

E-Tiffin: Development of an Android Based Application

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree
of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project/internship titled “**E-Tiffin: Development of an Android Based Application**”, submitted by Shanta Islam, ID No: 161-15-6770 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 06 December 2019.

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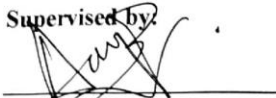
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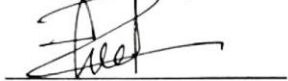
We hereby declare that, this project has been done by us under the supervision of **Anup Majumder, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

E-Tiffin is an Android based application. It is aimed at students, teachers and varsity staff can use this application to collect food from their canteen. The effort is to keep in mind the complexities of having a banquet while having a short time gap or running classes, so that the people of the canteen cannot be disrupted in serving the food in a short time and the needs of the users are met. Although there is no physical interaction, the user will be able to maintain its time via virtual interaction. The application is aimed at minimizing these problems. [2] Through this application, users will be able to collect the food they like so that the canteen and admin panel will play an important role. Here, users will select the information they need, such as varsity id, phone number, room number to order their favorite food. Conveniently add, delete and order an ad or cancel the convenience of the user. People are having a very busy time now and I think this kind of work will be rewarded by who will maintain their time. Smart use of mobile is the main reason for bringing this platform

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Online food programs are one of the fastest performing in the western world. In this way, the food is quickly delivered to the customer. Due to the wide spread of internet and technology, many opportunities are being created. In today's world, fast food, as well as the fastest preparation and delivery of quality food, is a matter of great watch. [5] While its prevalence has not been noticeable in the past, it has received so much acceptance at present that it is actually pretty. And the Android platform is a new addition to the world of technology by printing something like this. Although people are now dependent on technology, most people want to save time. "E Tiffin" will help those students. Even if they are running classes, they will be able to enjoy the food they want in class or on campus premises and hope that this Android application will meet our goals.

1.2 Motivation

As we all know, "necessity is the key to innovation." This requirement comes at a time when I am interrupted by a task or something. First of all, when we enroll in this institution and start a class, we come to this Development thinking about the problems we face. The idea was that the first semester might have this problem, but it would be possible to solve the problems later. But almost every semester, our students have continuous classes, especially girls are more involved in this problem. Many people are staying far away after having spent several hours traveling to class together and their health is deteriorating. Even if there is no physical interaction, the virtual interaction will enable the user to maintain his time and fulfill his needs. All these problems have prompted us to take this initiative. On the other hand, I have searched for any problem that has a pre-built web or mobile platform, where students can freely navigate through their problem-solving. In addition, since the Android platform is public, there is a lot to look forward to. I think it's good to be motivated by the positive aspects of solving our problems.

1.3 Objective

The main objective of this project is to save the time of all the students, including the students, to manage their complexity by collecting food. Here, people can easily meet their needs without wasting any time. In addition, virtual connectivity will also increase. In this case, users will adopt a specific methodology and will provide service accordance with Daily Statistics in a joint effort of Admin and Canteen. The positive environment of the organization will give a peaceful environment as well as facilitate the path to more digitalization.

1.4 Who are the users of this application

There are two types of user of this system

1. System owner & Canteen Authority.
2. Student, Teacher & Staff.

1.4.1 System owner & Canteen Authority

The system is owned by a user who has complete control over the system, as well as a canteen. He is the super admin and in charge of the system. Admins want to use the system with registration. The owner of this system who will manage canteen's activities like food, observe stocks and manage orders. Admin and canteen will work parallel to the same platform. Admin will control the entire system and canteen activity.

1.4.2 Student, Teacher & Staff

Students, Teachers are the main user of this system. They will order their food during interval of their classes and get server right at the classroom. In order to order the user one and a half, they have to go through some specific method and here is the mandate to use the university id.

1.5 Summary

This chapter describes everything in detail, including the main purpose of our project, the reason for the inspiration. Hopefully this document will be understandable to all.

CHAPTER 2

BACKGROUND STUDY

2.1 Introduction

E-Tiffin is an online based android application. In this chapter we will discuss the comparative work. Here are some of the problems we have faced in creating this application or if we have taken initiatives in view of any problems or how useful our work is in comparison to different tasks.

2.2 Related Work

Although there are many applications related to Tiffin, there is no application based on the university campus alone. Some are home delivery based but those applications are a lot of time. E-Tiffin is completely based on our organization. This allows students in our institution to order from their own canteen through the addition of a specific room number.

2.3 Comparative Studies

“E-Tiffin” Tiffin is an Android application for management. Although there are many applications based on Tiffin management, e-Tiffin is slightly different. [4] Using it, students can order their meals on time. At the time of ordering, they will mention their room number as well as the campus name. The canteen, as determined by the admin, must be approved by the organization. This can be seen by comparing our application with other applications.

