, toggles, text field. All these elements are standardized which leaves a great impression and grabs the attention of the user.

- Navigational Components

  These elements play a critical role in the user experience. In these elements, our primary focus is on increased interactivity by adding shortcuts and increasing the speed of connection so that users can jump from one screen to another increase without any problem

- Informational Components

  In these elements, the information about food orders is displayed to the user in a standardized manner by maintaining only a few font styles and colors.

Explain the design guidelines used while designing the UI and their impact on your design decisions/ approach.

To design a good user interface, it is important to follow some guidelines which eventually help the platform to take decisions in a standardized and efficient way. After evaluating the functionality some guidelines were made which should be present in our platform to increase user interactivity.

- Match between the system and the real world.

  For any food delivery platform, it is important to maintain and showcase the food items in such a way that users should relate them to the real world.

- User control and freedom

  User freedom is also a great factor that directly affects the user experience. In Foodkart customers have been given complete freedom to navigate between various screens without any trouble.

- Consistency and standards

  The food items which are displayed to the customers should be consistent which means it only displays by predicting the user's sentiments and a standardized user interface should be maintained

- Error prevention

  This is one of the major issues which will occur when the traffic in the application is higher. Agreaterror support has been provided to the system which prevents the platforms from crashes

- Recognition rather than recall

  It is important to recognize and react to the issues instead of recalling them. To ensure the platform's efficient functionality day to day testing is performed on the platform

- Flexibility and efficiency of use

  The UI should be flexible which means the UI should be interactive if there were

problems in the backend.