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CS6P05 - Final Year Project

Mobile Application (Food ordering App)

75% Final Report

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Student Name: Aman Maharjan

London Met ID: 17031166

College ID: NP01CP4A170231

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External Supervisor: Ishwor Shrestha

Internal Supervisor: Subeksha Shrestha

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Abstract

This report gives an insight view of the Mobile-based Food Ordering Application System. The report is split into various sections (Chapters) i.e. Introduction, Background, Development, Testing and Analysis, Conclusion, References and Appendix. It provides an overview to all the readers about what the research is all about. Mobile-based Food Ordering System is mobile application which allows user to order food online from different restaurants a user must register themselves first to order food through our application. The application is developed using flutter, dart, laravel, mysql software's.

In the first chapter i.e. Introduction includes all the topics with project description, current scenario, problem domain and project as a solution, aims and objectives, the structure of the report. In the second chapter (Background) contains the research done for the project. The third chapter (development) includes the development process with selected methodology, survey, design, and implementation. In the fourth chapter (Test and Analysis) includes the testing plan, the test done with their result, critical analysis of the system. The fifth chapter i.e. Conclusion includes the research done on the legal, social and ethical issues. It also includes the advantages and limitations of the system. Then in reference section all the references for the project i.e. books, documents, web-sites, etc. are included. And in the Appendix section all the additional documents are provided for the proof that all the progress is successfully done.

Contents

1.	Chapter 1: Introduction.....	1
1.1.	Project Description.....	1
1.2.	Current Scenario	2
1.3.	Problem Domain and Project as Solution.....	3
1.4.	Aims & Objectives	4
1.5.	Structure of report	5
1.5.1.	Background	5
1.5.2.	Development	5
1.5.3.	Testing and analysis.....	7
1.5.4.	Conclusion.....	7
2.	Chapter 2: Background	8
2.1.	About the End Users	8
2.2.	Understanding the Solutions	9
2.3.	Similar Projects	10
2.3.1.	Bhoj Deals	10
2.3.2.	Foodmandu	12
2.4.	Comparison.....	14
3.	Chapter 3: Development	15
3.1.	Considered Methodologies.....	15

3.1.1.	Waterfall methodology	15
3.1.2.	Agile Model.....	16
3.2.	Selected Methodology.....	18
3.2.1.	Prototyping model.....	18
3.3.	Phases of Methodology.....	21
3.4.	Survey Result.....	22
3.4.1.	Pre-Survey Result	22
3.4.2.	Post-Survey Result.....	26
3.5.	Requirement Analysis	32
3.6.	Design.....	33
3.6.1.	Context Diagram.....	33
3.6.2.	Use-case Diagram.....	34
3.6.3.	Initial ER-Diagram	35
3.6.4.	Final ER-Diagram	36
3.6.5.	Activity Diagram.....	37
3.6.6.	Collaboration Diagram.....	38
3.6.7.	Sequence Diagram.....	42
3.7.	Implementation.....	49
4.	Chapter 4: Testing and analysis.....	53
4.1.	Test Plan	53

4.1.1. Unit Test	Error! Bookmark not defined.
4.1.2. System Test.....	Error! Bookmark not defined.
4.2. Unit Test.....	Error! Bookmark not defined.
4.3. System Test	55
4.3.1. Login with Unregistered user	55
4.3.2. Form Validation	56
4.3.3. Password mismatch.....	57
4.3.4. Register user	58
4.3.5. Login.....	59
4.3.6. Check Dishes	60
4.3.7. Add dishes to cart.....	61
4.3.8. Confirm order.....	62
4.3.9. Edit Profile	63
4.3.10. Edit Profile with empty Name.....	65
4.3.11. Check History	66
4.3.12. Check Terms and Conditions	67
4.3.13. Logout.....	68
4.4. Critical Analysis.....	69
5. Chapter 5: Conclusion.....	70
5.1. Legal, social and ethical issues.....	70

5.1.1.	Legal issues.....	70
5.1.2.	Social issues.....	70
5.1.3.	Ethical issues.....	71
5.2.	Advantages	72
5.3.	Limitations.....	73
5.4.	Future work	74
6.	Chapter 6: References	75
7.	Chapter 7: Appendix	78
7.1.	Appendix A: Pre-survey.....	78
7.1.1.	Pre-survey form	78
7.1.2.	Sample of filled Pre-survey forms	81
7.1.3.	Pre-survey Result	84
7.2.	APPENDIX B: POST-SURVEY	88
7.2.1.	Post-survey form	88
7.2.2.	Sample of filled Post-survey forms	93
7.2.3.	Post-survey result.....	97
7.3.	Appendix C: Sample Code	103
7.3.1.	Sample code of the UI	103
7.3.2.	Sample code for the automation script	Error! Bookmark not defined.
7.4.	Appendix D: Designs.....	105

7.4.1.	Gantt chart.....	115
7.4.2.	Work breakdown structure.....	116
7.4.3.	Use case.....	117
7.4.4.	Wireframe	118
7.5.	Appendix E: screenshots of the system	122
7.6.	Appendix G: Future work.....	Error! Bookmark not defined.
7.6.1.	Readings for future work.....	Error! Bookmark not defined.

Table of Tables

Table 1: Features Comparison	14
Table 2: Unit Test Plan	Error! Bookmark not defined.
Table 3: System Test Plan	54
Table 4: Login with Unregistered user	55
Table 5: Form Validation	56
Table 6: Password mismatch	57
Table 7: Register user	58
Table 8: Login	59
Table 9: Check dishes	60
Table 10: Cart	61
Table 11: Confirm Order	62
Table 12: Edit Profile	63
Table 13: Edit Profile with empty Name	65
Table 14: Check History	66
Table 15: Logout	68

Table of Figures

Figure 1: Growing Food Delivery Market.....	2
Figure 2: Bhoj Location Selection.....	10
Figure 3: Bhoj home page	10
Figure 4: Bhoj drawer board.....	11
Figure 5: Bhoj food list.....	11
Figure 6: Foodmandu location Selection	12
Figure 7: Foodmandu home page	12
Figure 8: Foodmandu drawer board	13
Figure 9: Foodmandu food items.....	13
Figure 10: Waterfall model	15
Figure 11: Agile model	16
Figure 12: Prototyping model	18
Figure 13: Pre-Survey result 1	22
Figure 14: Pre-Survey result 2	22
Figure 15: Pre-Survey result 3	23
Figure 16: Pre-Survey result 4	23
Figure 17: Pre-Survey result 5	24
Figure 18: Pre-Survey result 6	24
Figure 19: Pre-Survey result 7	25

Figure 20: Post-Survey result 1	26
Figure 21: Post-Survey result 2	26
Figure 22: Post-Survey result 3	27
Figure 23: Post-Survey result 4	27
Figure 24: Post-Survey result 5	28
Figure 25: Post-Survey result 6	28
Figure 26: Post-Survey result 7	29
Figure 27: Post-Survey result 8	29
Figure 28: Post-Survey result 9	30
Figure 29: Post-Survey result 10	30
Figure 30: Post-Survey result 11	31
Figure 31: Context Diagram	33
Figure 32: Use-case diagram	34
Figure 33: Initial ER-Diagram	35
Figure 34: Final ER-Diagram	36
Figure 35: Activity Diagram	37
Figure 36: Register collaboration Diagram	38
Figure 37: Login collaboration Diagram	38
Figure 38: View Dish collaboration Diagram	39
Figure 39: Cart collaboration Diagram	39

Figure 40: Order collaboration Diagram	40
Figure 41: Payment collaboration Diagram	40
Figure 42: History collaboration Diagram	41
Figure 43: Register Sequence Diagram	42
Figure 44: Login Sequence Diagram.....	43
Figure 45: Cart Sequence Diagram.....	45
Figure 46: Order Sequence Diagram	46
Figure 47: Payment	47
Figure 48: History Sequence Diagram	48
Figure 49: Login with Unregistered user.....	55
Figure 50: Form Validation	56
Figure 51: Password mismatch	57
Figure 52: Register user.....	58
Figure 53: Login (a)	59
Figure 54: Login (b)	59
Figure 55: Check dishes.....	60
Figure 56: Cart	61
Figure 57: Edit Profile (a)	63
Figure 58: Edit Profile (b)	63
Figure 59: Edit Profile (c).....	64

Figure 60: Edit Profile with empty Name	65
Figure 61: Check History.....	66
Figure 62: Check Terms and Conditions.....	67
Figure 63: Check Terms and Conditions.....	67
Figure 64: Logout (a).....	68
Figure 65: Logout (b).....	68
Figure 66: Pre-survey form 1.....	78
Figure 67: Pre-survey form 2.....	79
Figure 68: Pre-survey form 3.....	80
Figure 69: Sample data of Pre-survey 1.....	81
Figure 70: Sample data of Pre-survey 2.....	82
Figure 71: Sample data of Pre-survey 3.....	83
Figure 72: Pre-Survey 1	84
Figure 73: Pre-Survey 2	84
Figure 74: Pre-Survey 3	85
Figure 75: Pre-Survey 4	85
Figure 76: Pre-Survey 5	86
Figure 77: Pre-Survey 6	86
Figure 78: Pre-Survey 7	87
Figure 79: Post-survey form 1	88

Figure 80: Post-survey form 2	89
Figure 81: Post-survey form 3	90
Figure 82: Post-survey form 4	91
Figure 83: Post-survey form 5	92
Figure 84: Sample data of Post-survey form 1	93
Figure 85: Sample data of Post-survey form 2	94
Figure 86: Sample data of Post-survey form 3	95
Figure 87: Sample data of Post-survey form 4	96
Figure 88: Post-Survey 1.....	97
Figure 89: Post-Survey 2.....	97
Figure 90: Post-Survey 3.....	98
Figure 91: Post-Survey 4.....	98
Figure 92: Post-Survey 5.....	99
Figure 93: Post-Survey 6.....	99
Figure 94: Post-Survey 7.....	100
Figure 95: Post-Survey 8.....	100
Figure 96: Post-Survey 9.....	101
Figure 97: Post-Survey 10.....	101
Figure 98: Post-Survey 11.....	102
Figure 99: Gantt chart	115

Figure 100: Use case	117
Figure 101: front page wireframe	118
Figure 102: Register page wireframe	118
Figure 103: Home page wireframe	119
Figure 104: Nearby wireframe	119
Figure 105: user dashboard wireframe.....	120
Figure 106: Change password wireframe.....	120
Figure 107: De-activate wireframe	121
Figure 108: Logout wireframe	121
Figure 109: Signup page.....	122
Figure 110: Signup page.....	122
Figure 111: Signup validation.....	123
Figure 112: Home page.....	123
Figure 113: Dashboard.....	124

1. Chapter 1: Introduction

The following report gives an insight view of the Food Ordering Application System project. It assists in providing an overview of all the readers about what the research is all about. A brief overview is mentioned in the report along with the problem statement, objectives and features.

1.1. Project Description

The food supply market is approximately €95 billion worldwide, or 1% of the total food industry and 4% of food sold by restaurants and fast-food chains. In most countries, it has already matured, with an expected average annual growth rate of just 3.5 percent over the next five years. (McKinsey & Company, 2019) In today's age of fast food and take-out, many restaurants have the customers who order food from home rather visiting the restaurant, but the problem was the order was placed over the phone which has many disadvantages like manual listing the order over the phone may result to slow response in a customer service. Secondly, due to the oral communication over the phone there may be misunderstanding which may lead to confusion and incorrect orders, and there is a lack of visual confirmation that the order was placed correctly.

The food ordering app is a mobile-based application that stimulates the customers to place orders through the mobile app by finding their favorite or nearest restaurant. For both customers and the restaurant, the food ordering app greatly simplifies the ordering process. The app offers a user-friendly, interactive, and up-to-date menu with all the options available for the customers. People can find all the restaurants within one mile radius so that even if they want to visit nearby restaurants they can get all the information about the restaurant and the reviews given by other users for that restaurant. Customers will also be provided with the list of the most popular food in their area. So, in this project I am going to develop a Mobile-based Food Ordering System from where people can Order food online form any restaurants.

1.2. Current Scenario

The world is changing rapidly, so is our country. Industries are also evolving to cope with this according to consumer demands. Everyone wants everything to be cost-effective, quicker and easily accessible. Having facilities such as food, medication, clothes and anything else we might think of at our doorstep within hours was like daydreaming a few years back. Today, the situation has changed and food delivery leads the world's on-demand race. People are shifting their inclination from traditional dining out to different on-demand food delivery services like KFC, Pepe Pizza and many others. The online presence of a wide variety of restaurants and the online payment choice in one tap have made life easier! The food industry is rapidly growing when it comes to the online food delivery services.

The food supply market is approximately €95 billion worldwide, or 1% of the total food industry and 4% of food sold by restaurants and fast-food chains. In most countries, it has already matured, with an expected average annual growth rate of just 3.5% over the next five years. (McKinsey & Company, 2019)

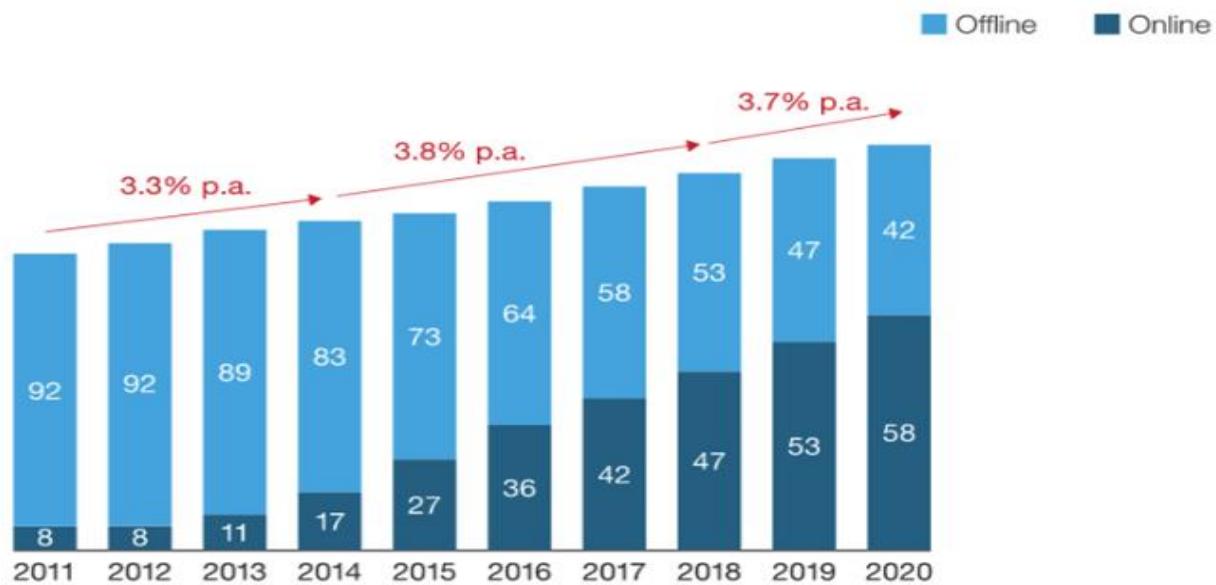


Figure 1: Growing Food Delivery Market

1.3. Problem Domain and Project as Solution

Nearly every human need has been filled by technology. In today's generation, most people have a busy lifestyle. Time is becoming one of the priceless things. Nowadays people prefer ordering food from home/work rather than visiting the restaurant, but the problem is we have to place our order through the medium of a phone call which has many disadvantages like manual listing the order over the phone may result to slow response in customer service. Secondly, due to the oral communication over the phone there may be misunderstanding which may lead to confusion and incorrect orders, and there is a lack of visual confirmation that the order was placed correctly. In the context of Nepal, We have food delivering apps like Bhoj deals, Foodmandu which are great but they do not have systems like tracking the food like in which state is our order in. We all know how hard it is to wait for the food we ordered and we even don't know if it is cooked or it is on the way. By developing my proposed food ordering application system, all the complexity of this issue can be easily removed.

A mobile application will be developed to tackle the problem mentioned above. By developing a food ordering application system, people can order food online which would save them a great amount of time as well as make their task a lot easier. The restaurants will also have benefits in managing their customer, the restaurants will not have to put a separate staff for the phone calls.

1.4. Aims & Objectives

The main aim of this project is to simplify and to increase the efficiency of the ordering process for both customers and restaurants, reduce human error, and provide high-quality service to the customers. Customers can also view the product they are ordering which helps customers in visually confirming the order they have placed. The aim of this project are as following:

- Reduce the time-consuming phone orders.
- No more busy phones while other customer is over phone ordering.
- Reduce incorrect order placement.
- Greater customer satisfaction.
- No more long queues while ordering.
- Management of remaining food of the day by offering it in minimum price.

The objective of this project is to develop a mobile application and accomplish the following objectives:

- Make food ordering easy and fast.
- Provide information about nearby restaurants.
- Online payment.
- Food waste management.
- Track the ordered item.
- Recommend customer about the trending food in their area.

1.5. Structure of report

1.5.1. Background

The Background section of the report consists overall research, work done on the project which includes detail information on the end users, explanation of the solution, comparison and analysis of similar systems, the outcome of the research, and technical aspects of the project.

1.5.2. Development

The development section of the report consists the methodology considered and the methodology selected for the project with the explanation why I had to choose the methodology, the phases of selected methodology, The survey done before the project in order to study the market and develop the application according to consumers need and survey done after the project in order to take the check consumer satisfaction about the application and to study about strength and weakness about the application and make the change according to consumers demand in the near future. The development section also consists of Requirement analysis, UML diagrams like sequence diagram, collaboration diagram, context diagram and others. Further, it consists of the implementation process of the project like some of the major screenshots of the core features and architecture.

There are numerous options to develop the proposed application. There are various programming languages, the Integrated Development Environment (IDE), libraries, plugins etc. The tools used in program are as follows:

Programming language:

Dart

Dart is an open-source programming language used for general purpose. It was originally developed by Google, and then approved by ECMA as a standard. Dart is a new programming language intended for both the server and the browser.

The Dart SDK, introduced by Google, ships with its compiler i.e. the Dart VM. The SDK also includes a dart2js utility, a transpiler which generates JavaScript equivalent to a Dart Script. (Tutorialspoint, 2020)

PHP

PHP is a server-side scripting language that is used to develop Static or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. Only a server that has PHP installed can interpret the PHP scripts. The client computers only require a web browser to access the PHP scripts. A PHP file contains PHP tags and ends with the ".php" extension.