2.3.1 Comparative Studies

Table 2.3.1: Comparative Studies

Hungry Naki	Tiffin Tom	BoxHunt	E-Tiffin
1.User Registration by social media.	1.User Registration by email or socialmedia	1.User Registration	1.User Registration by university Id
2. See menu	2. select location wise restaurant food	2. See food menu.	2. See food by user.
3. Order with address	3. Order list	3. Payment	3. Select food to cart
4.Payment	4.Payment	4. Order with Address.	4. Order with room number & campus
5.Delivery Location(limited area)		5. Order list	5. See comment about system by user
		6.Delivery Location	6. see confirmation notification on profile
			7. Add product control by System
			8. verified by students or teacher by their Id
			9. See order list by Admin
			10. See product
			11. Confirm Order by giving notification
			12. See Daily Statistic by Admin
			13. Admin control the canteen
			14. Admin see the feedback

2.4 Scope and Problem

The main goal of this project is to reduce time span. This will enable them to utilize their survival time for various developmental tasks. [6]And to make this work faster, we have shared time that will help us move forward.

2.4.1 Time Scheduling

Table 2.4.1: Time Scheduling

Planning	3 weeks
Design and analysis	1 Month
Coding	4 Months 2 Week
Testing and Implementation	2 Weeks
Total	6 Months 3 Weeks

We have followed this schedule to get it done.

E-Tiffin has two modules. One is that the user (student or teacher) can easily order food and comment on the food. Next is the admin, who will simultaneously control the system and canteen. The admin can see the user's comment.

2.4.2 Modules

1. User Module
2. Admin Module(system & canteen)

2.4.2.1 User Module

User module can be used by student or teacher. They can be performing the operation that is given below.

Registration

User can be registered them in the application under system

Login

They can also login to the system by registering.

Add to cart

User can be selected food and added to cart with quantity.

Order

User can order and see order statistics.

Edit profile

User can be see & edit his/her profile.

See food Details

User see available food with details.

Search food

User Search specific food item. After searching they can add to cart.

2.4.2.2 Admin Module

Login

Admin can use login into the system.

Verify Student

System owner can verify the students and teacher by their Id.

Add Product

System owner adds daily available food into the system by contracting canteen. And can give the quantity of them.

Products

System owner can be seen the product and updated them with quantity.

Orders

Admin can be confirmed the order by giving notification and see the order details with delivery room number

Home Screen

In the home screen, admin can see the stock foods, orders, users comment

Overall System Statistics

Admin can control the full system statics.

Assign Canteen

Admin can assign or control canteen under institutions.

2.4.3 Target of our Project

The main goal of our project is to utilize the time and ensure that they are stressed by the use of time. In this way, they will try to develop their country and future life with the proper use of their talents. Efforts reach the peak of improvement. If that effort is time consuming, then it doesn't matter. E-tiffin seems to be able to provide this opportunity.

2.5 Challenges

The most challenging task was to build a user-friendly platform. And save the user data to the database. By trying to maintain all the requests to make the user friendly, I think it would be difficult to fill in our application.

CHAPTER 3

REQUIREMENT AND SPECIFICATION

3.1 Business Process Model

Business process management is a discipline through which people take different ways to uncover, model analysis, measure, develop, optimize and automate their business processes. BPM is the most diligent method of conducting a business operation.[3] Although not required, BPM is used in all business processes. This is the basic structure of all business, which is the key to the business process. Here the work will be performed by the user and the admin, the pink color indicates the user and the blue color indicates the admin.

