Indian Institute of Information Technology, Vadodara

Software Requirement Specification Document

IT Team - 3

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1 Introduction

1.1 Purpose

"Necessity is the mother of invention. We all know this fact since our childhood and necessity is the major reason behind developing anything. Motivation is required to build anything which would be helpful. In our case, as a Software Engineering Team, we decided to make an application which will not only complement technical skills of our team but will also provide opportunity to learn. So we came to the conclusion of building an android application for Bims' Kitchen which is basically a night kitchen, it is a start-up that provides food at night.
As we all know that getting food during daytime is easy, but when it comes to night it becomes very difficult. Especially for students residing in hostels. When they study late night and feel hungry, there are less options available to them. Also, among available options, accessibile options are not feasible. So the main purpose of building this android application for Bims' Kitchen is to solve the problem of getting food at night in a much easier way. Also we want to spread awareness about Bims' Kitchen that's why we decided to make a website as well which will include basic information about the owner and working of Bims' Kitchen.

1.2 Scope

Nowadays everyone is connected with communication devices and as per the trend smartphones are the best choice available. According to a recent survey, conducted in 2016, the number of smartphone users in India is estimated to be 204.1 million and increasing. "Bims' Kitchen" is a night kitchen which provide food at night. It's a new venture so presently it works on "Call and Order"(whatsapp or phone call) basis. So as a team the scope of our project will include an android application and a website for Bims' Kitchen. More specifically the project will consist of a website which will be an informative front end which will help the user to facilitate information about Bims' Kitchen, and an android application which is the major part of our project, it will provide a communication link between a customer and Bims' Kitchen, using this application a customer can access food items easily.
This would be a free application easily available on the android app store. For android application part we are planning to make two applications. One for users or customers which would be used to order food, give reviews etc. And one for the administrator which will help in managing orders, managing delivery. Another part of application would be website which will provide all the basic information of Bims' Kitchen.

Furthermore, the android application needs both Internet and GPS connection to connect with the Bims' Kitchen. All system information will be maintained in a database, which will be located on a web-server. Major benefit from this system is the Ease in accessibility of food at night. Also the major goal of the project is to reach to large number of people through an application and spread information via website. This app will even help in launching this start-up at different places and in different cities.

1.3 Intended audience and reading suggestions

This document is basically an overview of application based on requirements and is meant for team developers, users of application, testers, Bims' Kitchen owner and documentation writer. This whole document consists of overall description of project, external interface requirements (user interface, hardware interface, software interface), system features, non-functional requirements. Document is organised in such a way that one can read through document from top to bottom in serial order. Sections like user interface, system features are for general readers. Sections such as software interfaces are for developer team, testers.

1.4 Overview

1.4.1 Existing System

1. Ordering food on call or WhatsApp.
2. No informative digital platform.

1.4.2 Drawbacks

1. Not authentic customers.
2. No reliable delivery of food.

1.4.3 Proposed System and Our Plan

1. Android based application.
2. Easy accessibility of food at night.
3. Informative website.
4. GPS based tracking of order.