Framework:

Flutter

Flutter is an open-source UI software development kit created by Google. It is used for Android, iOS, Windows, Mac, Linux, Google Fuchsia and the web application development. Flutter's first version was known as the "Sky" codename, and ran on the Android operating system. (flutter-dev, 2020)

Laravel

Laravel is one of the most popular PHP framework in the world for building web applications from small to large projects. Laravel is the choice of professional developers, because of its performance, features and scalability. You can customize Laravel so quickly you can build your project structure to meet the requirements of your web application. (EDUCBA, 2020)

Database:

MySQL

MySQL is the most popular open-source database in the world. MySQL has become the leading database choice for web-based applications with its proven performance, reliability and ease of use, using high-profile web properties including Facebook, Twitter, YouTube, Yahoo! and many more. Oracle drives innovation in MySQL, providing new capabilities to power web, cloud, mobile and embedded applications of next generation. (Oracle Corporation, 2020)

1.5.3. Testing and analysis

Testing and analysis section consists of the planning of how the testing about the application will be done for both unit testing and system testing. It also consists the test done and the respective test result along with it. Lastly, it also includes the critical analysis of the system.

1.5.4. Conclusion

The conclusion section is one of the major section where all the research done on legal, social, ethical issues are listed. It also consist of the advantages and limitation of the application and finally, the future work where the features unable to develop according to the customer will be done in the near future.

2. Chapter 2: Background

The mobile app developed in this project is an application for e-commerce. E-commerce (electronic commerce) is the purchasing and sale of goods and services or the transfer of funds or data via an electronic network i.e. the internet. In the 1960s, companies began to exchange business documents with other companies using Electronic Data Interchange (EDI). ASC X12 was designed as a universal standard for companies to share documents through electronic networks by the American National Standards Institute in 1979. In the 1980s, the advent of eBay and Amazon revolutionized the e-commerce markets, with the number of individual users exchanging electronic documents with each other. Consumers can now buy infinite quantities of items online from e-trailers, typical brick and mortar stores with e-commerce capabilities and one another. E-commerce history is a history of a new virtual world that develops according to the benefit of the customers. It's a world where everyone builds brick by brick together and lay a strong foundation for future generations (Rouse, 2019).

Today people have time to earn money but don't have time to cook food in the kitchen. So the online food delivery have taken a huge market in food sector. Online shopping or e-commerce is one of the most popular business in Nepal. Bhoj deals, Foodmandu, etc. are one of the finest e-commerce sites of Nepal in the food sector. They have saved time of so many people and have made their life so convenient as well.

2.1. About the End Users

After the survey conducted from students to general people, we can assume most people have a mobile phone and has heard of online food ordering application. And many of them have also ordered the food online through applications like Foodmandu, Bhoj deals, Khanpan etc. We can also see that many users go out to eat once a week but they also prefer online food ordering systems. Hence, if we could provide a user-friendly application with proper features like food state tracking, good quality food people would order food online instead of going out to use. Many people also seem to be interested in the application that I am developing and try it out.

2.2. Understanding the Solutions

In order to successfully build the application the following hardware, software resource would be required:

- **Hardware requirements:** Laptop, Android phone, Internet Connection
- **Software requirements:** Flutter, Dart, Python, and Database
- **For frontend:** Flutter, Dart will be used, Flutter is an open source framework to create high quality, high performance mobile applications across mobile operating systems - Android and iOS. It provides a simple, powerful, efficient and easy to understand SDK to write mobile application in Google's own language, *Dart* (tutorialspoint, 2019).
- **For Database:** MySQL is used. MySQL is a Structured Query Language (SQL) based open source relational database management system (RDBMS) supported by Oracle (Rouse, 2003).
- **For backend:** PHP with Laravel framework has been used of the backend. PHP is a server-side scripting language that is used to develop Static or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. Only a server that has PHP installed can interpret the PHP scripts. The client computers only require a web browser to access the PHP scripts. A PHP file contains PHP tags and ends with the ".php "extension. Laravel is one of the most popular PHP framework in the world for building web applications from small to large projects. Laravel is the choice of professional developers, because of its performance, features and scalability. You can customize Laravel so quickly you can build your project structure to meet the requirements of your web application. (EDUCBA, 2020)

2.3. Similar Projects

2.3.1. Bhoj Deals

BHOJ is a one stop mobile app for all the foodies in Nepal, where they can find their favorite restaurants, get food delivered to their home or office, get great deals when they dine in restaurants, read and post restaurant reviews, explore restaurant menus, earn credits to their Bhoj Wallet and much more.

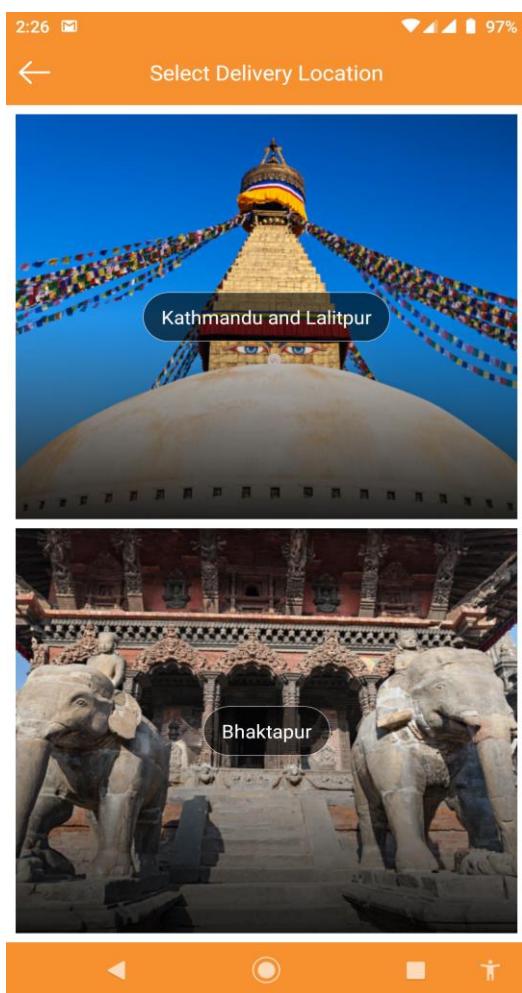


Figure 2: Bhoj Location Selection

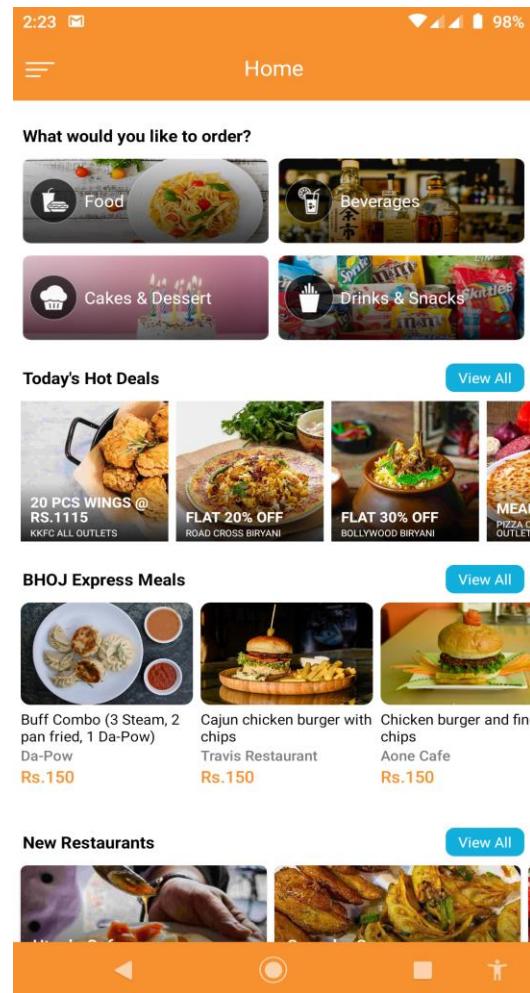


Figure 3: Bhoj home page

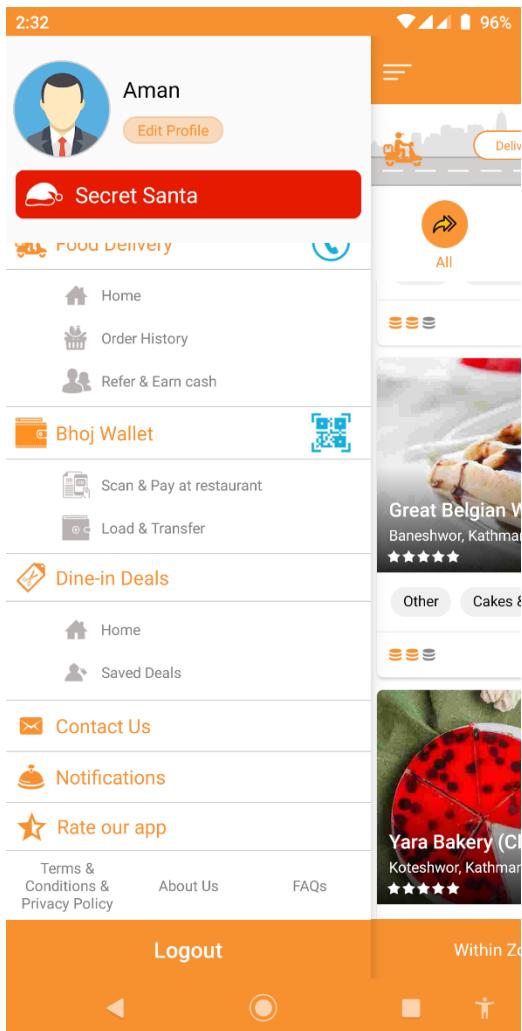


Figure 4: Bhoj drawer board

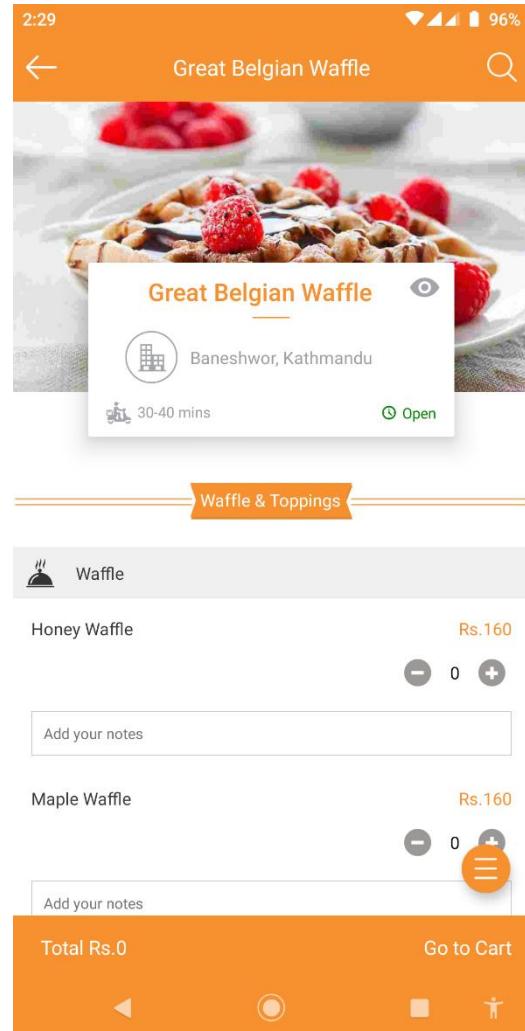


Figure 5: Bhoj food list

2.3.2. Foodmandu

Foodmandu is the first company in Nepal that delivers food from hundreds of popular restaurants. As a pioneer food delivery service provider, we are making life easier through online ordering.

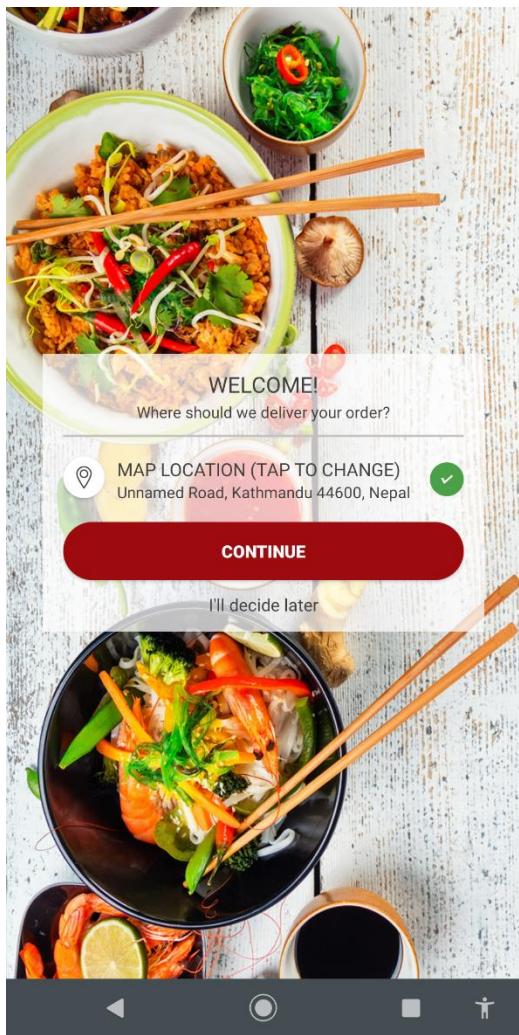


Figure 6: Foodmandu location Selection

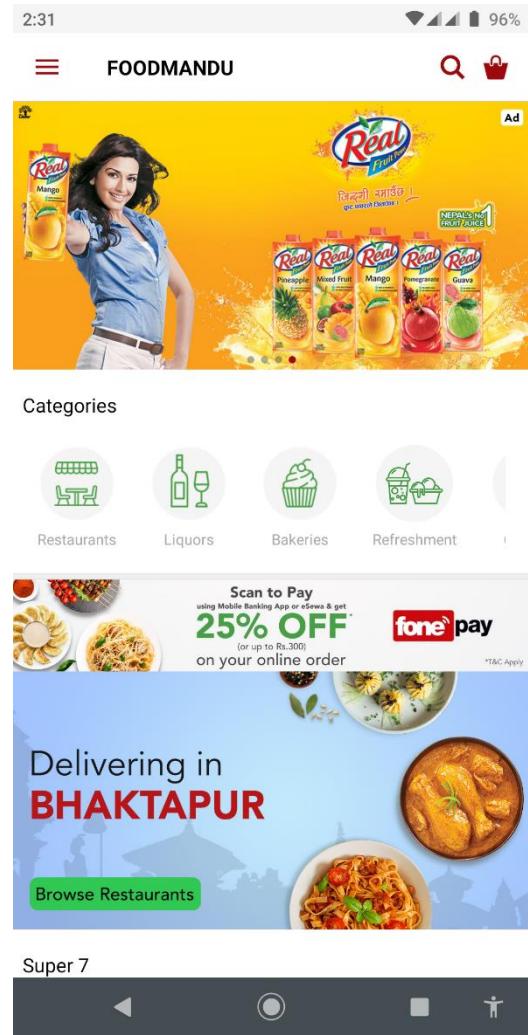


Figure 7: Foodmandu home page

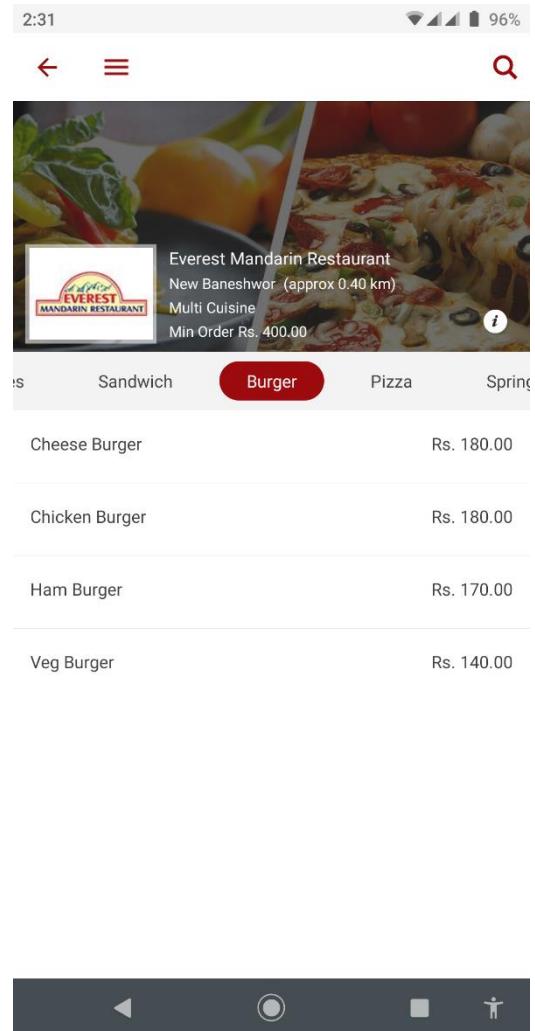
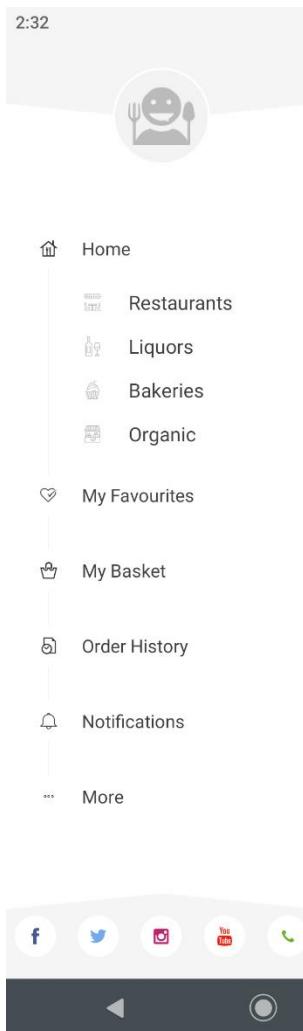


Figure 8: Foodmandu drawer board

Figure 9: Foodmandu food items

2.4. Comparison

From the above research section, I have found that all of the Nepalese Food ordering applications have a great UI designs several features from these applications can be implemented in my application too. In Bhoj deals I like the way they have presented the foods. Bhoj have many unique features like Bhoj wallet, Scan and pay system. Whereas in Foodmandu I love their UI design and color combination. It looks simple but very attractive. I have also found that none of these applications have the food tracking system nor do they have food waste management system which I am going to implement on my application.