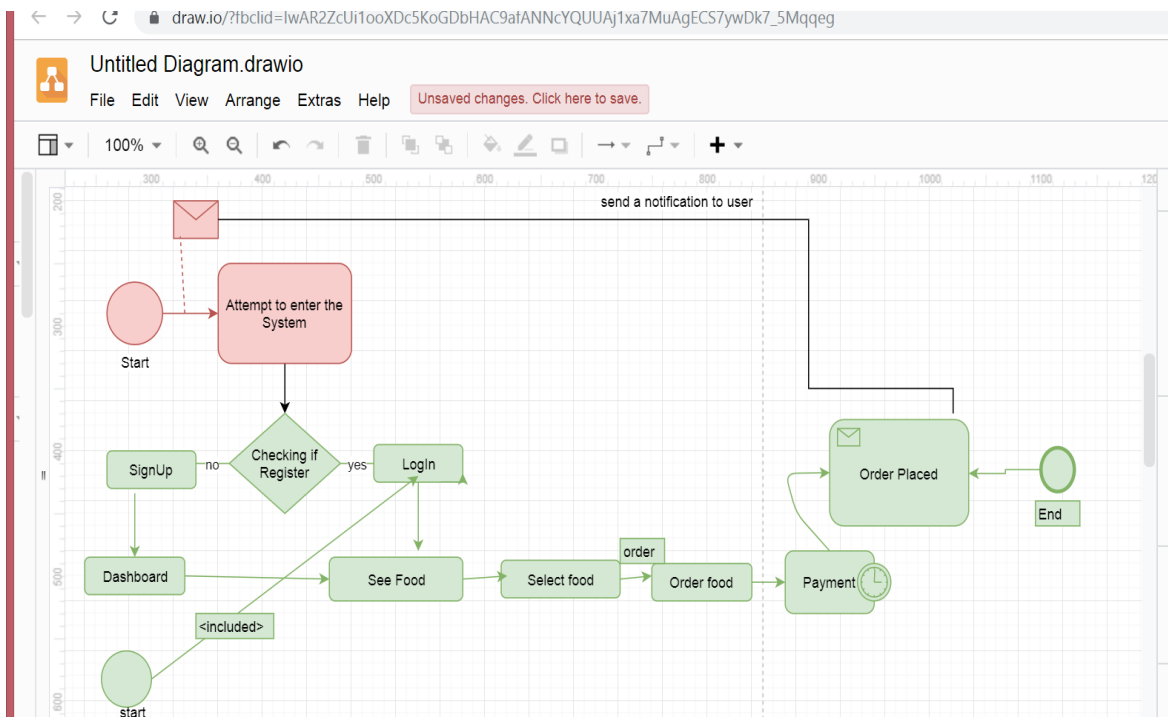


Figure 3.1:- BPM of E-Tiffin

3.2 Requirement Collection and Analysis

We need to have at least some general requirements on hardware and software to create this project. If all requirements meet this condition, it will help to run it. The software and hardware requirements that are required are given below:

Software Requirements

For developing our project we used those requirements:

- Used programming Language as Java
- Used Windows 10
- Used Tools as Android Studio
- Used Flow chart maker & online diagram software to system Design.
- Used Android Dalvik Debug Monitor Service as Debugger

To run the application, the following Software Requirements are:

- Used Android 4.0 or higher version as Operating System
- Used Wi-Fi network or mobile data
- To have min space 200MB to execute

Hardware Requirements

For developing the application, we used the following hardware requirement:

- Used Intel®core™i3-7100U
- Used 4 GB RAM
- Used space on disk 10GB

Functional Requirements

- GUI for interacting users
- Giving freedom to understanding about development through internet

Programming Language

- Backend design by Java
- Front end design by XML
- Data stored by Firebase

3.3 Use Case Modeling and Description

It is observed from this use case model that the system will perform and their functions.

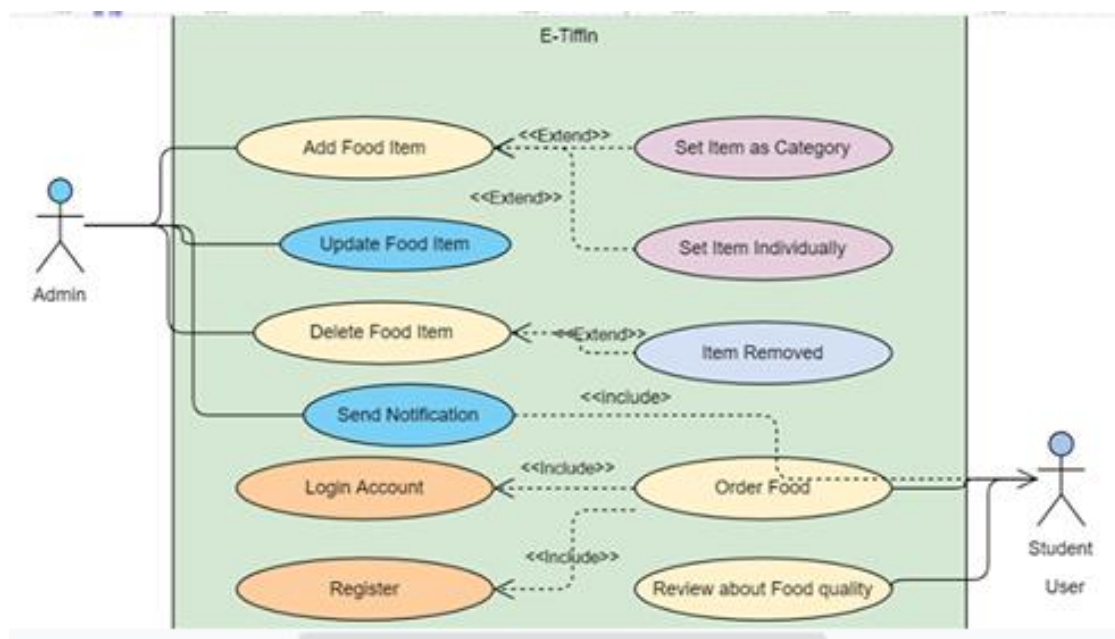


Figure 3.2 Use Case Diagram of E-Tiffin

Below is the description of the model in Use case. At each attribute age, their work will be described, including the likes of the primary character, the secondary character, the scenario, the pre-condition, the post-condition.

Description about Register

- Primary Actor : **Admin, Users**
- Secondary Actor : Null
- Pre-condition : Null
- Scenario-
 - Enter Phone number
 - Enter Username
 - Enter University Id(Students/teacher) & Admin Id
 - Enter Password

Description about Login

- Primary Actor : **Admin, Users**
- Secondary Actor : Null
- Pre-condition : Null
- Scenario
 - Enter Phone number
 - Enter Password
- Post-condition :Login successfully or invalid pass/phone number

Description about Comment

- Primary Actor : **Users**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario
 - Enter Rating
 - Write Comment
 - Show Comment
 - Show User phone number

- Post-condition :Comment added

Description about Order

- Primary Actor : **Users**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario-
 - can make order
 - can see description about food
- Post-condition :go to Address session