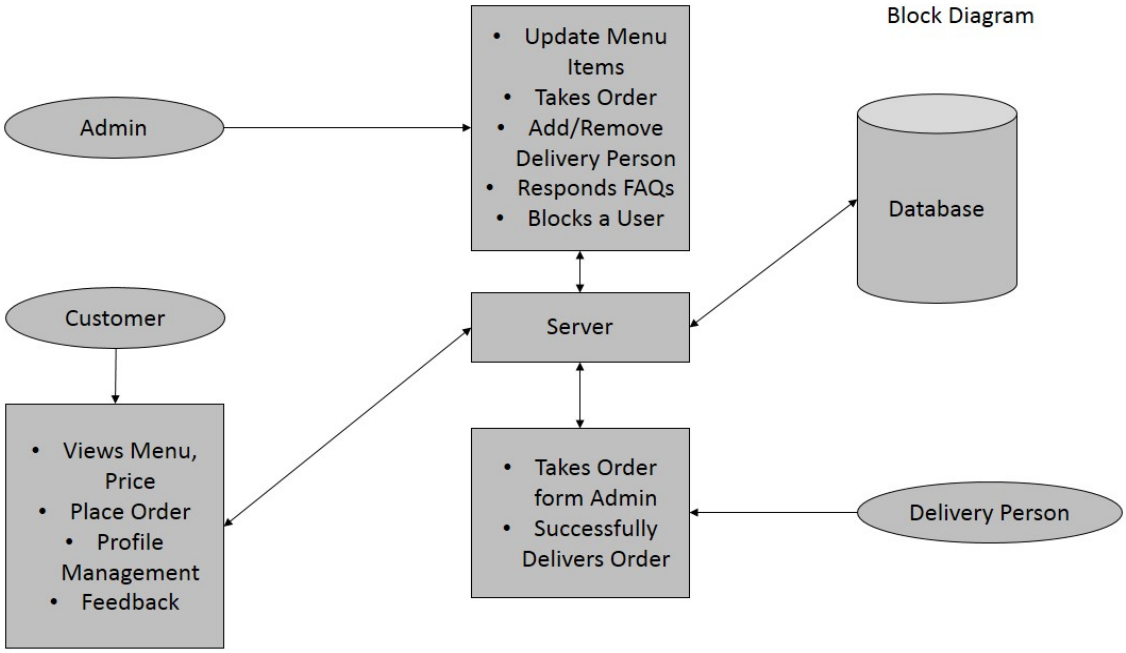
1.5 References

1. https://prezi.com/o9gboeg-bxxf/online-food-delivery-system/
2. https://www.statista.com/statistics/467163/forecast-of-smartphone-users-in-india/
3. http://www.slideshare.net/
4. http://www.cse.msu.edu/ cse870/IEEEXplore-SRS-template.pdf
5. https://developer.android.com/index.html

2 Overall Description

2.1 Application Perspective

The dual objective of making this application is to one, provide a base to this startup Bims' kitchen so that it can come into the digital world where he can easily market, advertise and run his venture. Another is to provide the students or any hungry person at night an easy alternative to order food online. The application at the user end will show the menu along with a section for popular or trending items in any area. Selecting and ordering will send a message to the owner end of the application with the order and the address of the customer. The delivery person can easily track the location of the customer using gps tracker and in no time food will be delivered. Along with the application a website is also gonna be made which is nothing but an informative front-end interface to market the startup. Further the owner want's to continue his startup in other cities as well, thus the application and website would help in advertising the kitchen as well as will help in increasing the number of users in a short period of time.



2.2 Product Function

Major functions of project will include

1. Ordering food from a well organised list of menu items.
2. Will show popular food items in your circle.
3. Would provide feedback forms to help the owner improvise their service.
4. Would handle and manage the orders.
5. Would track order status as well as location of the place where the food has been ordered from.
6. The owner's end of applicatoin will manage the specifications of food items like price, avalability, extra add-ons.
7. The website would show all the details of Bims' kitchen along wiht links to facebook page, contact numbers and a link to download the application.

2.3 Operating Environment

Looking at the present scenario, number of people using android device is more than 80%. So the best way to reach the majority was to make an android based application. Therefore, an android application would be developed for the user end as well as for owner's end with an online database. Database used would be firebase. The website created can be accessed from anywhere. No hardware platform is required.

2.4 User Classes and Characteristics

Primary User: It is going to be the customer who's will order food using this application, the person can set his location as well.
Secondary User: The owner end of the application would be managed by the person staying at the kitchen. That will include checking the orders, maintaing the menu list as well as price list, any changes or new inclusions if necessary. Delivery persons would use another part of the owner end's application, they would track the location of the order placed and will notify when the food has been deliverd.
Developer: On the website side of the project the role of the developer would be update the information of Bims' kitchen and will make the website using web languages like HTML, javascript, CSS. On the android application side, since it is an entirely user based application, the role of the developer would be to create an application using JAVA and XML, with a robust database, which we are gonna make on firebase, which could manage all the data. Further if required the developer could change the basic UI to add new functionalities in the upcoming versions of the application.

2.5 Assumptions and Dependencies

Since it is a night kitchen, we are expecting that this application would be used only at a specific period of time in a day. Another thing is that we are expecting this to be location dependent i.e. at a particular location all the specifications like menu items, prices, avalability of delivery personnels. This application is created on an android platform, so the entire stress is layed on creating layouts and then adding functionalities to them using JAVA. There would be many user-end applications but the owner end of the application would be just one. Therefore a huge part of our work is to establish strong and dynamic connecting link between customer applications and the owner's application. Thus making an application which is gonna be used by numerous users at the same time, such that there is no unnecessary traffic and each order reaches the owner distinctively and in real time is gonna be a time devoting task. The website on the other hand is a simple informative website made using HTML, CSS, Bootstrap and javascript.

2.6 Design and Implementation Constraints

When we consider this as a software project for a real life customer, the basic constraint of our team is lack of experience in working in such a large group on a semester long project. Our knowledge of android development and website development is limited to single user interaction, thus building a dynmaic application using JAVA and then connecting it with the database which can network between thousands of users with a single admin would be an encouraging task. Android studio has specific code to connect it with firebase. The application should be able to handle a lot of traffic when more than one users are accessing the application at the same time and the owner should get the information of all the users in particular order such that none of them is left behind.