Features	Project	Bhoj deals	Foodmandu
Food Category	Yes	Yes	Yes
Restaurant Detail	Yes	Yes	Yes
Cart System	Yes	Yes	Yes
History	Yes	Yes	Yes
Food Recommendation	Yes	Yes	Yes
Food state tracking	Yes	No	No
Food Waste management	Yes	No	No
Night Food Delivery	No	No	No

Table 1: Features Comparison

3. Chapter 3: Development

3.1. Considered Methodologies

3.1.1. Waterfall methodology

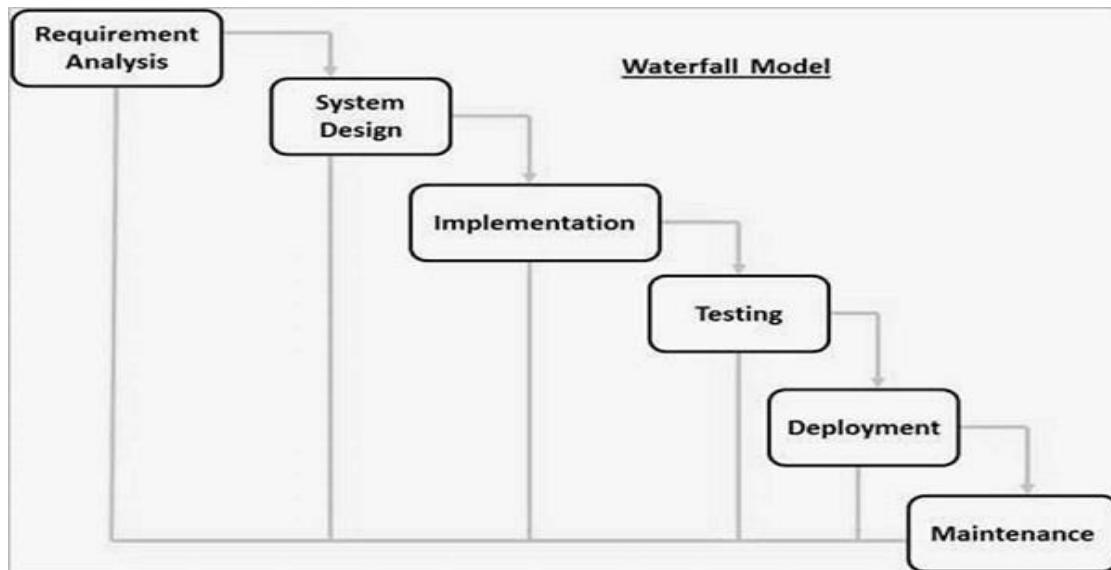


Figure 10: Waterfall model

The first Process Model to be implemented was the Waterfall System. Learning and using it is very easy. That phase must be completed in a Waterfall model before the next step can begin and the phases do not overlap. The concept of the waterfall is the earliest SDLC technique used to develop software. (TOOLSQA.COM, 2013- 2020)

Consideration

- It works for small projects where the requirements are clearly defined.
- It helps to proper planning, since the model is very simple and easy to understand.
- Each phase ends sequentially so the software development could be quicker if the requirements are properly predefined.
- It is one of the widely used methodology.

Rejecting

- It is very rigid and it requires precise requirements which means it is not suitable for changing the requirements.
- There is no working software until it reaches the last stage of the cycle.
- My project need lots of refinement and since this methodology does not allows the changes it is not suitable for the project.

3.1.2. Agile Model

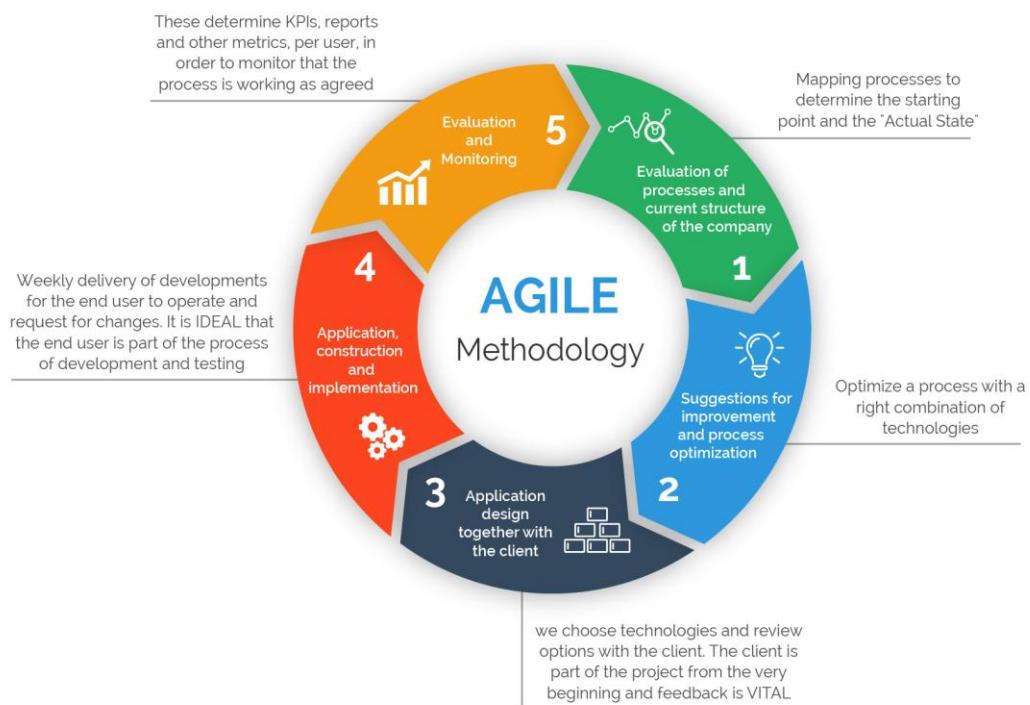


Figure 11: Agile model

Agile is a process through which a team can manage a project by splitting it into several stages and involving constant stakeholder collaboration and continuous improvement and iteration at each stage. The Agile approach begins with consumers explaining how to use the end product and how it will solve the problem. It clarifies the project team's perceptions of the client. Once the work begins, teams go through a preparation, implementation, and evaluation process—which could only adjust the final deliverable to best fit the needs of the customer. Continuous cooperation is key to making

full informed decisions, both among team members and with project stakeholders. (Wrike, 2006-2019)

Consideration

- Agile methodology use scrum, in which there is weekly sprint and the task are properly divided.
- Agile pays Greater attention to specific customer needs.
- Can easily change requirement of the project.
- Feedback of Every Iteration in the project.
- Proper Risk Management

Rejecting

- It requires a team for agile methodology.
- Requirements may change with each iteration.
- It is suitable for large project but when it comes to small projects agile is more complex than other mythology.
- As Agile requires minimal planning at the beginning of the project makes it easy to get sidetracked by delivering new, unexpected features. It also means that projects do not have a finite end, since there is never a clear vision of what the "final product" looks like.

3.2. Selected Methodology

3.2.1. Prototyping model

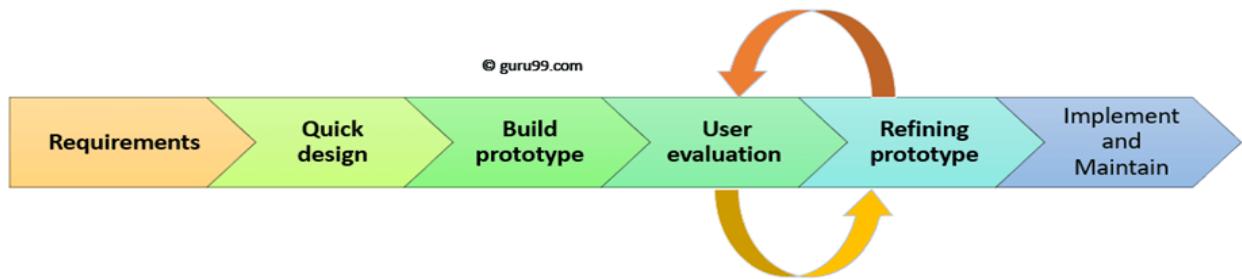


Figure 12: Prototyping model

Prototype methodology is defined as a model for software development in which a prototype is constructed, tested, and then reworked when necessary until an acceptable prototype is achieved. It also creates a basis for the final system to be produced. (Guru99, 2019)

- Requirements gathering and analysis
- Quick design
- Build a Prototype
- Refining prototype
- Implement Product and Maintain (Guru99, 2019)

I have selected prototyping model as a methodology to complete this project. In prototyping model a prototype is built, tested and then reworked as necessary until an acceptable outcome is achieved from which the complete product can be developed. (TechTarget, 2019)

This model works best in situations where not all requirements of the project are known in detail ahead of time. It is an iterative process of trial-and-error between developers and users. So, prototype module will help in check if the features would be functional or not. And in case it is not functional I can change and modify it or re-build the function.

Reasons to choose Prototyping over others:

- The Client clearly understands the software functionality.
- The methodology have a trial and error process which will help in developing the application more efficiently.
- This methodology will help the system manipulate certain aspects as user during the development phase which are good for the system's end product
- Risks of failure are considerably reduced because they are identified earlier.
- This model specifically focuses on the product and the quality of the application itself.
- Good for designing the User Interface.
- By this approach, the project risks associated with the continuously evolving requirements are properly addressed.

Other reasons for choosing Prototyping Methodology

The reason I chose Prototyping methodology because this methodology enables us to handle changing requirements regardless of whether the change is due to the project or the client. As this methodology provides a structured way of visualizing the software. It helps to create software programs and provides a specific plan for each step of the development process that helps to avoid wasting resources and also reduces unexpected costs during development. The best option that I found in this methodology is we can make a change in the requirements according to the need even after developing the project or in the middle of the development. And this methodology have a good control software development process. Improving the application is at its peak as there is a prototype available we will be able to find the bad aspects and improve the application which helps to increase the quality of the project.

Yes, I agree that prototyping is time-consuming but in exchange, it is very flexible and can easily adapt the changes according to the client. Since the prototype is already the updating process will not be a headache for the developer as the prototype is already available and the updating part will be easier as the developer doesn't have to redo all

the code again. Using Prototyping I can make proper plan and schedule all the task accordingly which will make development more effective. The risk will also be minimum as the changes can be easily adopted the prototype will already be accepted by the client. The UML diagrams like context diagram, Use case diagram, and collaboration diagram in the project will be very helpful as it provides a proper workflow of the project. The UI development will have advantage as the client will have already viewed the UI of the prototype and if they disagree with it we can change it easily and the final product will have a great UI design. If there is any problem in development we can easily change the plan for that particular task/ function. After the final product is completed we can do the testing and validate our application. After which a document will be created of the application so that the users doesn't have any problem using the application.

3.3. Phases of Methodology

Prototype Development:

The development of prototypes begins with an initial phase of gathering requirements. A quick design is implemented, and a prototype is built. Then the prototype is tested and new requirements are collected and updated. This phase keeps on repeating until the final product is developed.

Iterative Development:

When the prototype is approved by the customer the actual system is built using the iterative approach to waterfall. Despite the availability of a working prototype, the SRS document is usually required to be developed, as the SRS document is invaluable for later tractability analysis, verification and test case design.

The prototype code is usually discarded. However, the information gained from prototype development helps a lot in the development of the actual system. Many customer requirements are properly defined by building the prototype and sending it for user evaluation, and technical problems are solved by playing with the prototype. It minimizes later change demands from the client and the potential redesign costs.

3.4. Survey Result

Surveys were organized to know the user's responses to the problem statement from different perspectives and to find out how the application would be relevant to the real world.

3.4.1. Pre-Survey Result

Which smartphone do you use?

40 responses

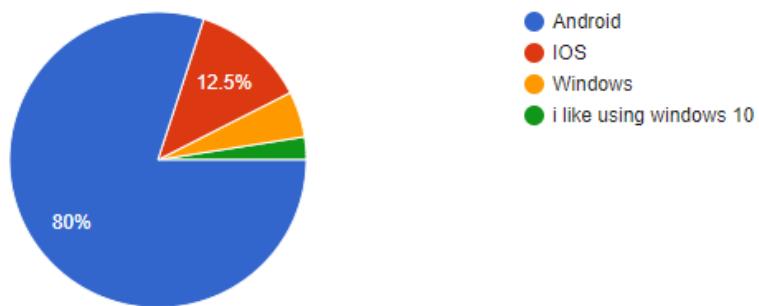


Figure 13: Pre-Survey result 1

Have you ever ordered food online?

40 responses

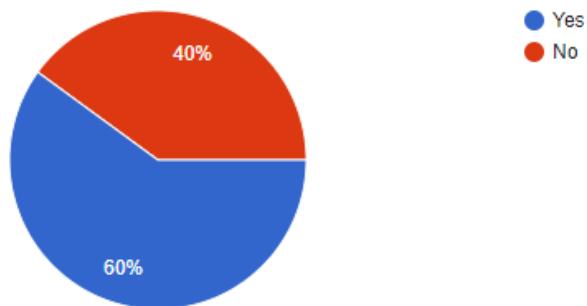


Figure 14: Pre-Survey result 2

Do you face problem finding good quality food?

40 responses

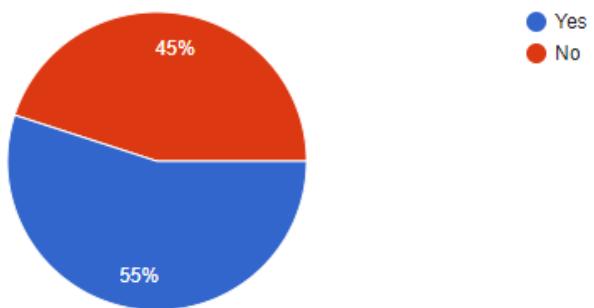


Figure 15: Pre-Survey result 3

How often do you go out to eat?

40 responses

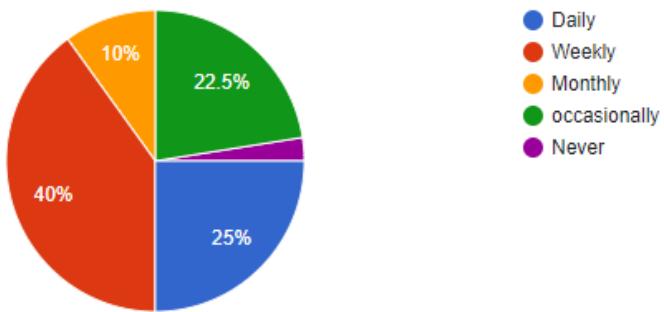


Figure 16: Pre-Survey result 4

Do you think ordering food online will make things easier for both customers and restaurants?

40 responses

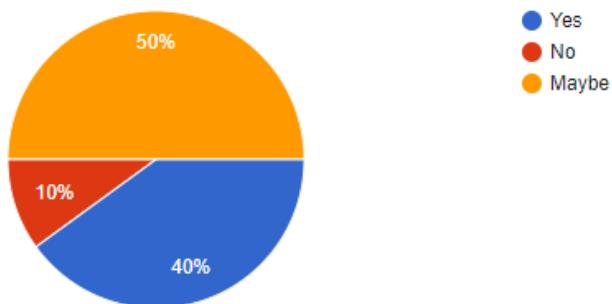


Figure 17: Pre-Survey result 5

On a scale of 1 - 5, do you think ordering food online will be effective?

40 responses

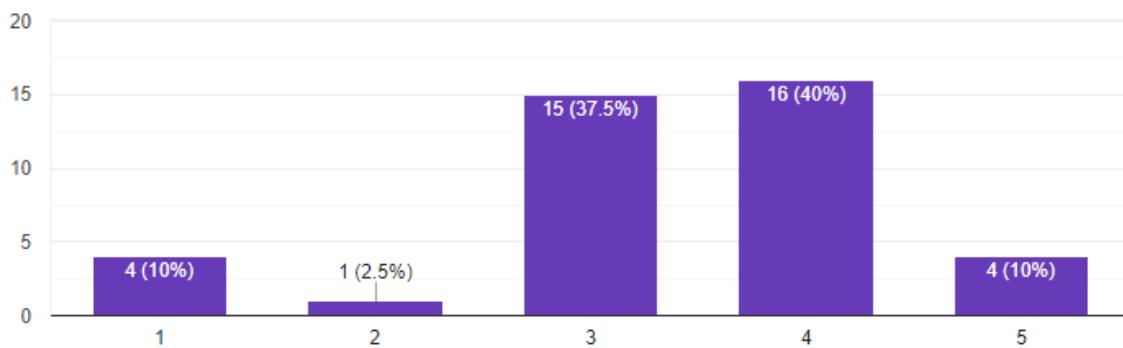


Figure 18: Pre-Survey result 6

Do you think food waste management system (Offer food in less price during closing time) will be effective?

40 responses

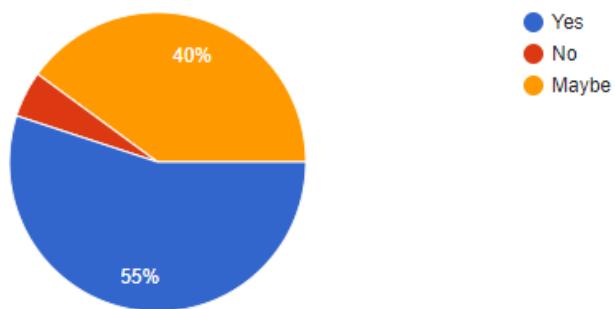


Figure 19: Pre-Survey result 7

3.4.2. Post-Survey Result



Figure 20: Post-Survey result 1

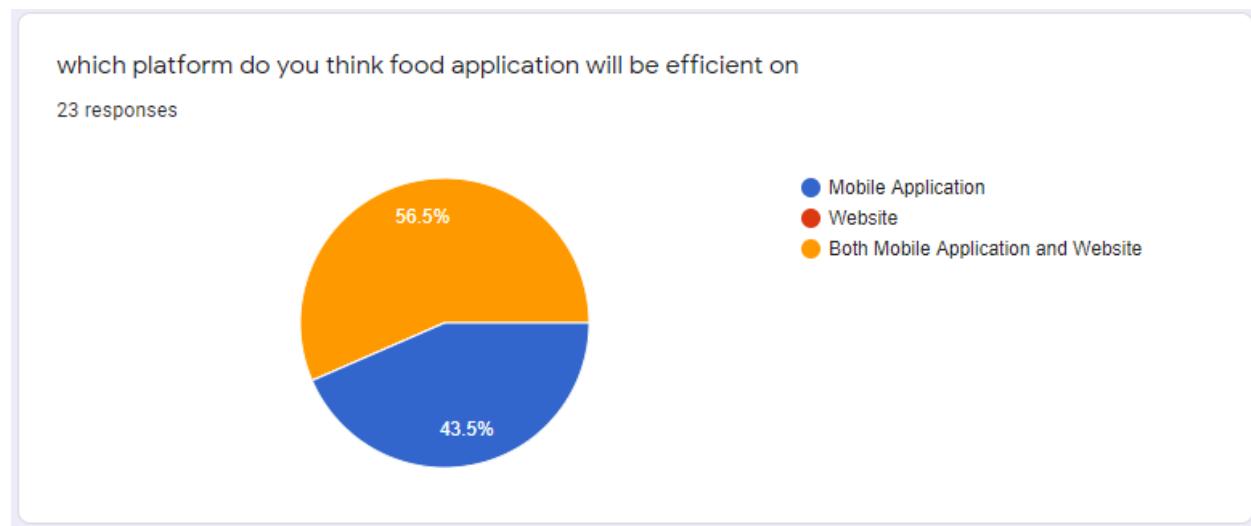


Figure 21: Post-Survey result 2

Do you want the toppings selection feature in the application ?