Description about Cart

- Primary Actor : **Users**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario-
 - can make cart to order
 - can see cart list
- Post-condition :Cart added

Description about Delete order list

- Primary Actor : **Users**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario-
 - can delete order from list
- Post-condition :deleted

Description about View Menu

- Primary Actor : **Users, Admin**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario-
 - see food list to order
 - can see their profile
 - Post-condition :Null

Description about search

- Primary Actor : **Users, Admin**
- Secondary Actor : Null
- Pre-condition : Registered & Login
- Scenario-
 - can make search food to order
- Post-condition :Null

Description about Add Product

- Primary Actor : **Admin**
- Secondary Actor : Null
- Pre-condition : Logged In
- Scenario-
 - can add food to user
- Post-condition :Food added

Description about See Comment

- Primary Actor : **Users, Admin**
- Secondary Actor : Null

- Pre-condition : Registered & Login
- Scenario-
 - can see the comment about application
- Post-condition :Null

Description about Log out

- Primary Actor : **Users, Admin**
- Secondary Actor : Null
- Pre-condition : Loggedin
- Scenario-
 - can Logout
- Post-condition :Logged out successfully.

3.1 Logical Data Model

The logical model distributes all the processes in the system. From now on, it is understood that sated key processes exist.

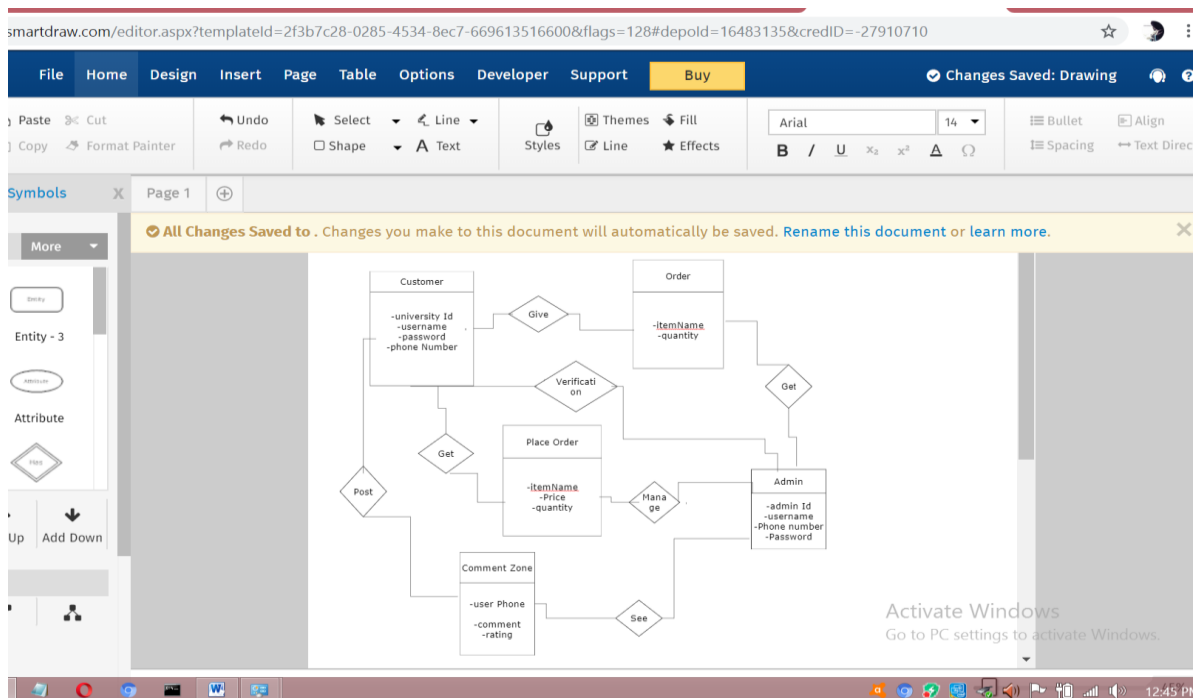


Fig 3.3: ER-Diagram(E-Tiffin)

3.5 Design Requirements

- This System will 2 types of module user and admin.
- User will Register and setup their Profile.
- User can Search Food.
- User can Comment about Application.
- User can Order.
- User can see Order List.
- User get notification from System.
- Admin will login to access also.
- Admin can add food.
- Admin Can see Comment.
- Admin Can Statistics.
- Admin can control canteen.
- Admin can delete Order.
- Admin & user can logout from the system.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

Front end design is a way to bring an application to the user. It can connect the user to the server. This is called client-side development. We have designed this front-end to build up the connection to the firebase.

Here is some Front-end screen list:

1. User Login
2. User Registration Screen
3. Home Screen
4. Food List
5. Cart Screen
6. Order list Screen
7. Payment method
8. Admin Login
9. Comment Show Screen
10. Splash Screen
11. User Profile Screen

4.2 Back-end Design

Potentially create the back end design of our application. This is very important for applications on the Internet. User API Or the database cannot participate in any quiz.



Fig 4.1: Back-End Design(E-Tiffin)

Our Backend Database Design Given below:

View of Database. This database used for stored information about user.