2.7 User Documentation

The owner would be provided with a proper instruction manual to handle the application and organise the data even without the developers support. The delivery guys would also get proper manual so that they are able to use the application to track the location of the customer and notify them at the time when they reach the address from the where the order has been placed. The customer would get instructions at the starting of the application and will also have help feature in the settings menu which will journey them through the entire process of using the application.

3 Functional Requirements

3.1 System Features

3.1.1 General Functional Requirements

1. A server shall host the application and provide system data processing and storage capability.
2. The application would require an android platform and application must support the version of the OS where it is being deployed.
3. The user has to install application from google play store and it should be free of cost.
4. The user must grant all the necessary permissions required to the application at the time of installation.
5. The user must have a working internet connection while using the application.

3.1.2 User Login

Description & Priority

1. A user can login to the application with the help of a login-id and a password.
2. Its is a high priority action, because the user has to login to the software to use its features, and only the right combination of the login-id and password will let him/her use the software.
3. Stimulus/Response Sequences
   - **INPUT:** Username and Password.
   - **OUTPUT:** Displays error message if username and password does not match otherwise user is brought to the homepage of application. PROCESS : Match the username and password from the database.
4. Functional Requirements
   - The login must be secure and relevant. Security is a primary concern for the user while logging in with his/her account.
   - Login credentials are required at the server side to check for the concerned user.

3.1.3 Place Order

Description & Priority

1. Menu option is present on the home screen. User clicks on the menu and select desired items and can oder. It is a high priority action.
2. Stimulus/Response Sequences
   - **INPUT:** Items and corresponding quantity selected by the user.
   - **OUTPUT:** Displaying the total list, order is placed.
   - **PROCESS:** Send and retrieve data to the server.
3. Functional Requirements
   - The application must provide a mechanism to combine all items and generate list.
   - Connection between the remote server and the application server needs to be established to send the data to the admin.

3.1.4 Track Order

Description & Priority

1. User can track his/her current order. It's a medium priority action.
2. Stimulus/Response Sequences
   - **INPUT:** User have to place order with his/her ID.
   - **OUTPUT:** Location of delivery person.
   - **PROCESS:** Fetch data from the location API.
3. Functional Requirements
   - Application should synchronize with the Google Map to display the location of delivery person.

3.1.5 Feedback

Description & Priority

1. User can give feedback based on his/her experience. It is a medium priority action.
2. Stimulus/Response Sequences
   - **INPUT:** Text in the comment box.
   - **OUTPUT:** Feedback is submitted.
   - **PROCESS:** Transfer data to the server.
3. Functional Requirements
   - The user feedback should be sent to admin.
   - The feedback page should have an option to go home or back.

3.2 User Interface Requirements

3.2.1 For Android

1. The Application should not be overloaded with extraneous information and unnecessary materials.
2. The interface content should be conveyed very quickly and acurately.
3. The informtion should be easy to read and meaning should be clearly interpretable and unambiguous.
4. Each section should be self descriptive and should be explained to the user on request.
5. Despite the error in input by the user, the inteded result should be achieved by minimal action by user. If it's not possible then only error message should be displayed.
6. The interface should guide the user to the respective screens.
7. Every interface should provide the user to home interface or prevoius interface.
8. The user should be able to manage his profile, notifications etc.

3.2.2 For Website

1. Interface should be user friendly.
2. Content should be clear and interpretable.

3.3 Hardware Interfaces

3.3.1 For Android

An android phone or tablet.

3.3.2 For Website

To view this website user will need- A computer,mobile or any device with an Operating System and Web Browser(any).

3.4 Software Interfaces

3.4.1 For Android

1. TOOLS Android Studio,
2. PLATFORM: Android SDK Framework
3. IDE: Android Studio
4. ANDROID EMULATOR: SDK Version 2.2 or Higher
5. TECHNOLOGIES USED: Java, XML,
6. DATABASE - Firebase

3.4.2 For Website

OS: Windows XP or above or ubuntu

Technology used: HTML, CSS, Bootstrap, Javascript, JQuery
Tools: text Editor(any)
Browser(IE 9.0 or Google Chrome or firefox).

3.5 Communication Interfaces

3.5.1 For Android

SIP functionality is used. This needs to import package android.net.sip.

3.5.2 For Website

HTTP/HTTPS protocol will be used by client and server.

3.6 User Characteristics

1. The user should have basic knowledge of using android phones.
2. The interactive user interface will provide helpful guidence to browse throughout the application and website for user with minimal past browsing experience.