23 responses

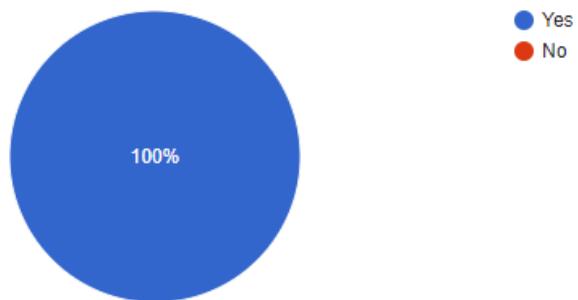


Figure 22: Post-Survey result 3

Would you like to order the food for next day or two in advance?

23 responses

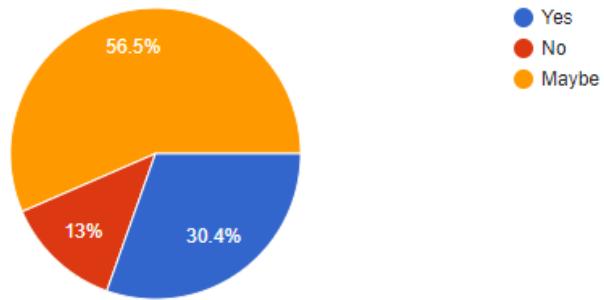


Figure 23: Post-Survey result 4

What do you look in the food application

23 responses

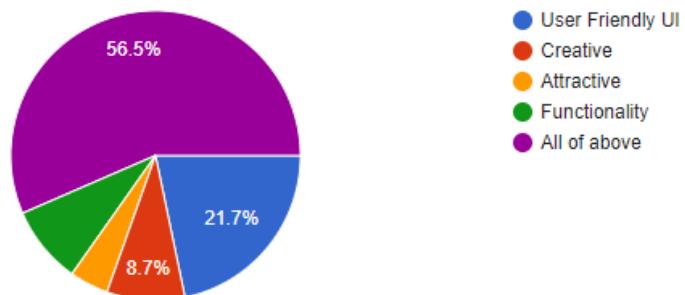


Figure 24: Post-Survey result 5

Do you think mobile app will be more efficient than Website?

23 responses

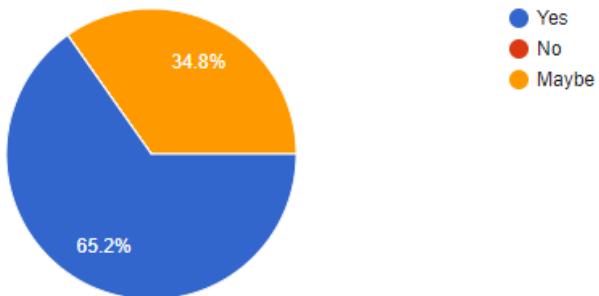


Figure 25: Post-Survey result 6

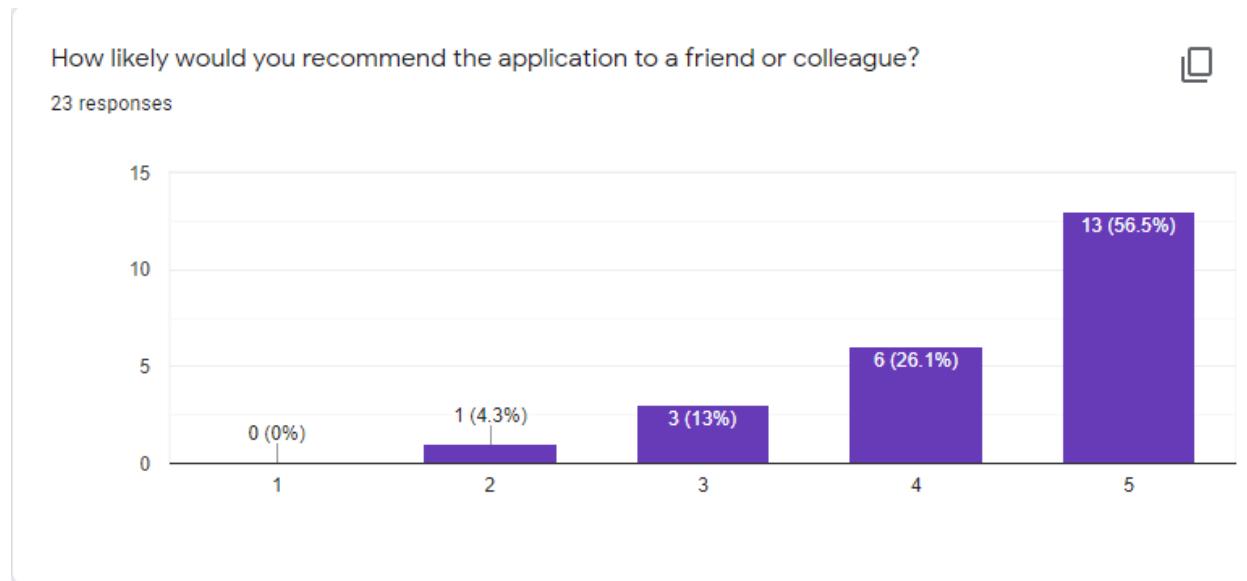


Figure 26: Post-Survey result 7

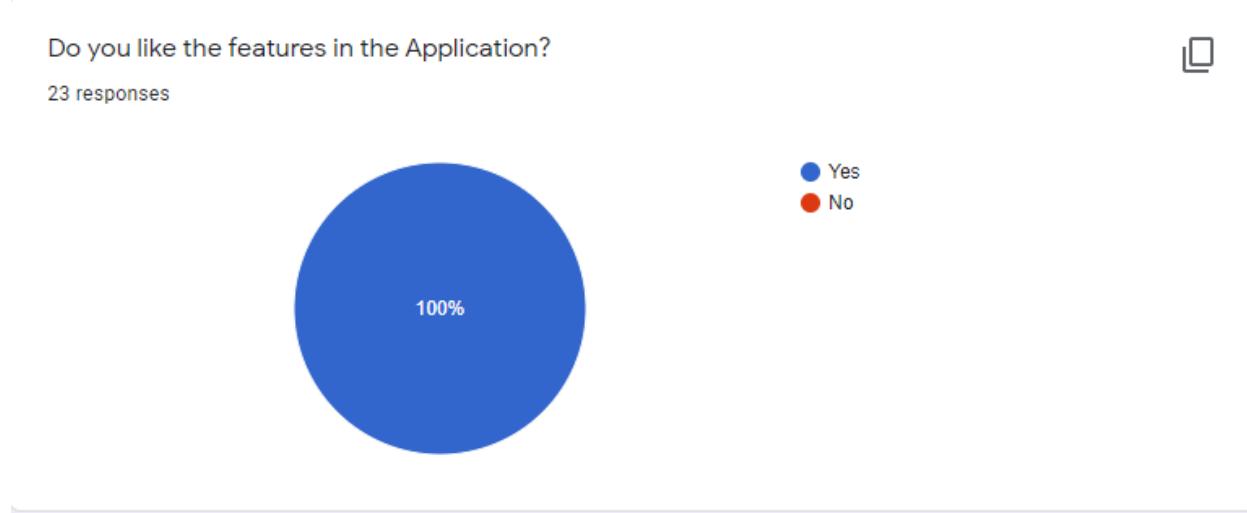


Figure 27: Post-Survey result 8

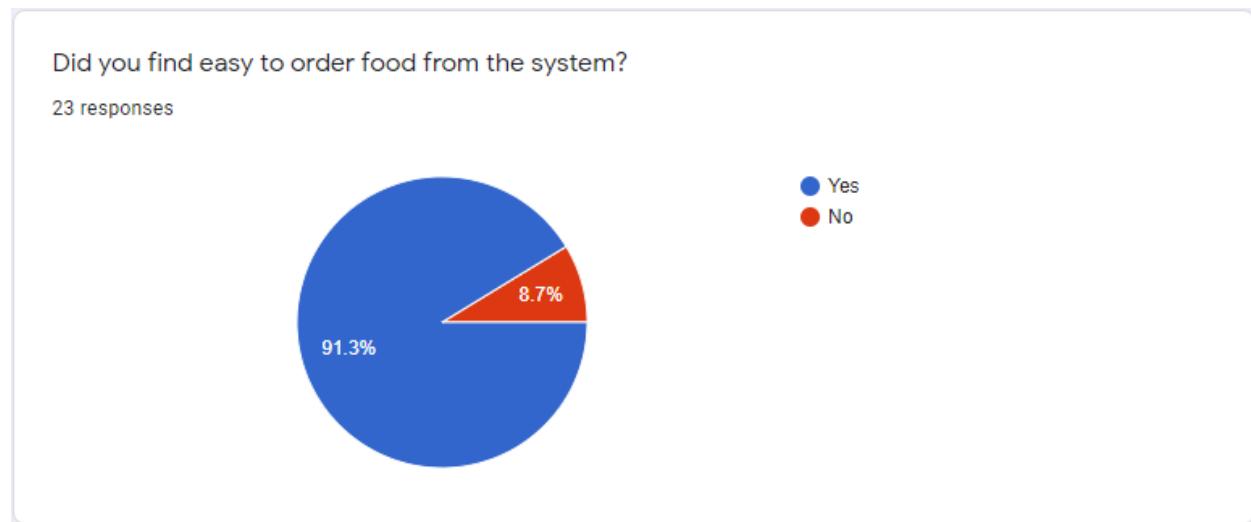


Figure 28: Post-Survey result 9

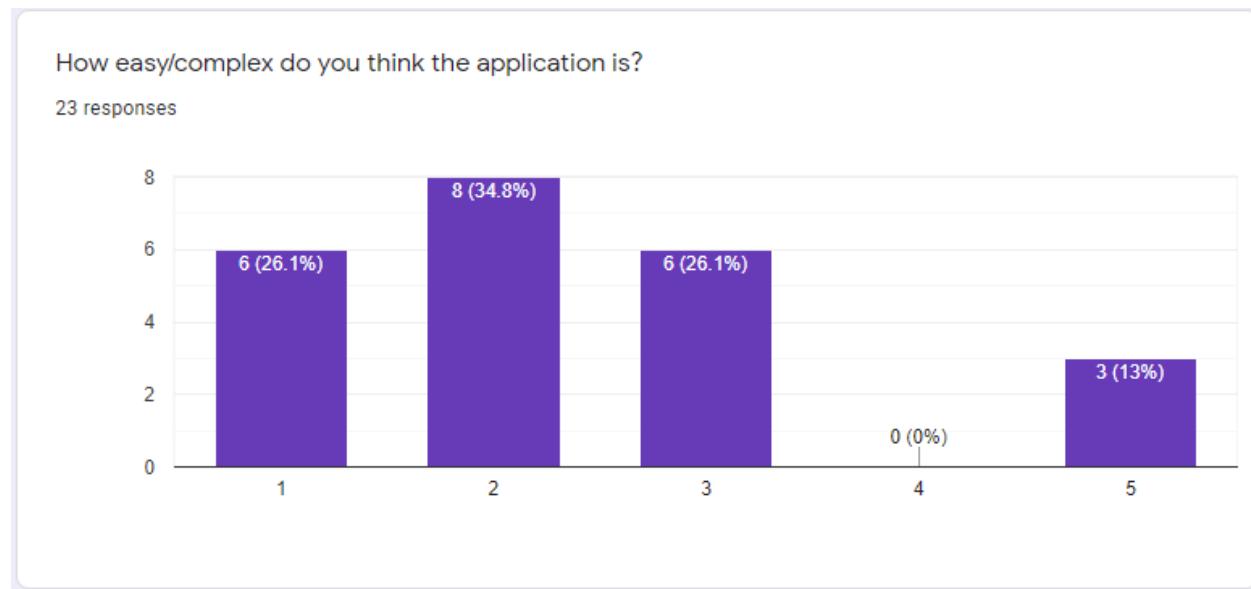


Figure 29: Post-Survey result 10

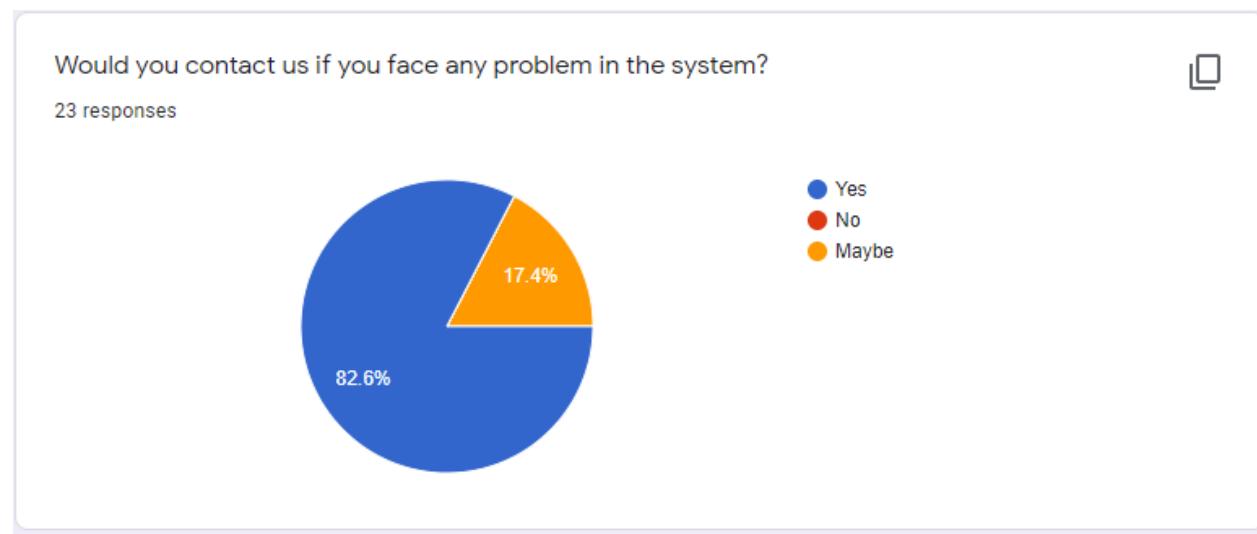


Figure 30: Post-Survey result 11

3.5. Requirement Analysis

The topic for this project is not totally new but in context of Nepal it is new and one of the rising topic. The project was done in flutter which was completely new for me so a lot of research, study and practice was done. After taking some online course and research the basic for the application development of the project was clear. During the research I was also introduced to some packages like flutter_spinkit, image_picker and others which will be very useful in the project.

The data for the application is passed through API. All the CURD operation are performed with the help of API. The API is written in PHP with laravel framework. Laravel was one of the most popular framework available. Laravel will make API development move easier. Since laravel uses MVC (Model-View-Controller) is it is easy to understand the system. The database for the project is MySQL. The extraction and storing the data in database will be through laravel.