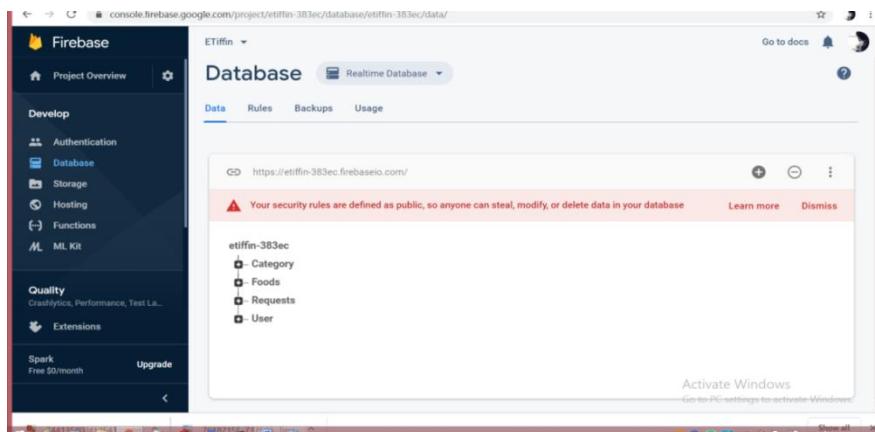


Fig 4.2: E-Tiffin Database

4.3 Interaction Design and UX

We all know "Before the philosopher then the judgement is judge". So in all applications, if the user interface does not attract the user, then it is useless. And so we have tried to emphasize the user interface of our application.[7]

We focused the following Things:

- Useful
- Valuable
- Usable
- Findable
- Credible
- Desirable
- Accessible

Home Screen Interaction Design and UX:

In this application we have splash screen, user id and phone number, user name and password in case of registration with login logo on screen. And will only use phone numbers and passwords.

Dashboard Screen Interaction Design and UX:

The home page has the convenience of a food menu, user profile, cart, order and log out.

Order and food list Interaction Design and UX:

Users will use their campus room number and campus name to order food from their food menu on the home screen. Cash on delivery and development has been arranged for them to pay the bill.

4.1 Implementation Requirements

Implementation Requirement is:

1. Android Studio
2. Android Programming
3. Java
4. Firebase
5. API Design

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

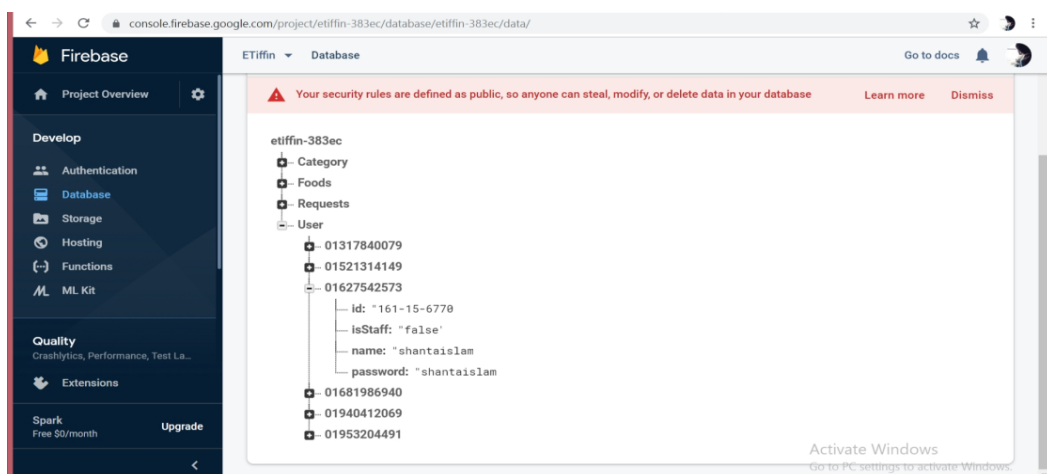
Project implementation in the middle of the database is very difficult. The project fails to achieve its intended purpose of data conservation.



Figure 5.1: Implementation of Database

In here we show the data of food item.

In here we show placed order status.