3.7 Constraints

1. The phones having the application should either be connected over LAN or internet.
2. Sign-in and password are used for the identification of user.
3. Admin needs to update the database after every session.
4. The android version of the smartphone should be above 4.4.2 or higher.

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4 Non Functional Requirements

4.1 Performance Requirements

The objective of this project is to provide the best possible user experience.

1. **User satisfaction:** The products should be as much interactive as possible. A naive user should also be able to use the system without any difficulties.
2. **Response Time:** There is no specific restriction on action-response time, however it is desired that the delays involved must be minimized. The website developed should be fast loading and number of clicks for navigation should be minimum.
3. **Error handling:** The system developed should be able to deal with the user errors(like wrong input type) and undesired situations and have proper mechanism to rectify it.
4. **Capacity:** When number of users will increase in future then system should have capacity to satisfy everyones expectations and work properly.

4.2 Safety Requirments

Data transmission between various nodes and server should be done securely. The main safety concern is for user's account hence proper login mechanism/APIs should be used. The server which will facilitate the communication between user and administrator will have its own security to prevent unauthorized access.

4.3 Reliability

It must be made sure that the system is reliable in its operations and for securing the sensitive details. The application should be able to maintain the specified level of performance and safety.

4.4 Software quality attributes

1. **Availability:** If the Internet service gets disrupted while sending information to the server, the information can be sent again for verification.
2. **Maintainability:** Software should easily support the modifications like improvement in functionality over the time, correct any bugs and fixed through preventive maintenance.
3. **Usability:** An interface should be easy to learn how to use and easy to remember how to use rather than intimidating, demanding and frustrating.
4. **Security:** The main security concern is for users account hence proper login mechanism should be used to avoid hacking. Hence, security is provided from unwanted use of recognition software.

4.5 Business Rules

4.5.1 User's role

1. User should be able to login safely and must not share his/her authentication details with anybody.
2. User must give authentic details while registering so that he/she can be tracked while food ordering.
3. User must give relevant feedback which will be helpful for future improvement

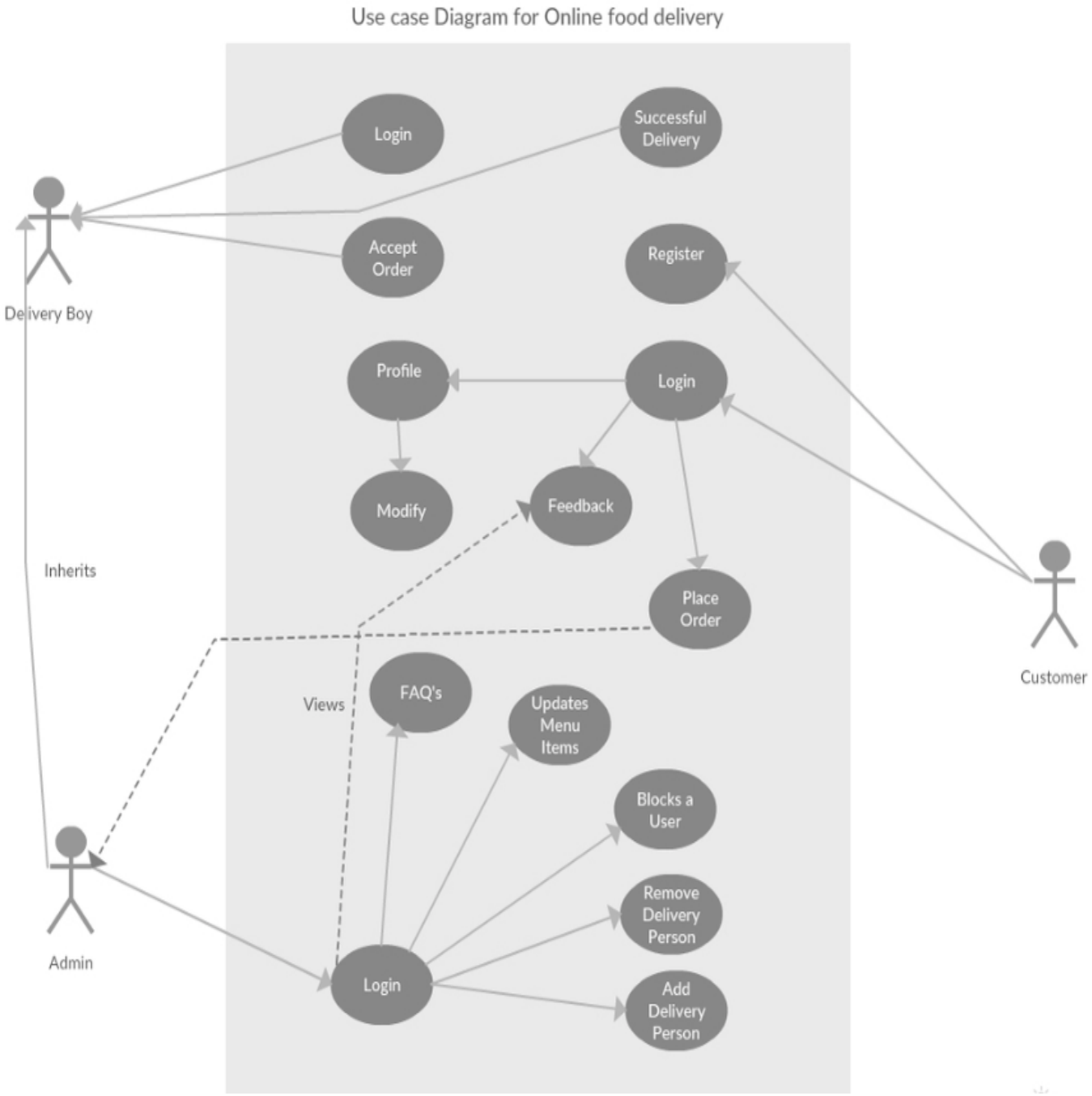
4.5.2 Administrator's role:

1. Administrator must not disclose the data of user to anyone.
2. Administrator must ensure the proper delivery of food at right place.
3. Administrator must ensure the quality of food being delivered to people.

4.5.3 Developer's role:

1. Major role is to understand the requirement of administrator and make application accordingly.
2. Developer must consider all the aspects before making design of application.
3. Must ensure that day to day person can easily access the application

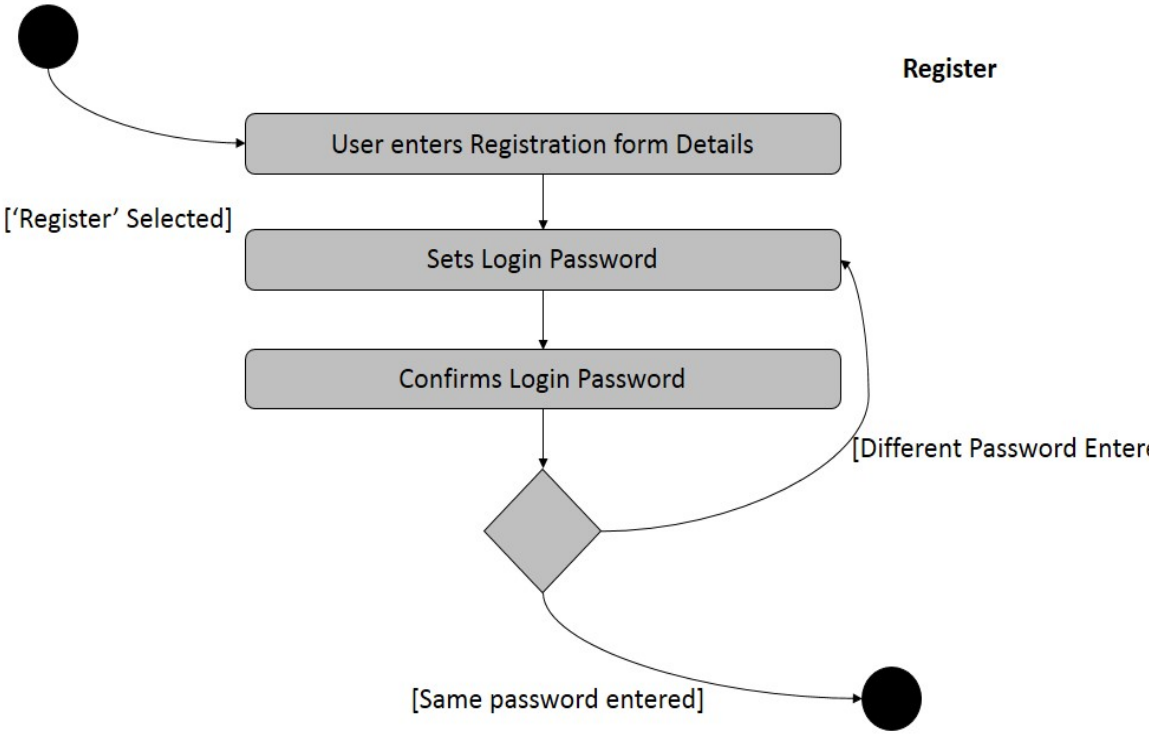
5 Use Case Diagrams



5.1 Customer Use Cases

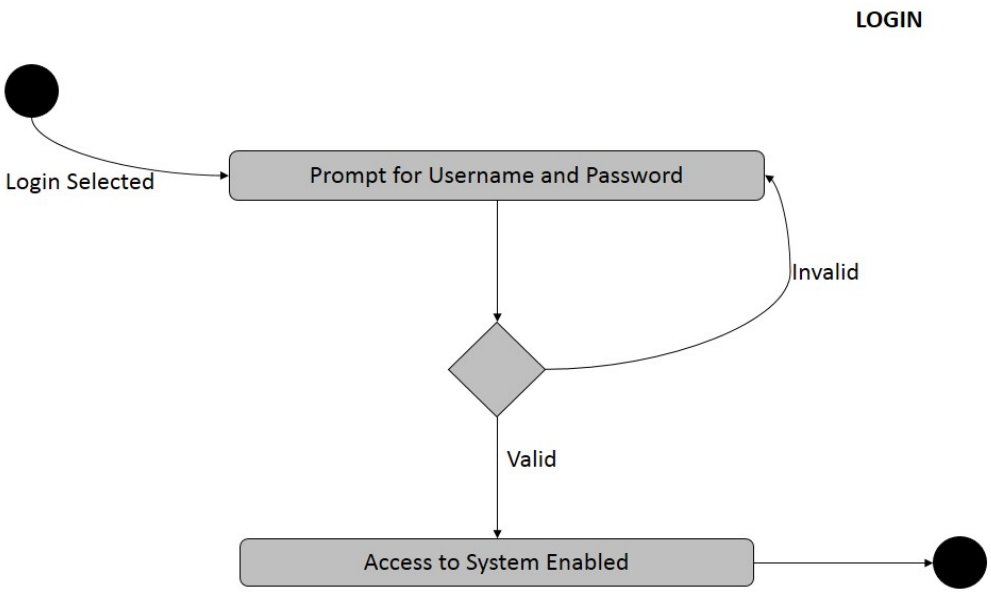
5.1.1 Register