3.6. Design

3.6.1. Context Diagram

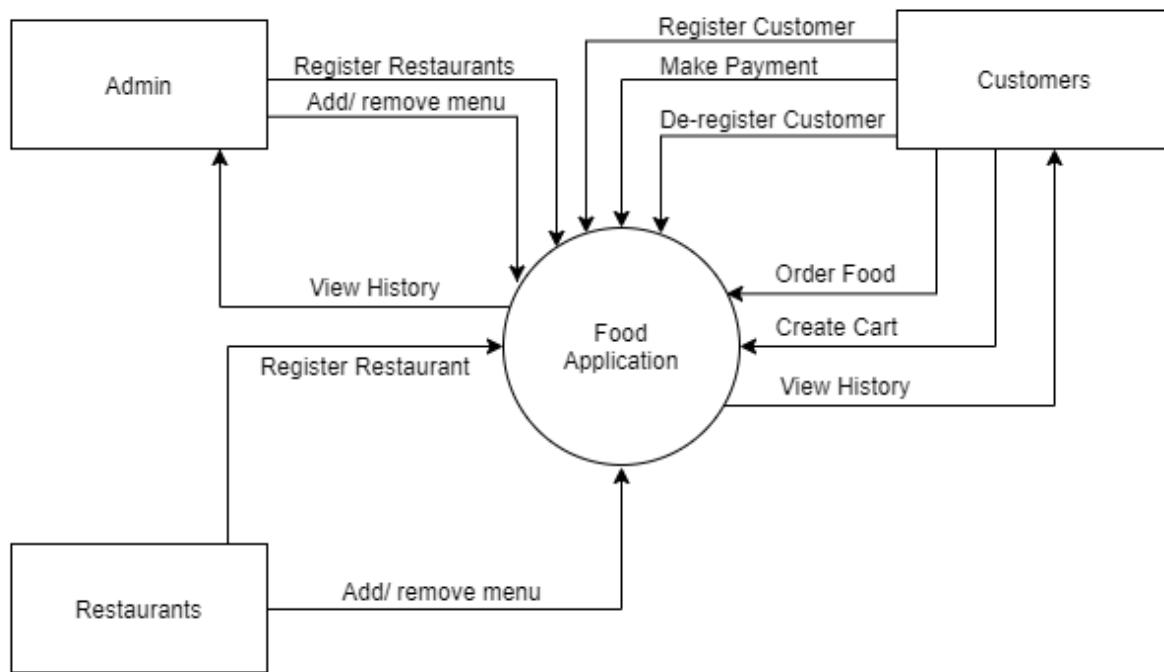


Figure 31: Context Diagram

3.6.2. Use-case Diagram

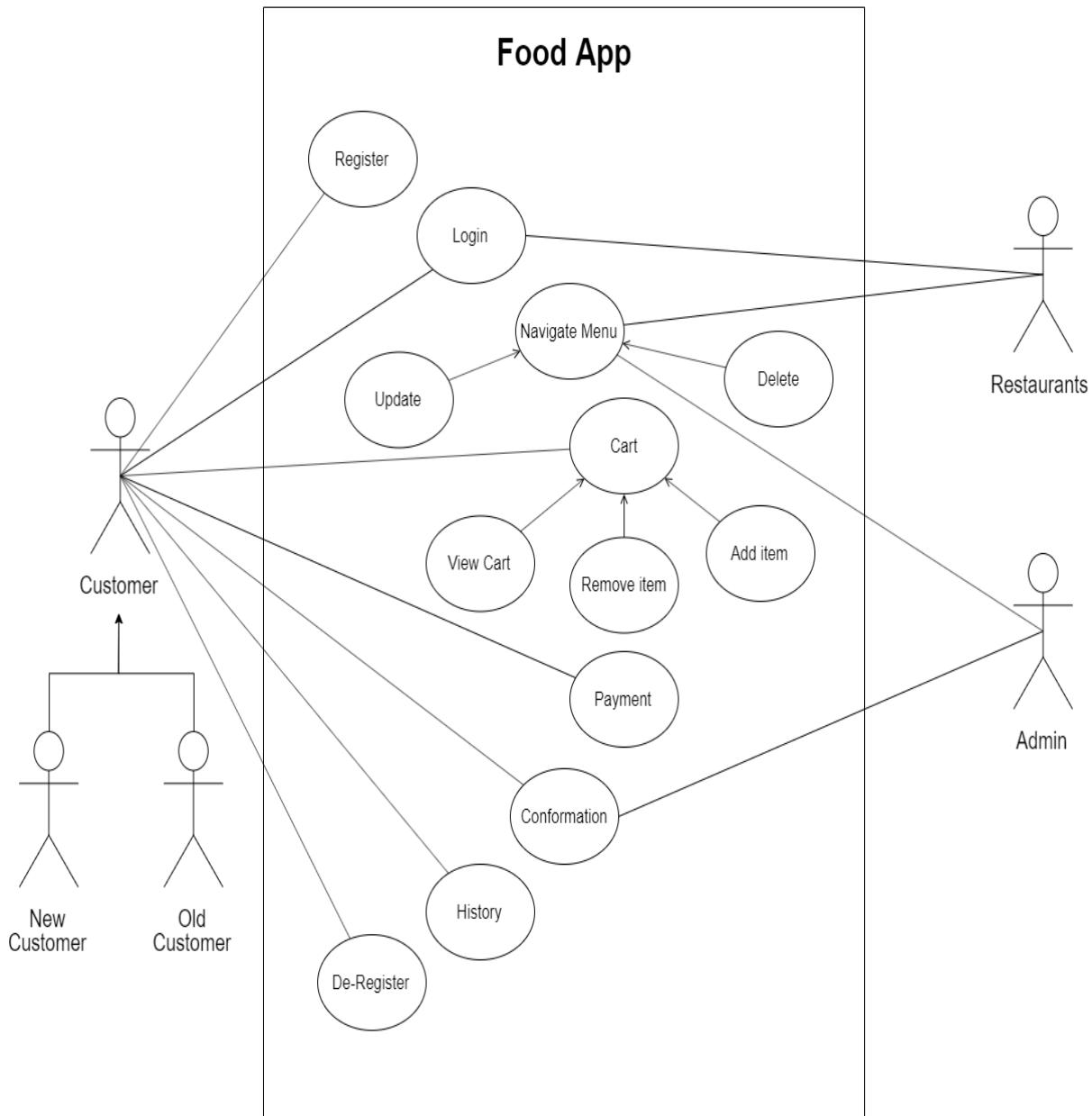


Figure 32: Use-case diagram

3.6.3. Initial ER-Diagram

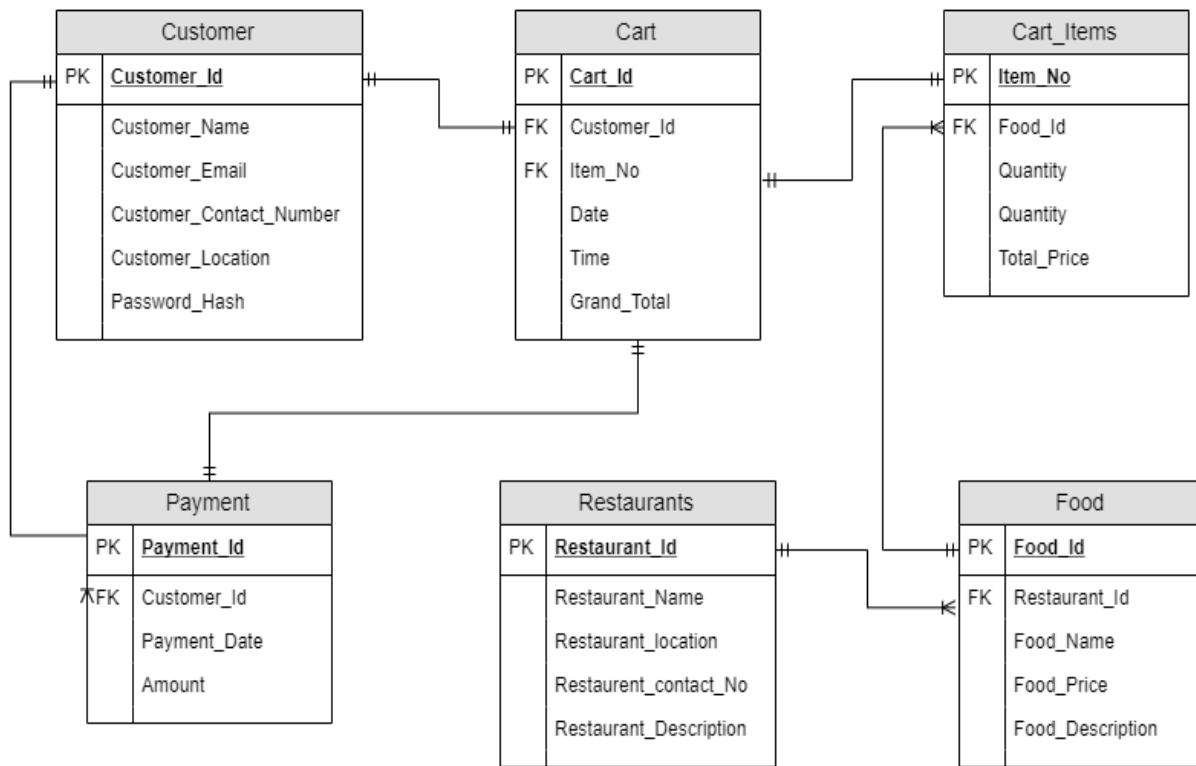


Figure 33: Initial ER-Diagram

3.6.4. Final ER-Diagram

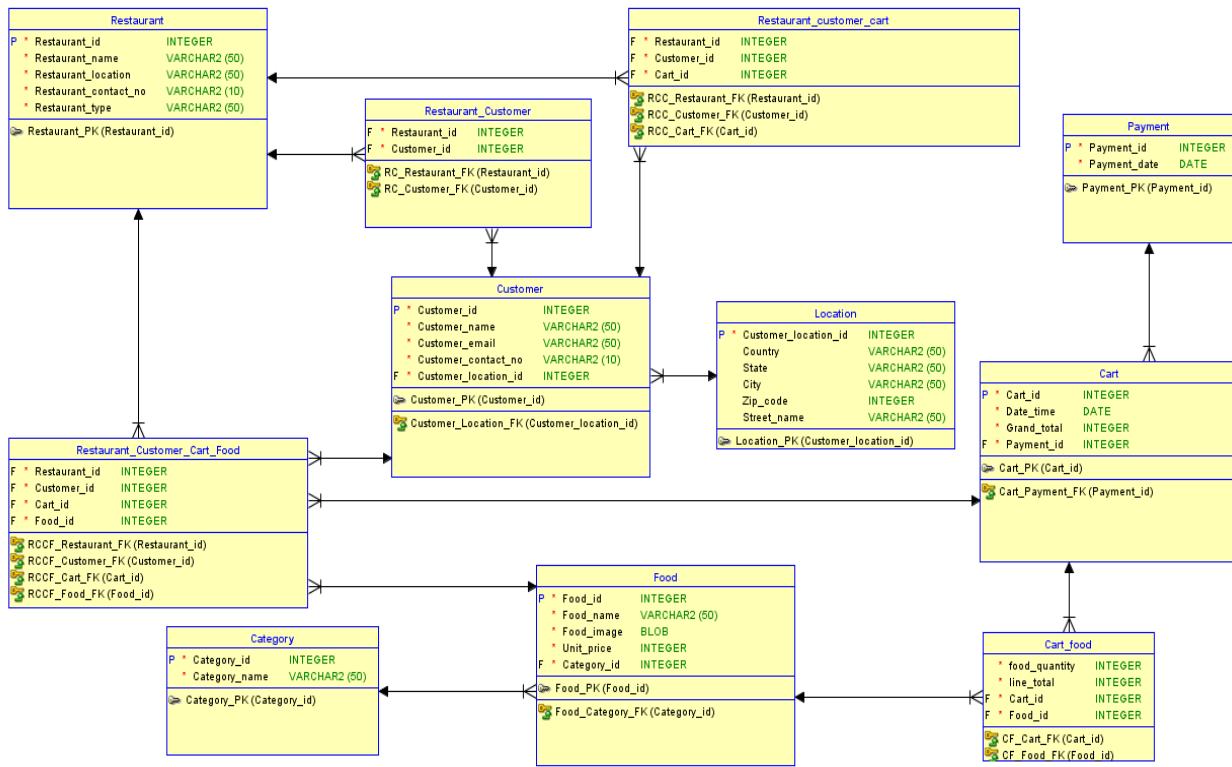


Figure 34: Final ER-Diagram

3.6.5. Activity Diagram

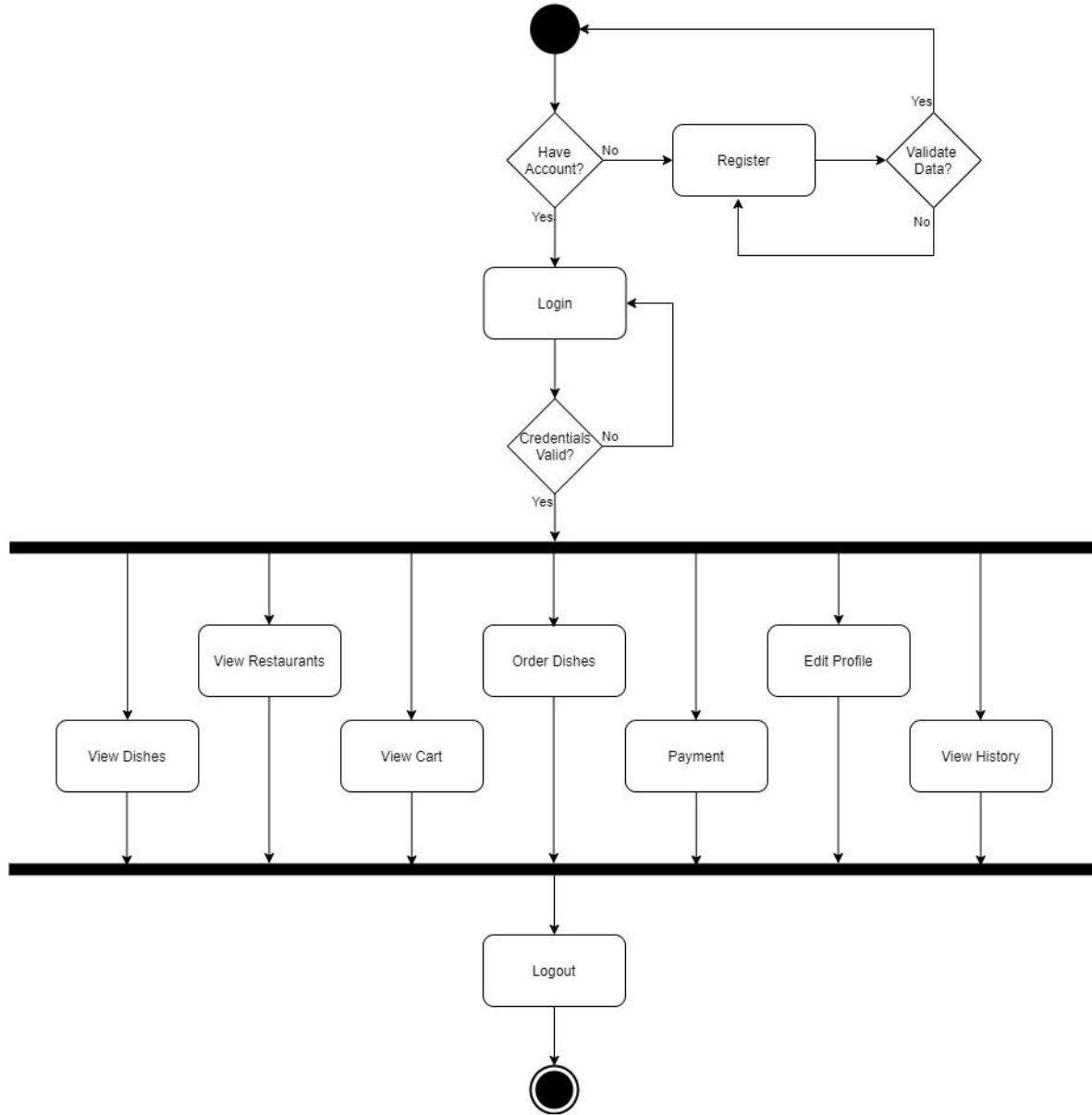


Figure 35: Activity Diagram

3.6.6. Collaboration Diagram

3.6.6.1. Register

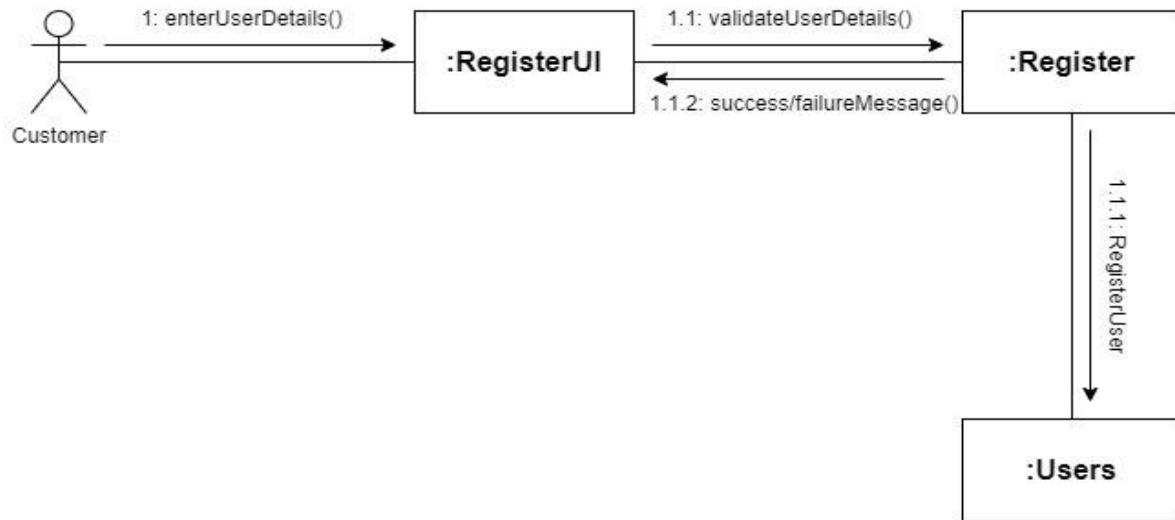


Figure 36: Register collaboration Diagram

3.6.6.2. Login

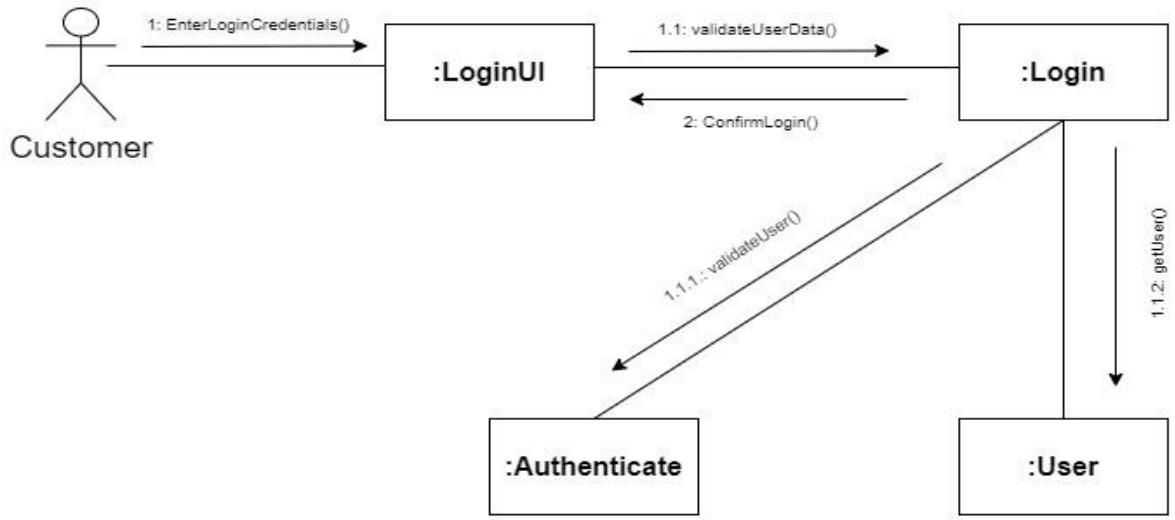


Figure 37: Login collaboration Diagram

3.6.6.3. View Dish

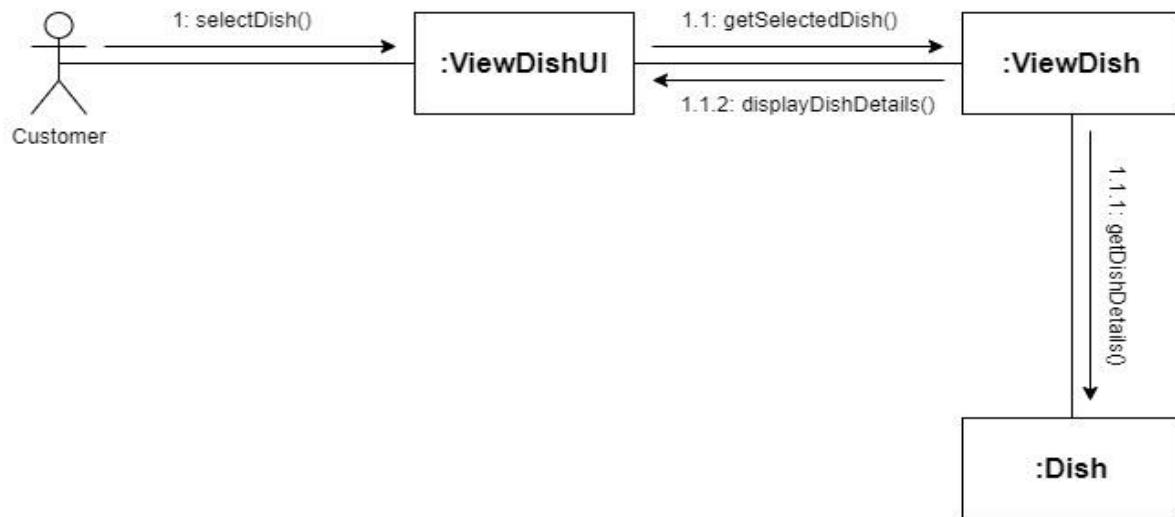


Figure 38: View Dish collaboration Diagram

3.6.6.4. Cart

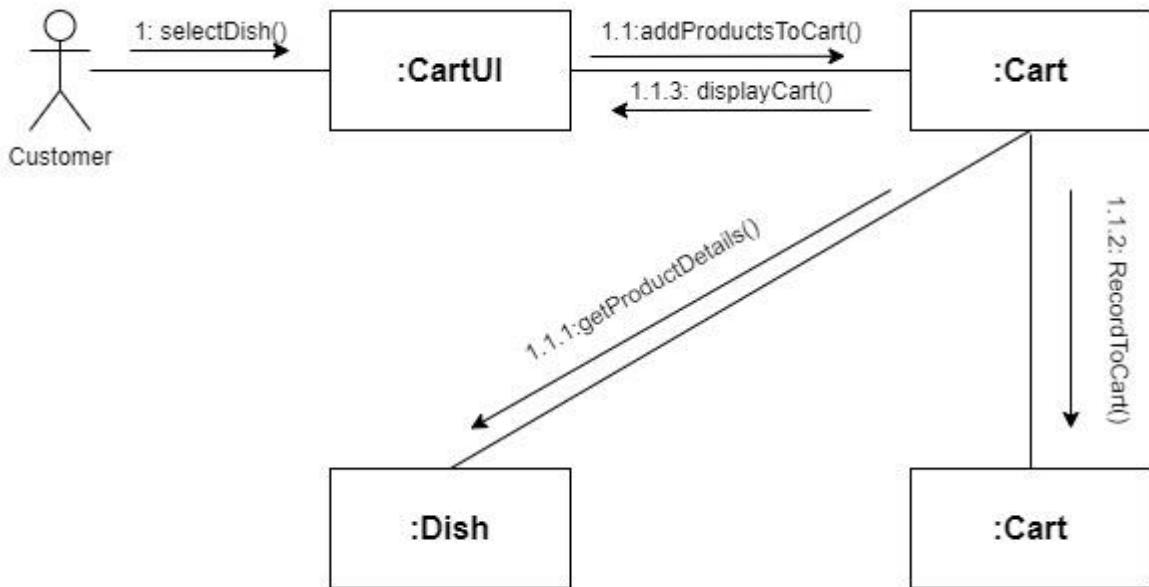


Figure 39: Cart collaboration Diagram

3.6.6.5. Order

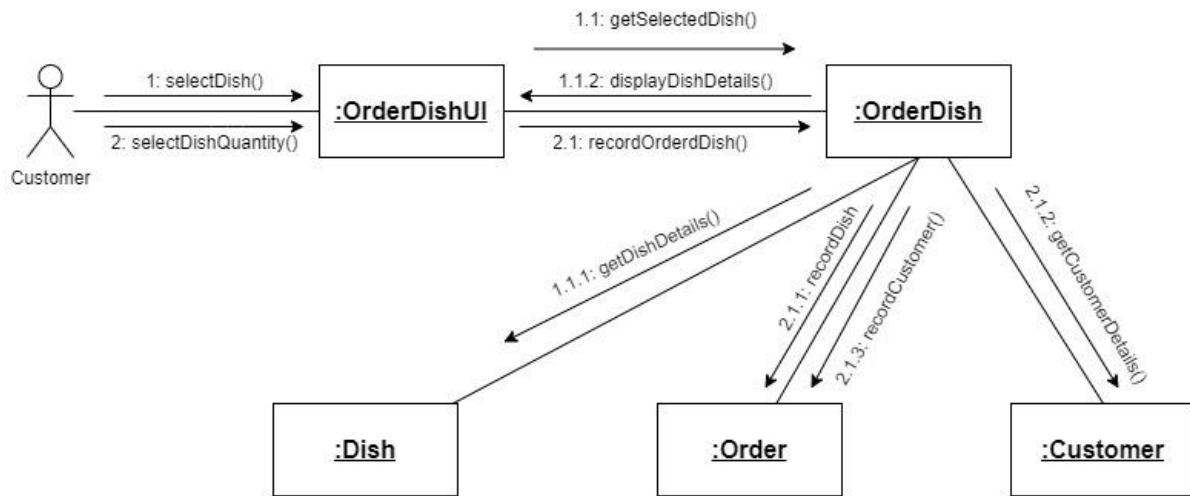