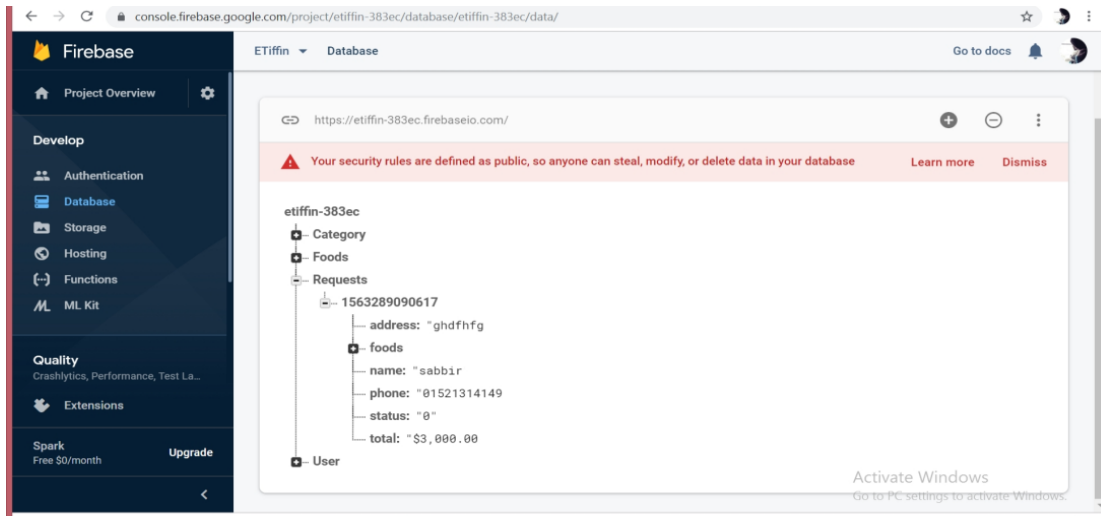


Figure 5.3: Implementation Database

In here we show the category of food.

5.2 Implementation of Front-end Design

We also implemented some front end screen.

In here we show the category of food.