1. When an unregistered user will click on Sign Up button, a form will appear asking to upload his/her basic details and create an account.
2. User fills all the details and click on register.
3. All the details are uploaded to the database.



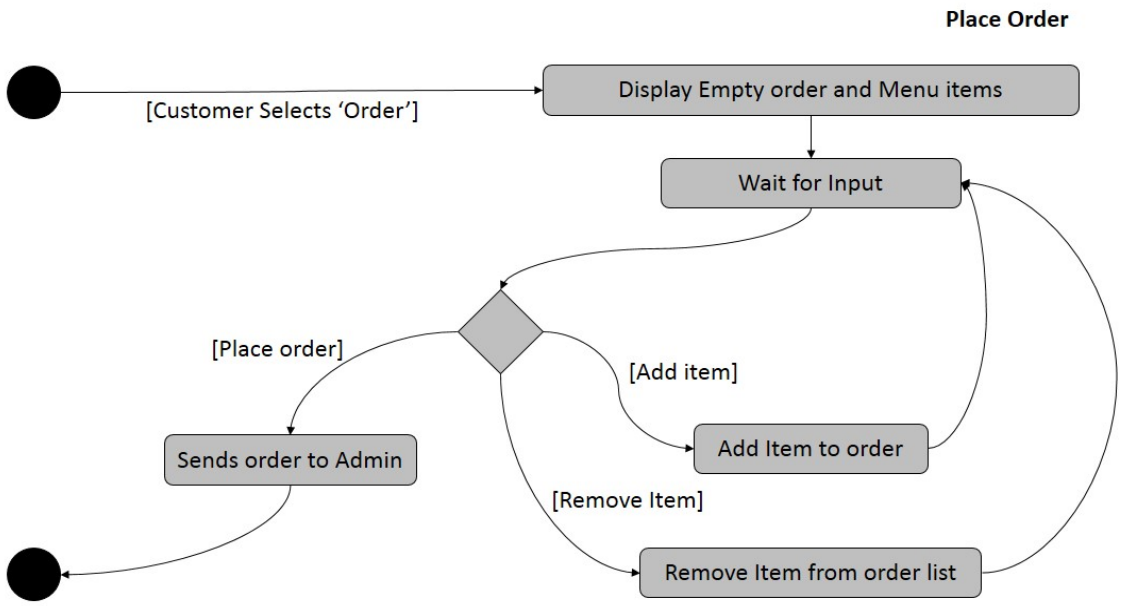
5.1.2 Login

1. User fills the required details and clicks on login button.
2. Details are sent to server which will match the details with the one existing in the database.
3. If matched, user will be redirected to homepage of the application.
4. If not matched then gives error message, would prompt a forgot password or register message.