Figure 40: Order collaboration Diagram

3.6.6.6. Payment

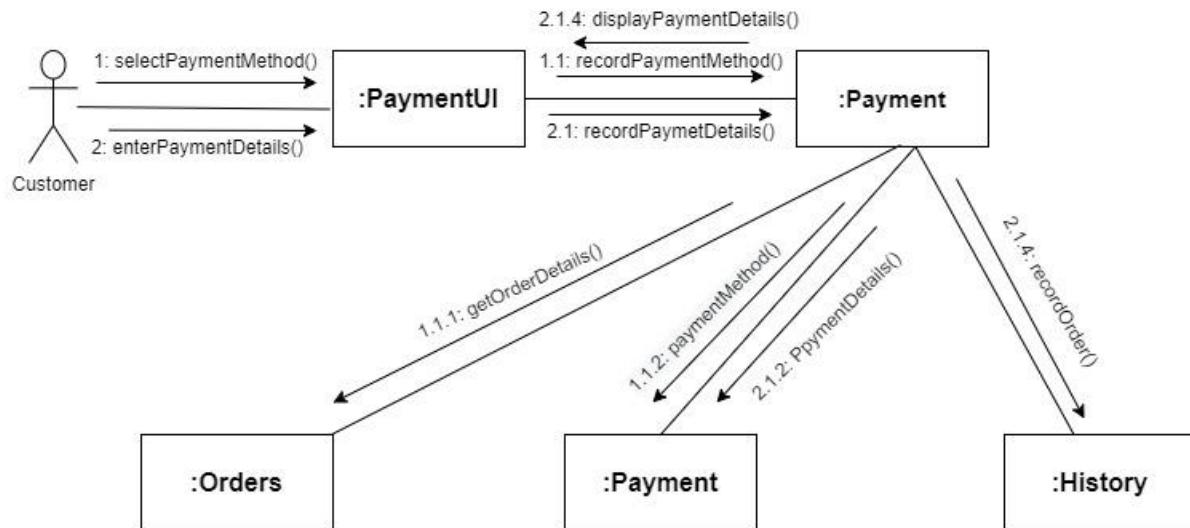


Figure 41: Payment collaboration Diagram

3.6.6.7. History

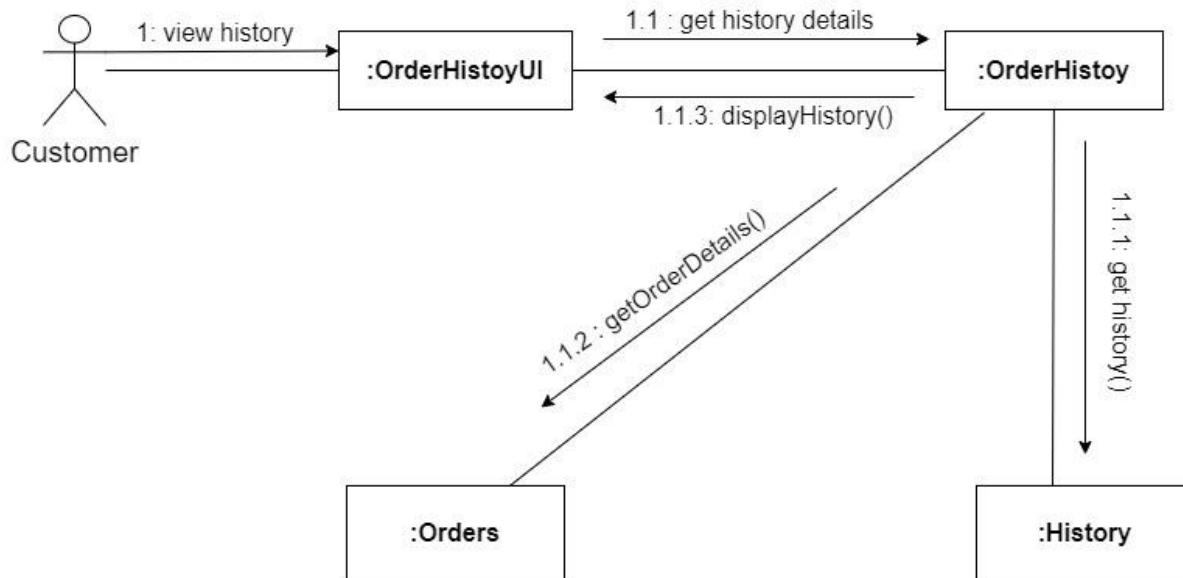


Figure 42: History collaboration Diagram

3.6.7. Sequence Diagram

3.6.7.1. Register

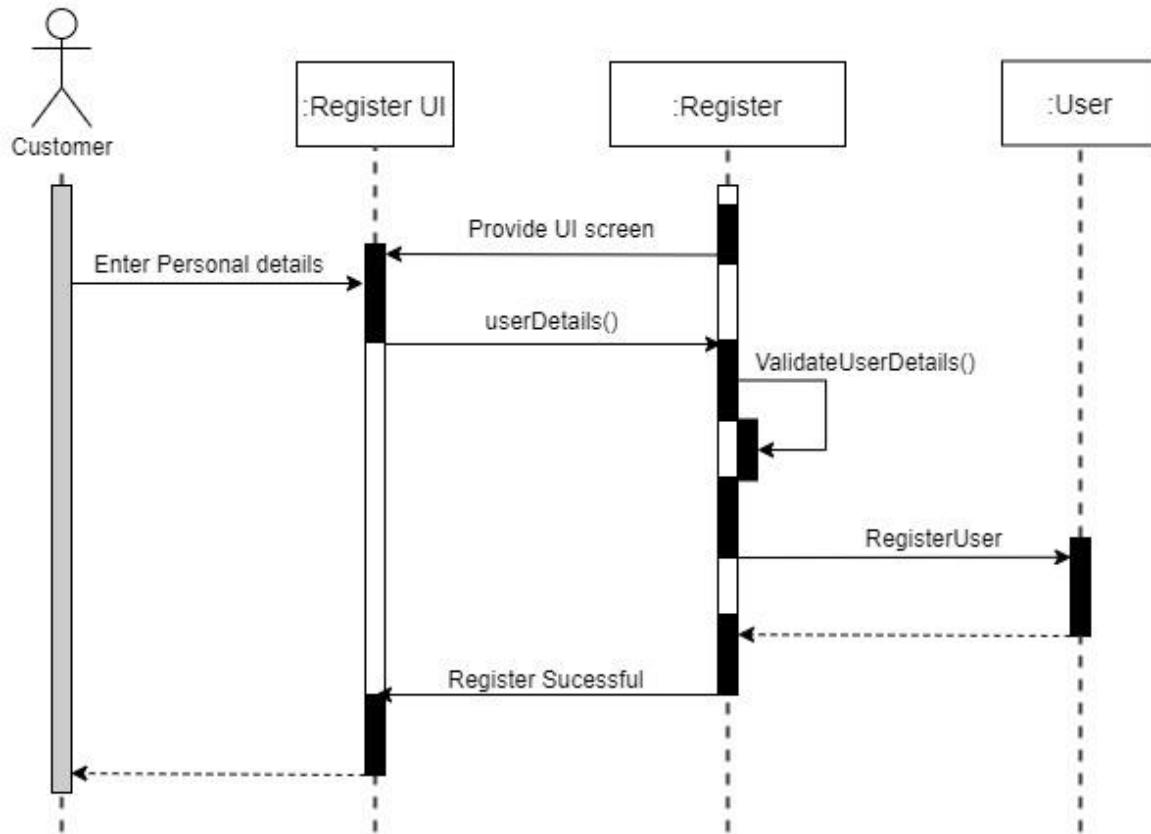


Figure 43: Register Sequence Diagram

3.6.7.2. Login

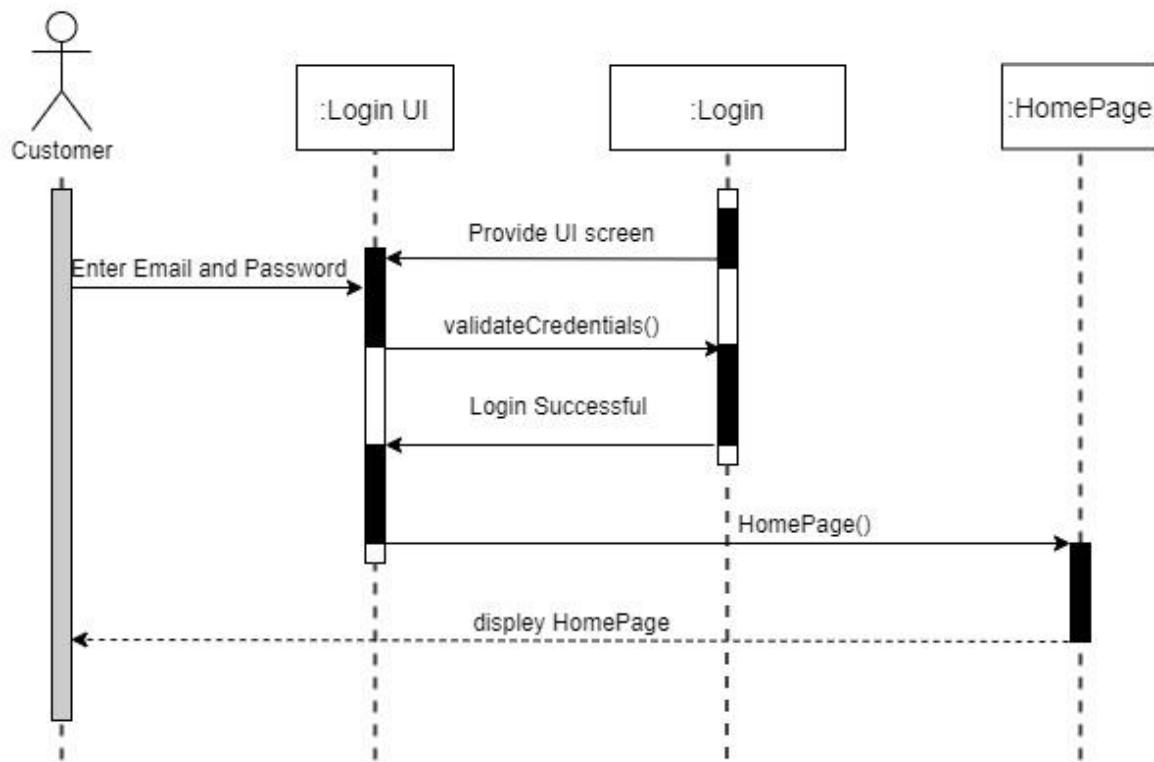


Figure 44: Login Sequence Diagram

3.6.7.3. View Dish

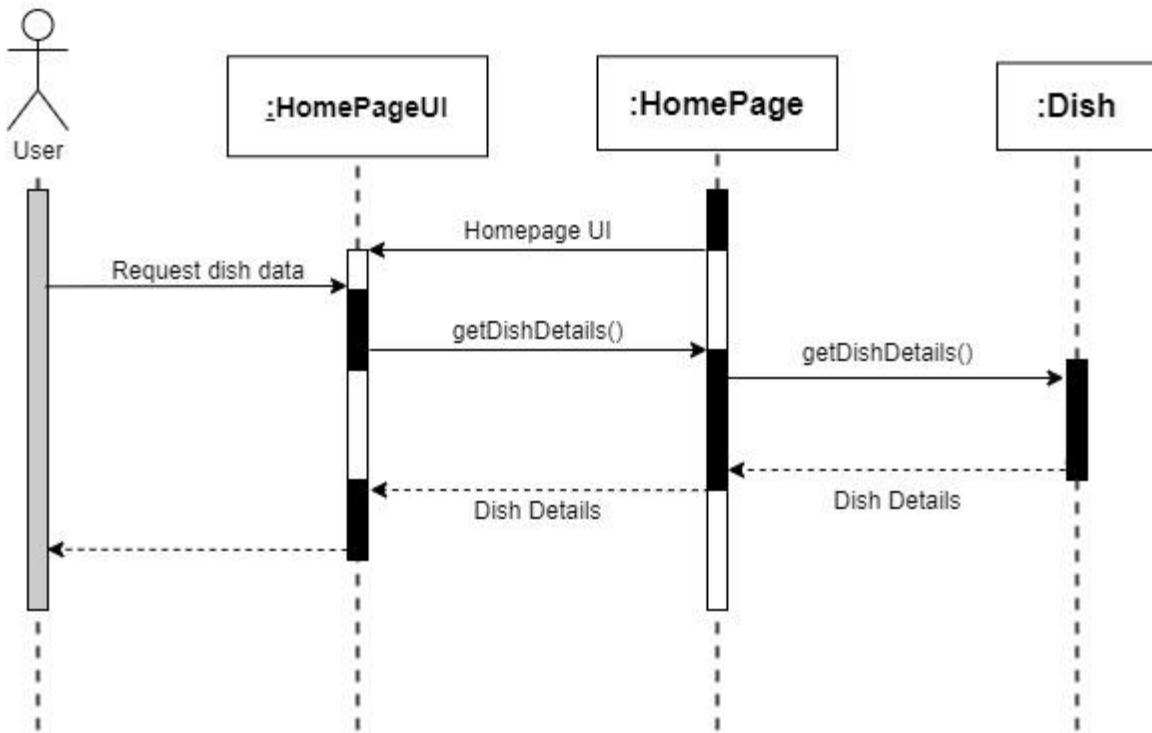


Figure 45: View Dish Sequence Diagram

3.6.7.4. Cart

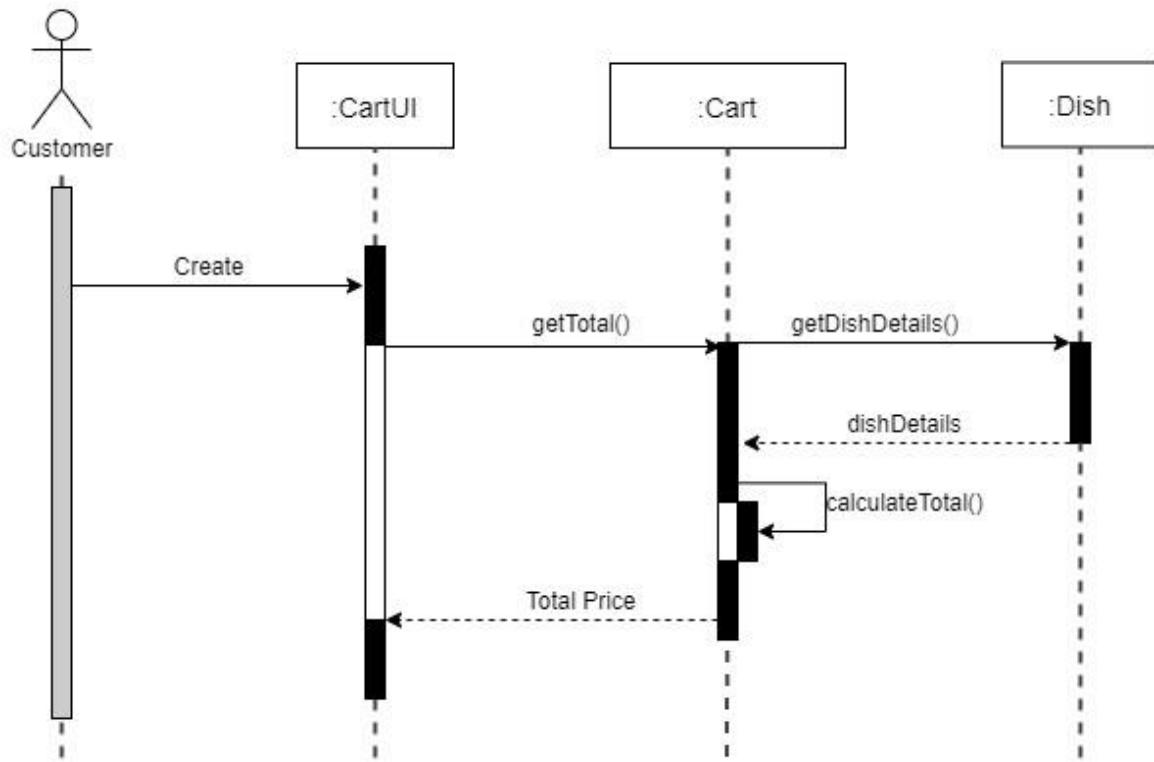


Figure 46: Cart Sequence Diagram

3.6.7.5. Order

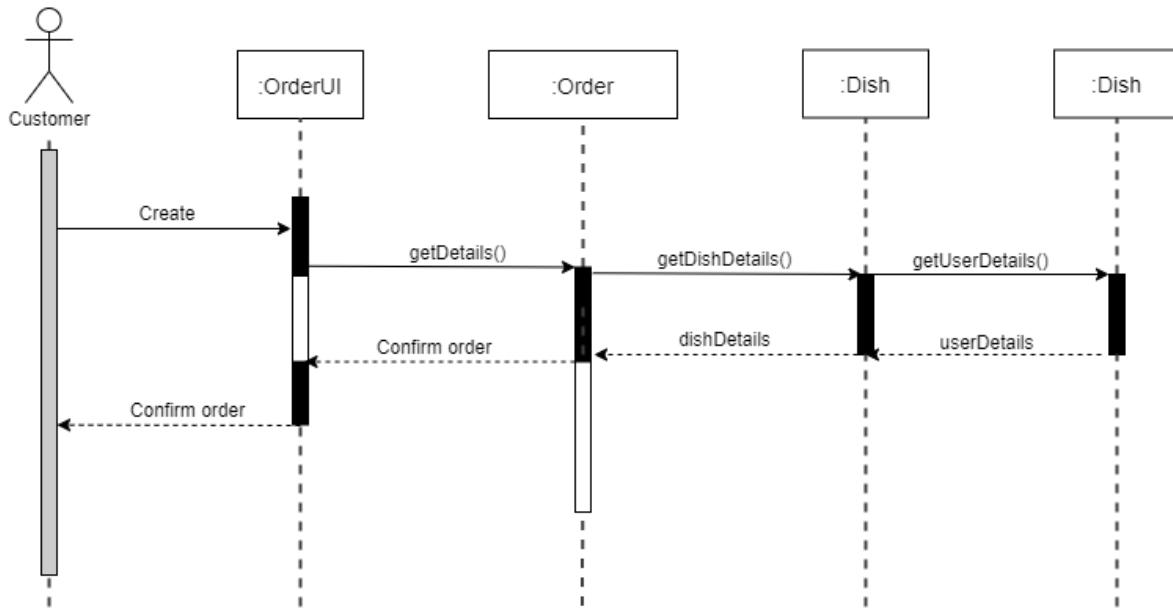


Figure 47: Order Sequence Diagram

3.6.7.6. Payment

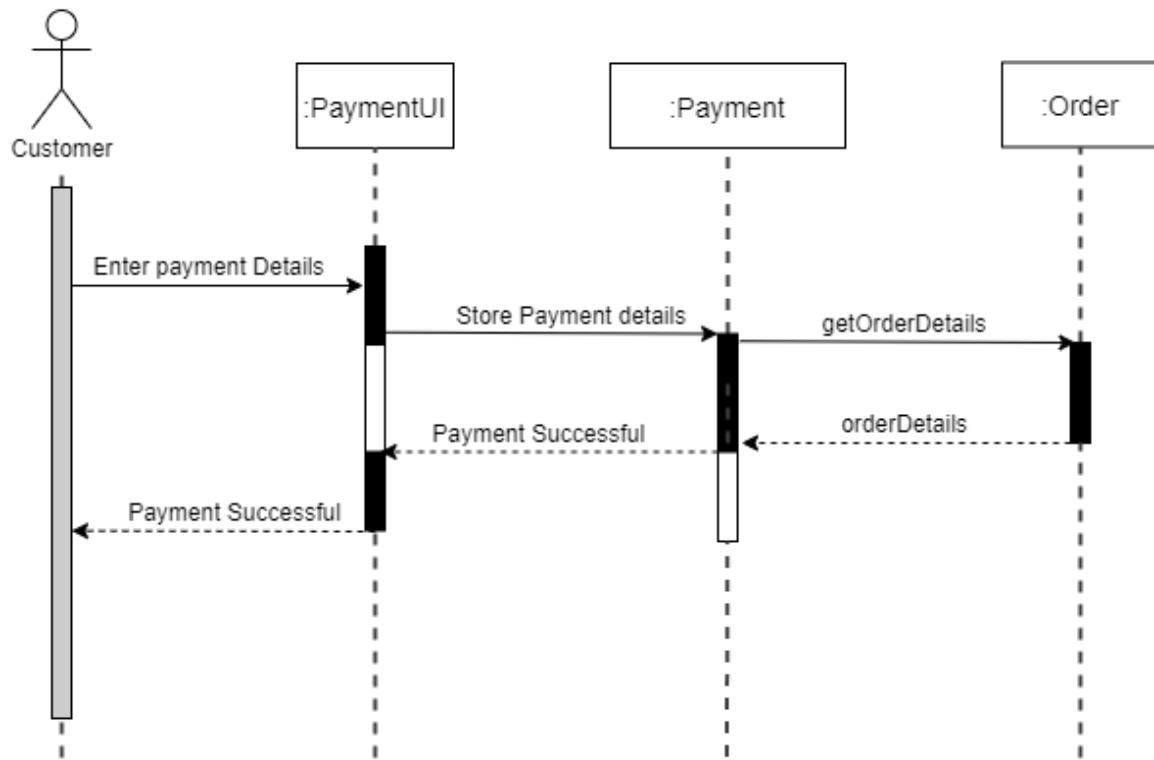


Figure 48: Payment

3.6.7.7. History

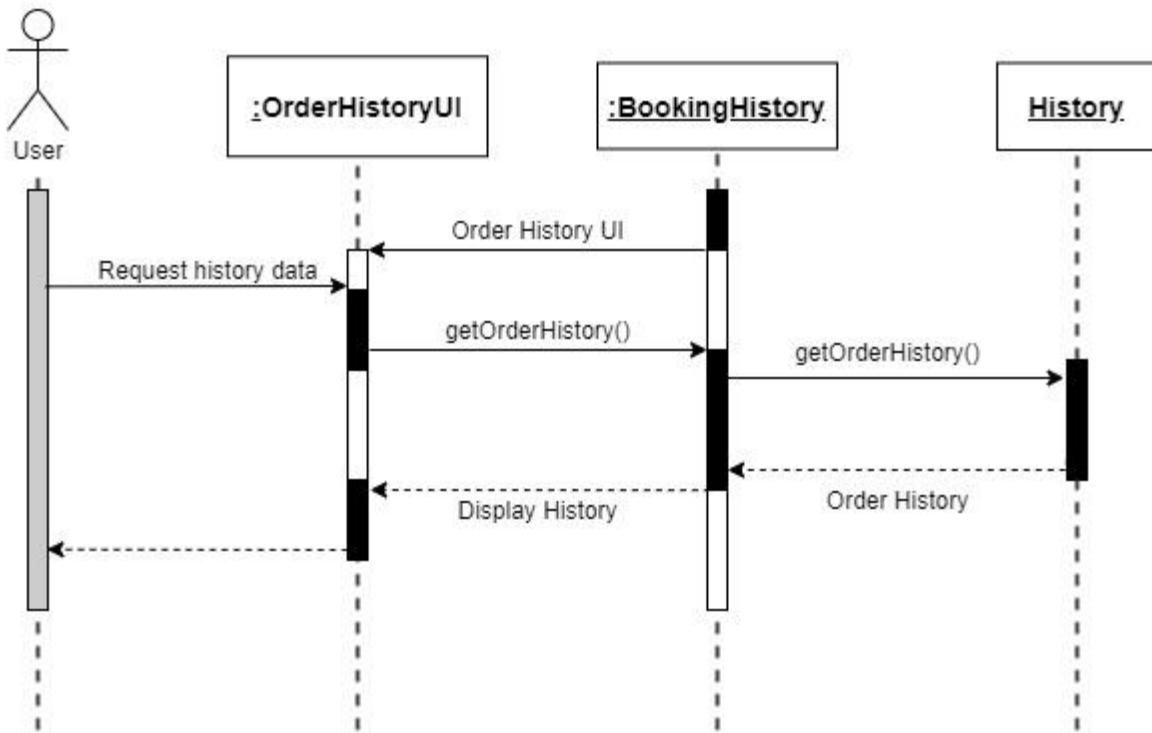


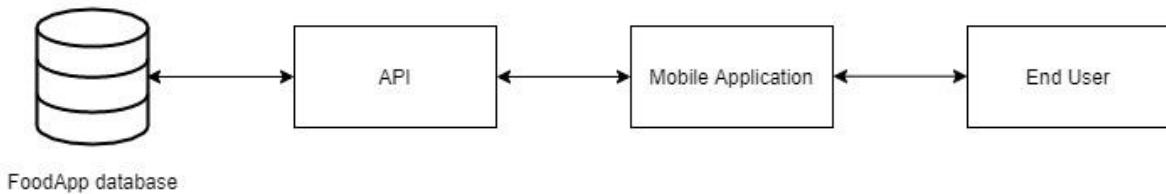
Figure 49: History Sequence Diagram

3.7. Implementation