5.2.1 Splash Screen

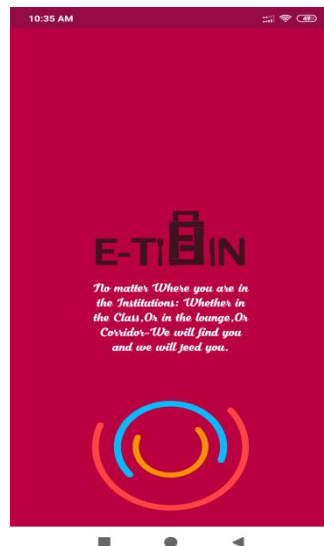


Figure 5.2.1: Splash Screen

5.2.2 Login Screen

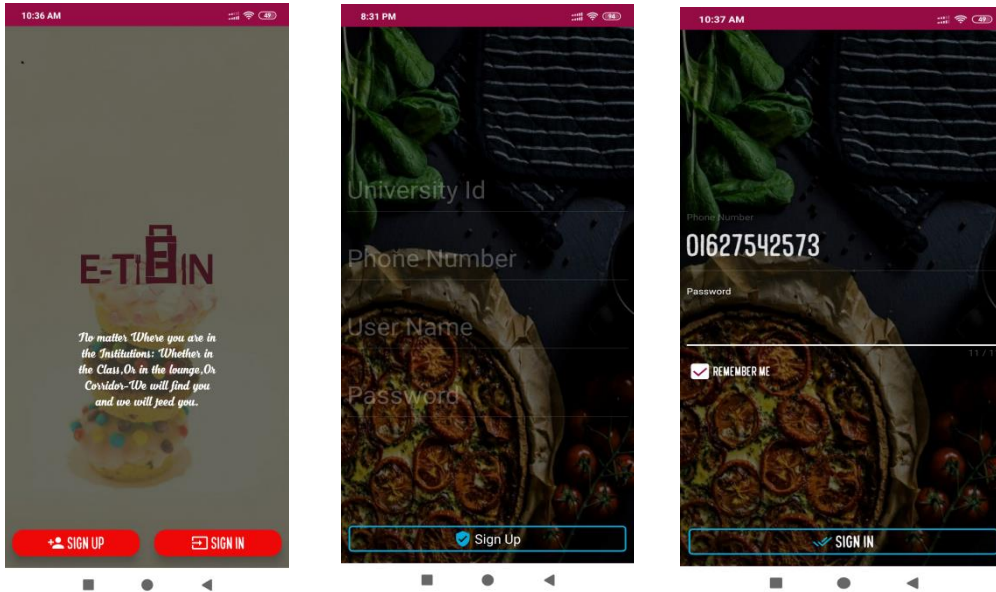


Figure 5.2.2: Login Screen

5.2.3 Home Screen

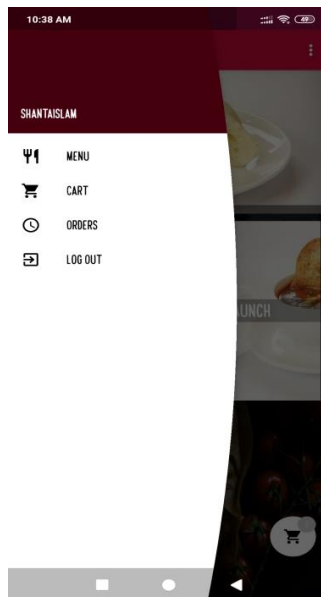
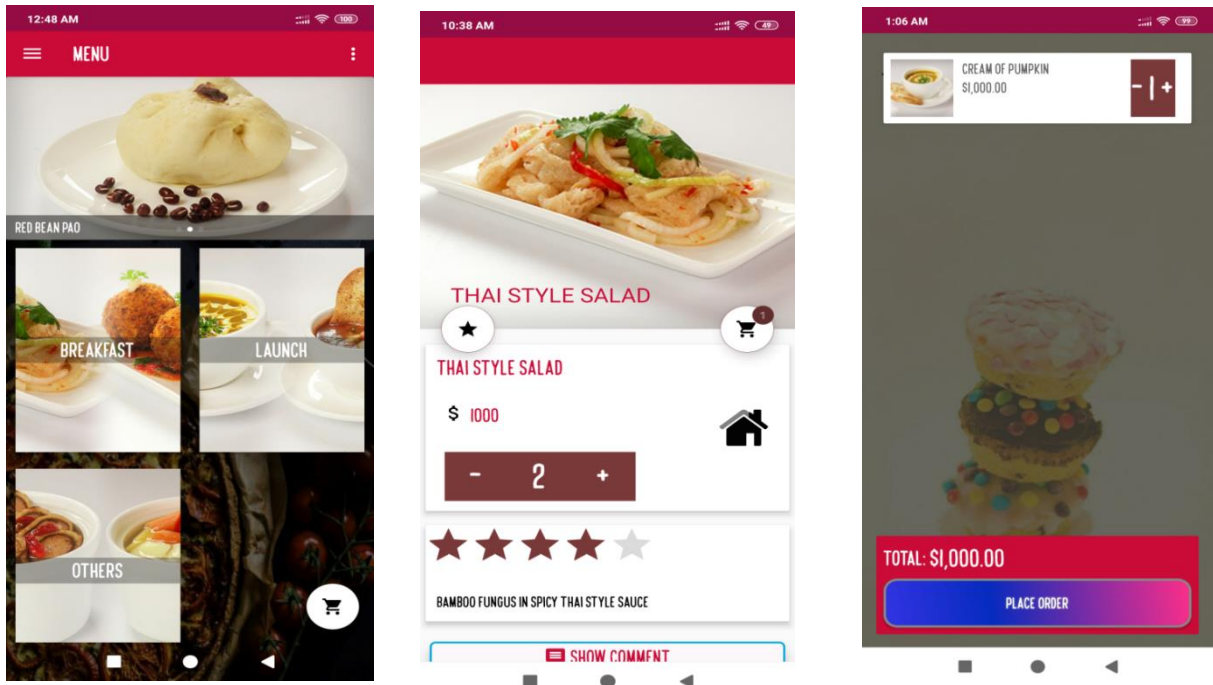