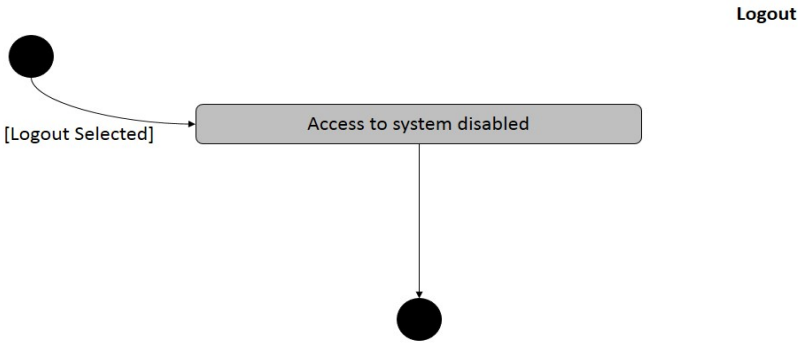
5.1.3 Order Food

1. User will select food of his choice from the menu provided.
2. After selecting he/she will place order. The list of food items along with the location would be sent to the administrator.



5.1.4 Feedback

1. Apart from the ordering, a user can also give feedback on the entire experience like taste and quality of the food, delivery service.
2. Feedback would be sent to the administrator and would be recorded on the database.



5.2 Delivery Guy Use Cases

5.2.1 Delivery Guy Login

1. There would be a special login for delivery guy on the owner end of the application.
2. Specific details would redirect him to orders page.

5.2.2 Accept Order

1. Delivery person accept the order from admin by clicking on accept button.
2. Then the contact(ddress and number) of customer is displayed.
3. Delivery person take the items and bill and delivers the item.

5.2.3 Complete Order

1. After succesful delivery, he/she clicks on order completed button.

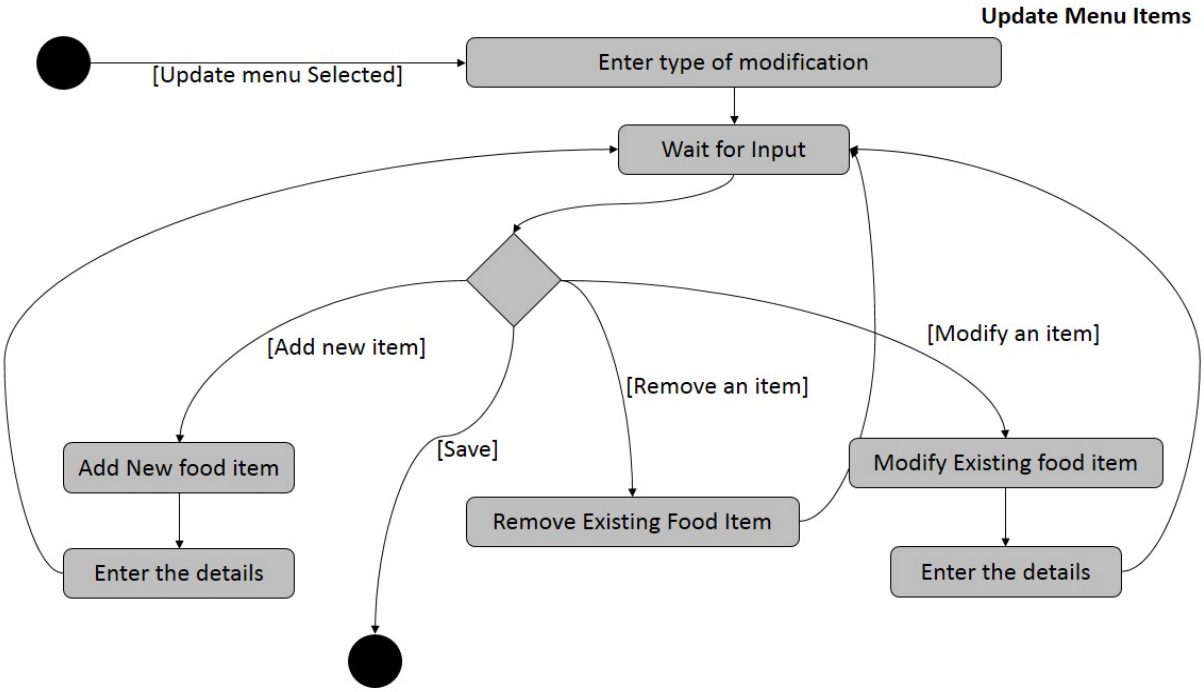
5.3 Administrator Use Cases

5.3.1 Admin Login

1. There would be a special login for administrator.
2. Specific details would redirect him to a page where all the current orders are displayed.