This Section contains some of the screenshots of the system and the architecture design of the system.

System Architecture

The proposed system works in with client-server architecture. That is to say it will handle all data and processing on the server. The client will simply communicate with this server using the mobile application. The application sends requests to the server, and the server acknowledges and answers accordingly.



The above diagram basically shows the architectural design of the application. First, the data will be stored in the MySQL Database, then the data will be sent to the application's UI through the API when the user requests for data and then displayed to the end user, and vice versa.

Some of the features of the System

- If the username and password does not match in the database the system will show the error message.

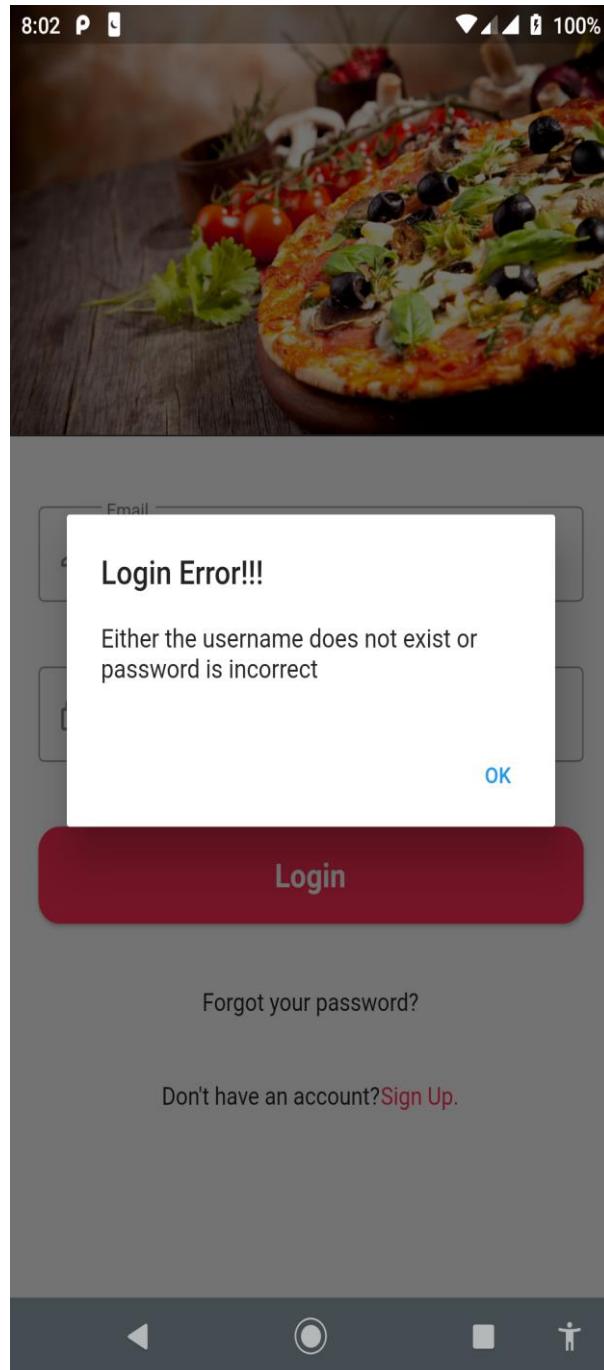


Figure 50: System feature fig (i)

- Cart System

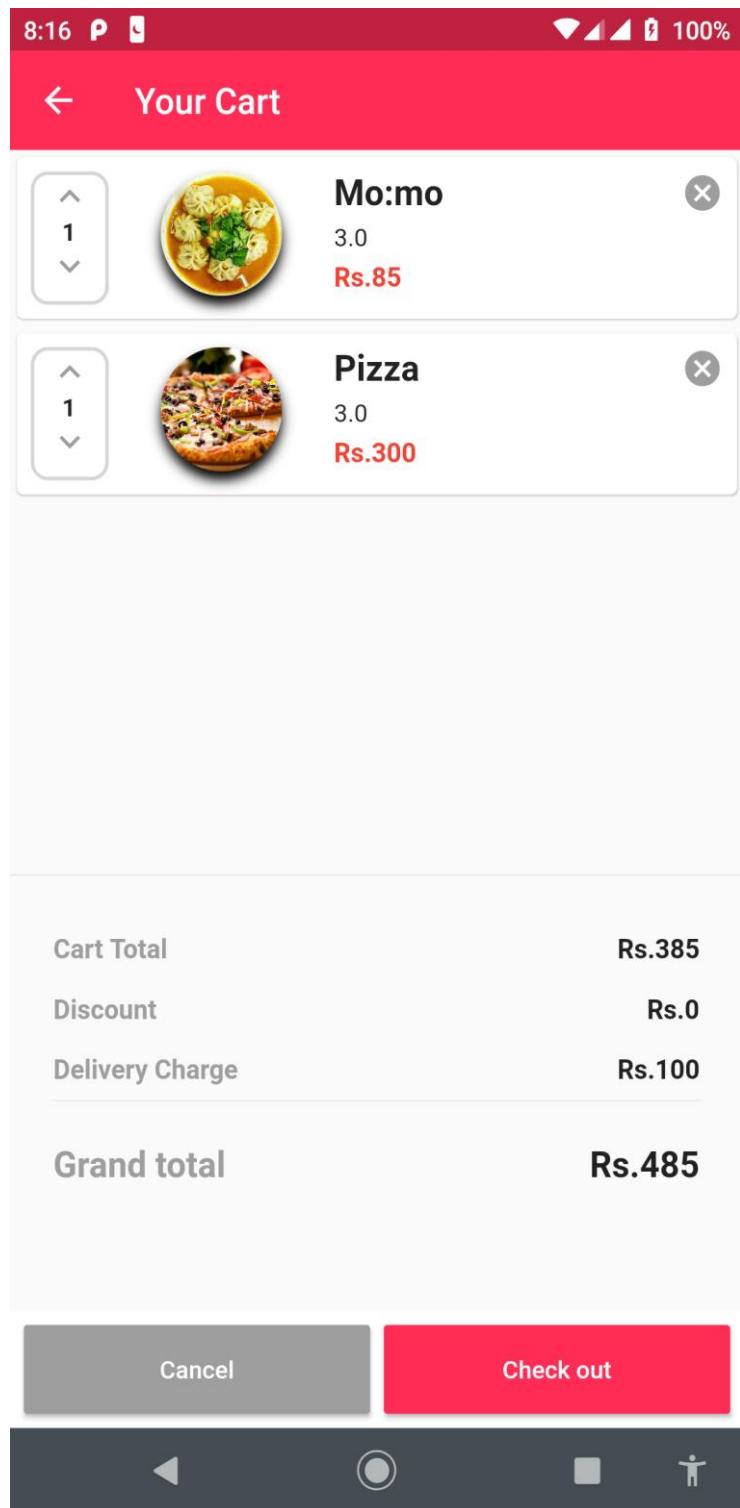


Figure 51: System feature fig (ii)