Figure 5.2.3: Home Screen



5.2.4 Menu Screen and Cart

Figure 5.2.4: Menu Screen and cart

5.2.5 Order places Screen with address and payment

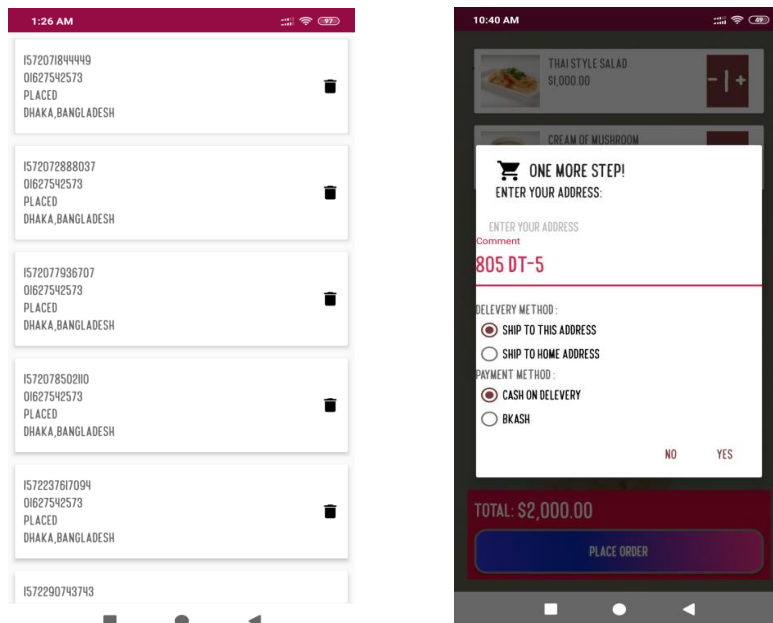


Figure 5.2.5: Order places screen

5.2.6 Show Comment and Rating Screen

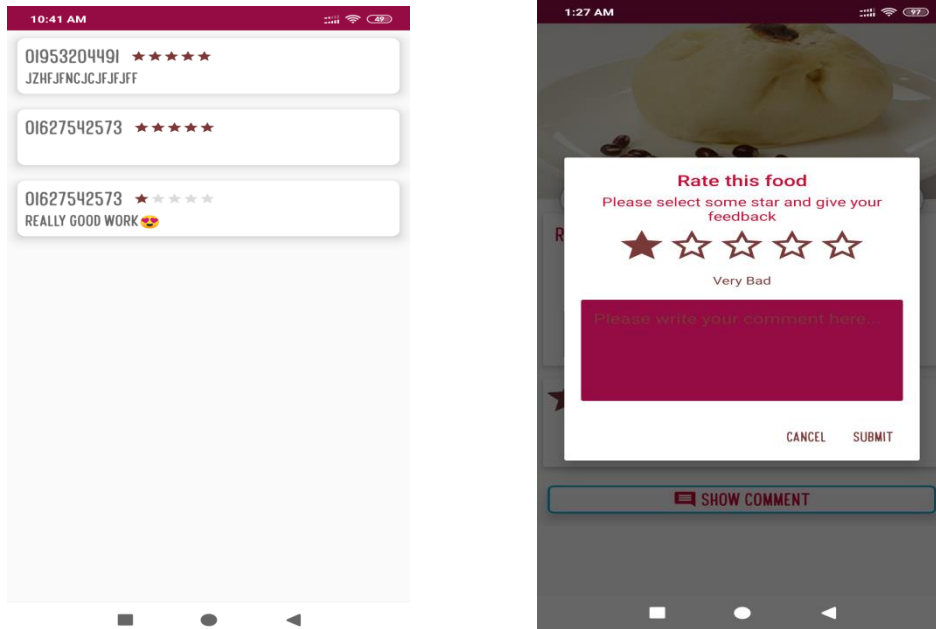


Figure 5.2.6: Show comment

In Given picture is our font-end Design for user Interaction. User friendly and Keep mind to Design the UI.

5.3 Implementation of Interactions

Planning is a very important chapter in any development. It encourages innovation and innovation.

5.4 Testing Implementation

We implemented and test some specific function is called test implementation. We have test our system in several times. Login, Order, add to cart, add product, confirm order, assign institution, student Registration etc. test by us. the factors are:

- Login System.
- Student Registration
- Student add product to cart.
- Student Order.

- Admin add product.
- Admin Update Product.
- Confirm Order.

We test the whole system by maintains SDLC method.

5.4.1 Unit Test

Three types of tests are observed on Android. Local unit test, instrumentation test, and UI test. Local unit test is run on a local computer where Android Studio is installed. Which will use JVM for short it's using Java on computers. After creating each application, it helps to correct any errors in the test code [1].

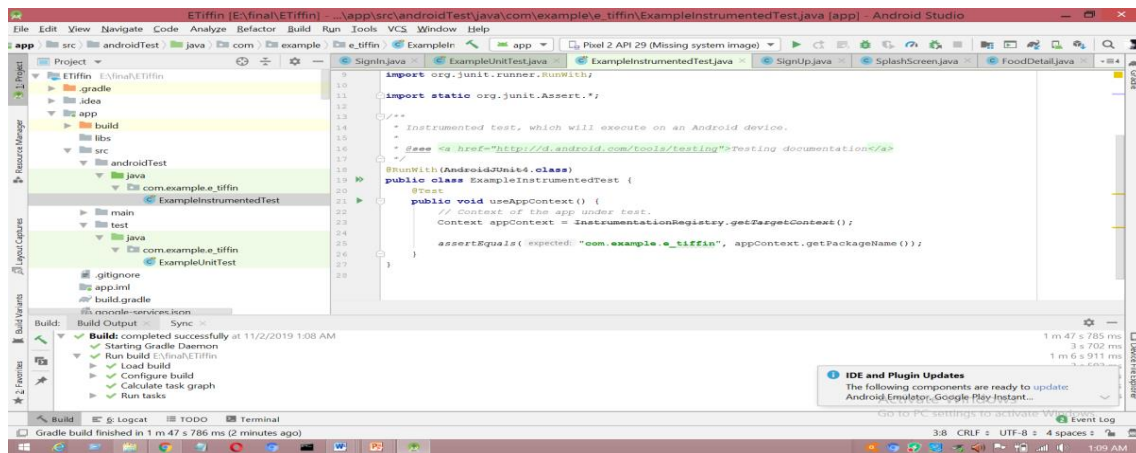


Figure:5.4.1 Unit Test

5.5 Test Results and Reports

System Testing Table show below abridge the result of system testing:

Table 5.1: System Testing Table

Test Case ID	Date	Tester	Pass/Fail	Severity of Defect	Summary Of Defect	Closed prior to release?	Comment
1	28-10-2019	Shanta	Pass	Bug in 2 places	Bug	<YES>	
2	28-10-2019	Nasrin	Fail	Bug in seven places	Bug	<NO>	

5.1 User Acceptance Testing

The table below bridge the test cases for user acceptance testing and the test result obtained each other.

Table 5.2: User Acceptance Testing

Test Case ID	Date	Tester	Pass/Fail	Severity of Defect	Summary Of Defect	Closed prior to release?	Comment
1	28-10-2019	Shanta	Pass	No Defect	No defect	<YES>	
2	28-10-2019	Nasrin	Fail	No defect	Incorrect Password	<NO>	

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

With God's undeserved kindness, we have been able to complete our project. After many discounts, many problems, we finally got the job done. E-Tiffin is implanted primarily for students' solution to problems and to save time. It has been thought of as a complete student. And it is expected that the student problem will be greatly reduced. Most of the students in the country now use mobile phones and keeping in mind that we have the initiative to create this application to solve their problems. And since this development is done with the focus of the students, we have to work tirelessly to solve their problems.

6.2 Scope for Further Developments

We have future plan for the application. Some of plane is:

- Develop the payment system
- Canteen platform for delivery method

REFERENCE

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- [2]theseus.fi Available at<<<https://www.theseus.fi/> =>>Last Accessed: 02 November, 2019,at 10:00 am
- [3]service.lovelycoding.com Available at <<<http://services.lovelycoding.org/tiffin-management-system/>>>>,Last Accessed: 02 November, 2019 at 10:10 am
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