5.3.2 Update Menu

1. The admin can update menu i.e. add or remove items.
2. The admin can also alter the prices of items.
3. Also can alter the avalability of items.



5.3.3 Block User

1. Admin can block a user for unappropriate behaviour or fake information.
2. Admin goes to the user list and select the user then clicks on block.
3. The user is then not allowed to login.

5.3.4 Add Delivery Person

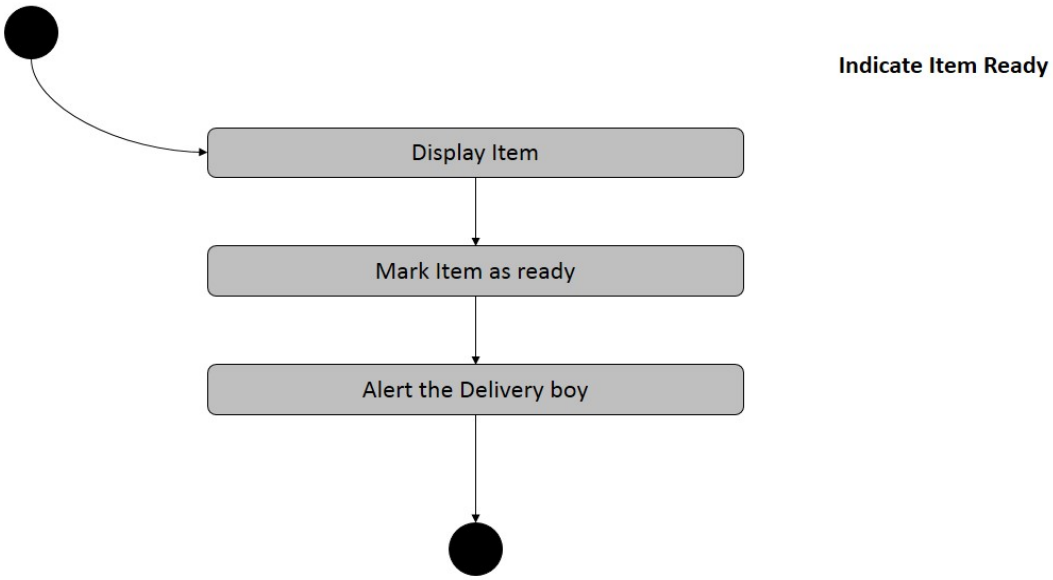
1. Admin can add delivery person.
2. Admin goes to delivery person section and clicks on add new button.
3. He fills the details and clicks on add button.
4. Delivery person is then added to the list and database.

5.3.5 Remove Delivery Person

1. Admin goes to Delivery boy section and select delivery boy.
2. Then clicks on remove button.
3. The person is then removed from the list and database.

5.3.6 Assign Order

1. Admin views the list of available delivery persons and assign them the orders.



5.3.7 View Feedback

1. Admin can view the feedbacks given by various users.

5.3.8 Update FAQ

1. Based on feedback, Admin can update the FAQ section.

6 Other Requirements:

6.1 Database Requirements

The application required a database which will contain all the data such as user details. Database will be useful in retrieving data while authentication. Administrator will have full access to database.

6.2 Reuse Requirements

Application must be designed in such a way that further changes are possible as per the requirements of administrator and changes can be easily implemented.

7 Appendix

7.1 Glossary

- **Android:** Developed by Google, a popular operating system for smart phones.
- **GUI:** Graphical User Interface. An interface that receives and reacts to the user input with a graphical display.
- **Android Studio:** It is an IDE which is used to develop android applications. It uses XML to create interface layouts and java to add functionalities to those layouts.
- **XML:** Extensible Markup Language (XML) is a markup language that defines a set of rules for encod- ing documents in a format which is both human-readable and machine-readable. Here we are gonna use it create layouts in android studio.
- **Java:** Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. Here we are gonna use java as a tool to give functionalilties to our android application. All the coding, which includes the functioning of the application and connection with the database, would be done in JAVA.
- **SIP:** Session Initiation Protocol
- **Firebase:** Firebase is a cloud services provider and backend as a service company based in San Francisco, California. We are gonna use firebase as our database.
- **HTML:** Hyper Text Markup Language which defines the structure of a webpage.
- **CSS:** Cascading style sheet, to define the layouts.
- **javascript:** Javascript is used add dynamic nature to the website.
- **Bootstrap:** To make the website responsive on different kinds of environments.