- Previous order history

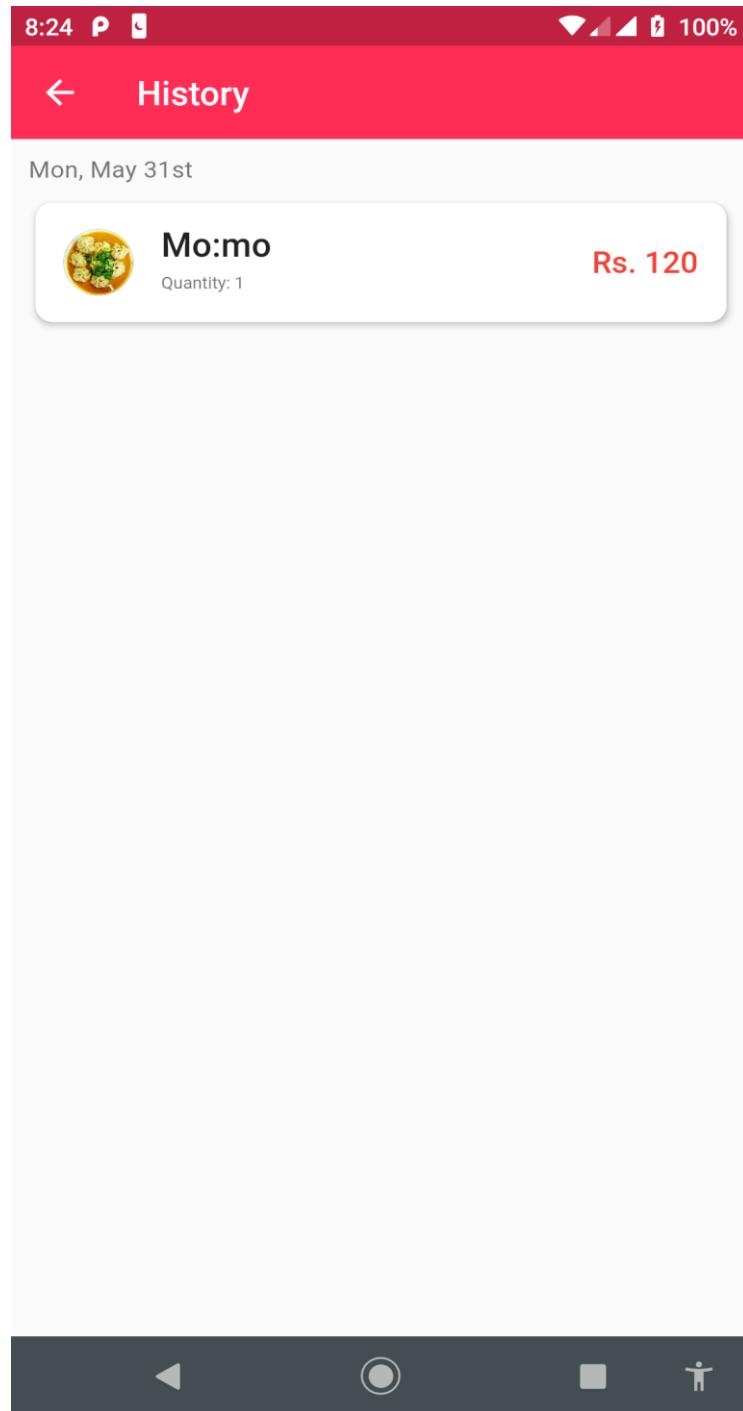


Figure 52: System feature fig (iii)

4. Chapter 4: Testing and analysis

4.1. Test Plan

Actor	S.no.	Test Case	Objective
User	1	Login with unregistered user	Login with unregistered user and check for error message
	2	Form Validation	To check if the forms are validated or not.
	3	Password mismatch	To check if validation of confirm password.
	4	Register user	To register a new user.
	5	Login	To Login to system.
	6	Check Dishes	To check dishes provided in the application.
	7	Add dishes to cart	Add some dishes to cart
	8	Confirm order	Confirm the order
	9	Check History	To check for ordered history

	10	Edit Profile	Edit name in profile
	11	Edit Profile without name	Edit name in profile leaving it empty.
	12	Check Terms and Conditions	To check Terms and Conditions
	13	Logout	To logout from system

Table 2: Test Plan

4.2. Testing

4.2.1. Login with Unregistered user

	Action
Test Case	Login with unregistered user.
Expected Outcome	An error message should occur.
Actual Outcome	An error message occurred saying "Either the username does not exist or password is incorrect."
Result	Test Successful.

Table 3: Login with Unregistered user

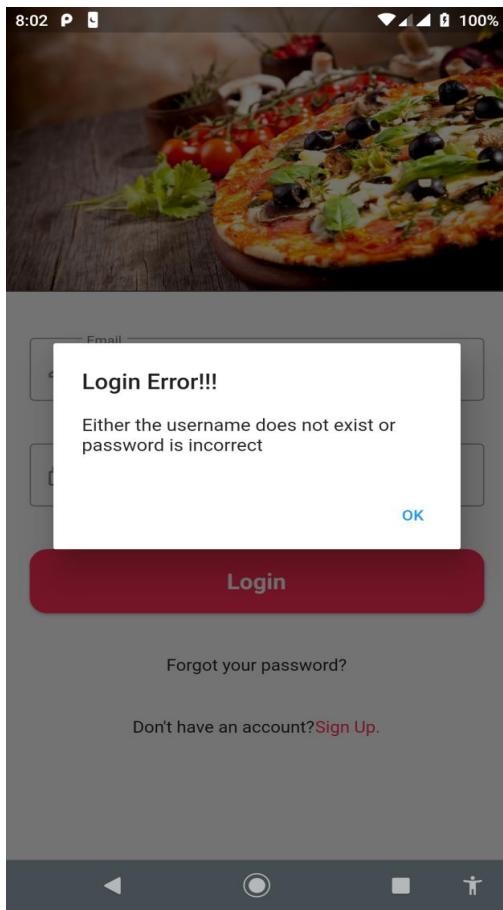


Figure 53: Login with Unregistered user

4.2.2. Form Validation

	Action
Test Case	Register user with empty fields and wrong credentials.
Expected Outcome	Error should be occurred showing error message.
Actual Outcome	The error messages were shown.
Result	Test Successful.

Table 4: Form Validation

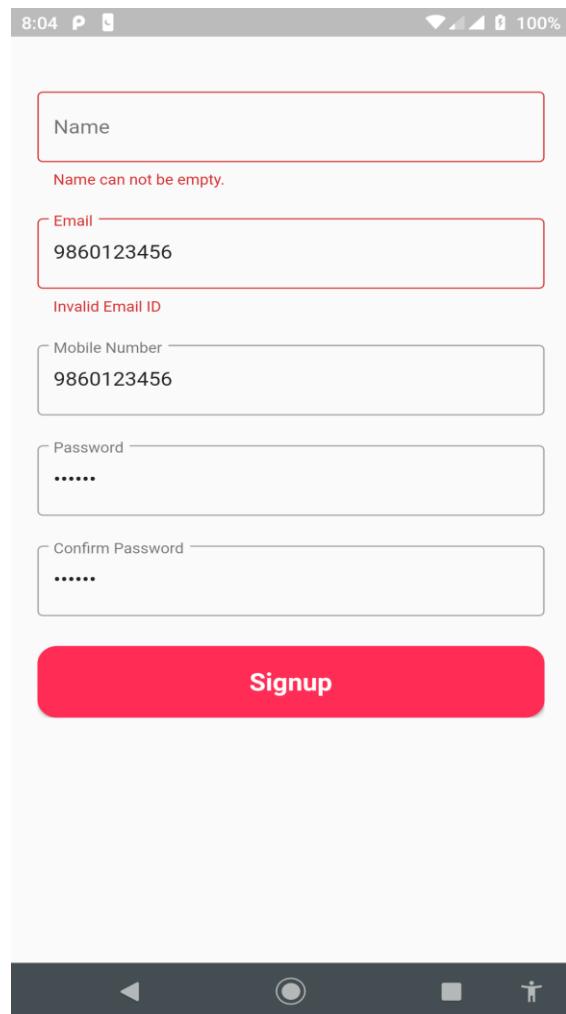


Figure 54: Form Validation

4.2.3. Password mismatch

	Action
Test Case	Enter different password in conform password
Expected Outcome	Error should be occurred showing error message.
Actual Outcome	The error messages were shown saying "Password does not match"
Result	Test Successful.

Table 5: Password mismatch

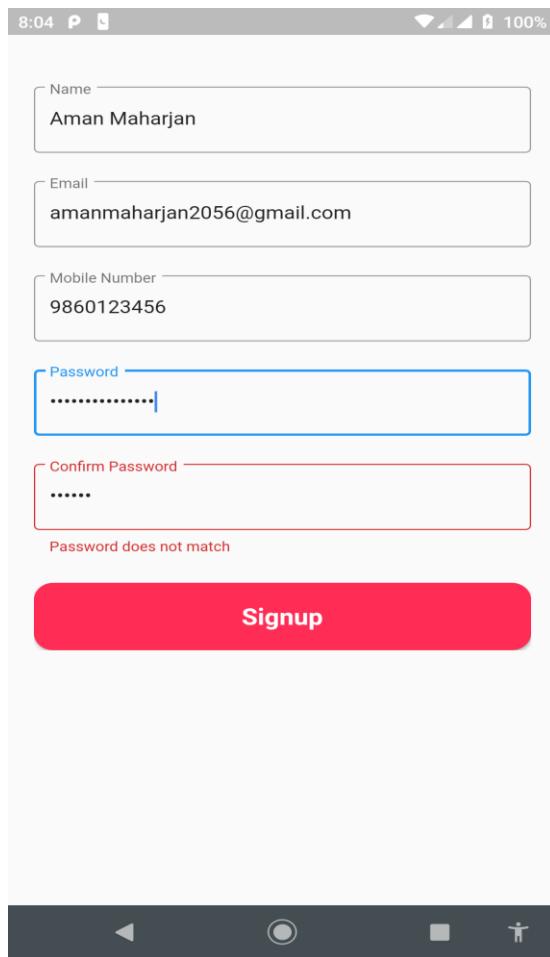


Figure 55: Password mismatch

4.2.4. Register user

	Action
Test Case	Register a user.
Expected Outcome	A user should be registered.
Actual Outcome	The user was registered successfully.
Result	Test Successful.

Table 6: Register user

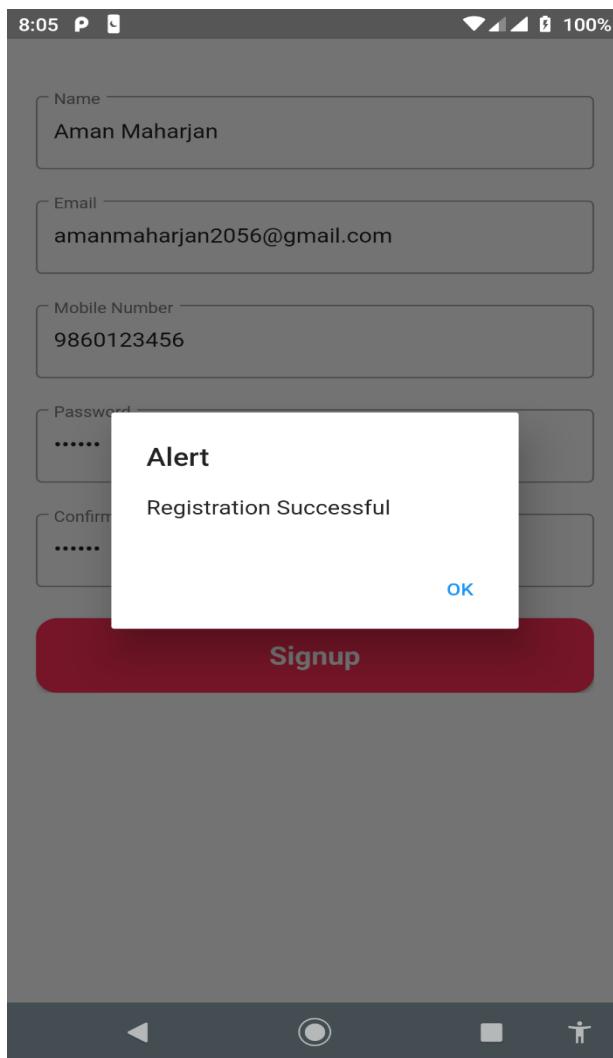


Figure 56: Register user

4.2.5. Login

	Action
Test Case	Login the user to system.
Expected Outcome	User should be logged into the system and the home page should be displayed.
Actual Outcome	The login was successful and the homepage was shown.
Result	Test Successful.

Table 7: Login

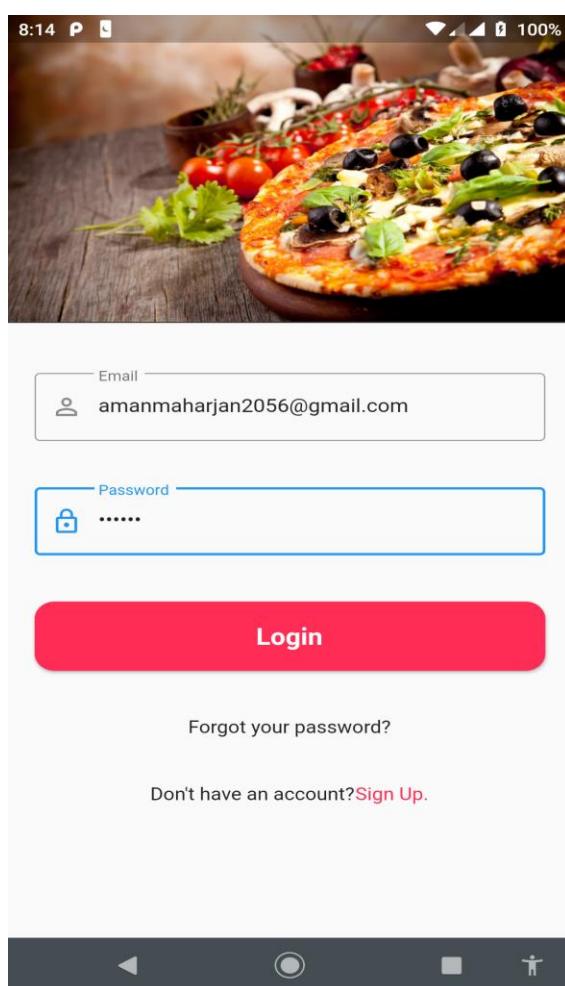


Figure 57: Login (a)

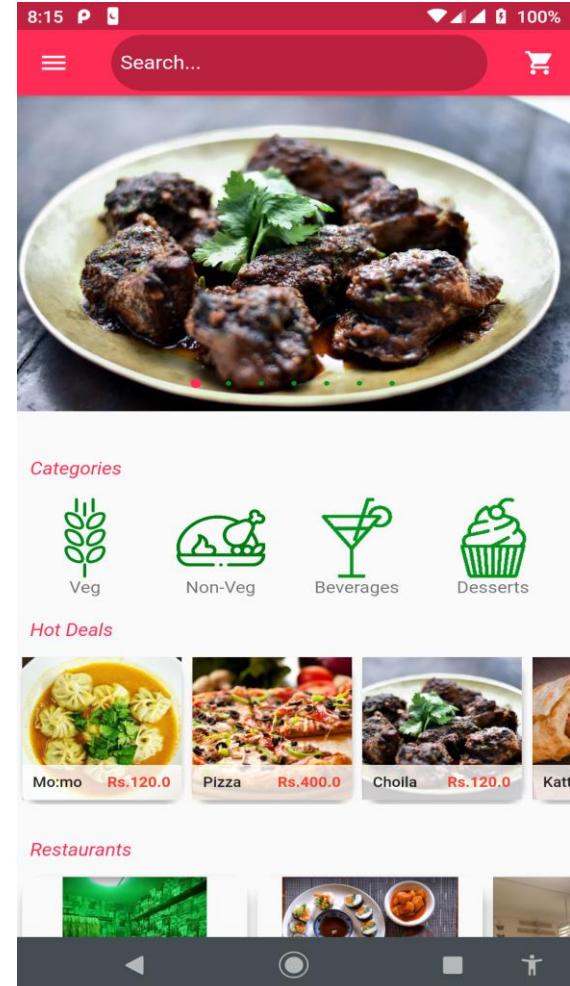


Figure 58: Login (b)

4.2.6. Check Dishes

	Action
Test Case	Check for dish availability.
Expected Outcome	Dishes should be shown.
Actual Outcome	Dishes was shown.
Result	Test Successful.

Table 8: Check dishes

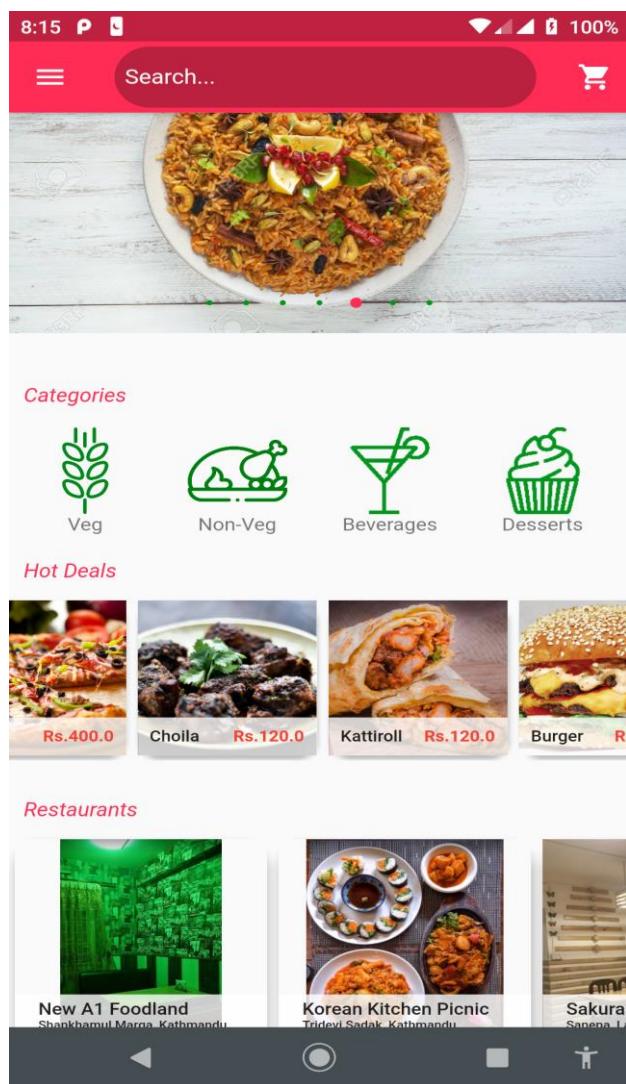


Figure 59: Check dishes

4.2.7. Add dishes to cart

	Action
Test Case	Add dishes to cart.
Expected Outcome	The selected dish should be added to the cart.
Actual Outcome	The dishes were added to the cart.
Result	Test Successful.

Table 9: Cart

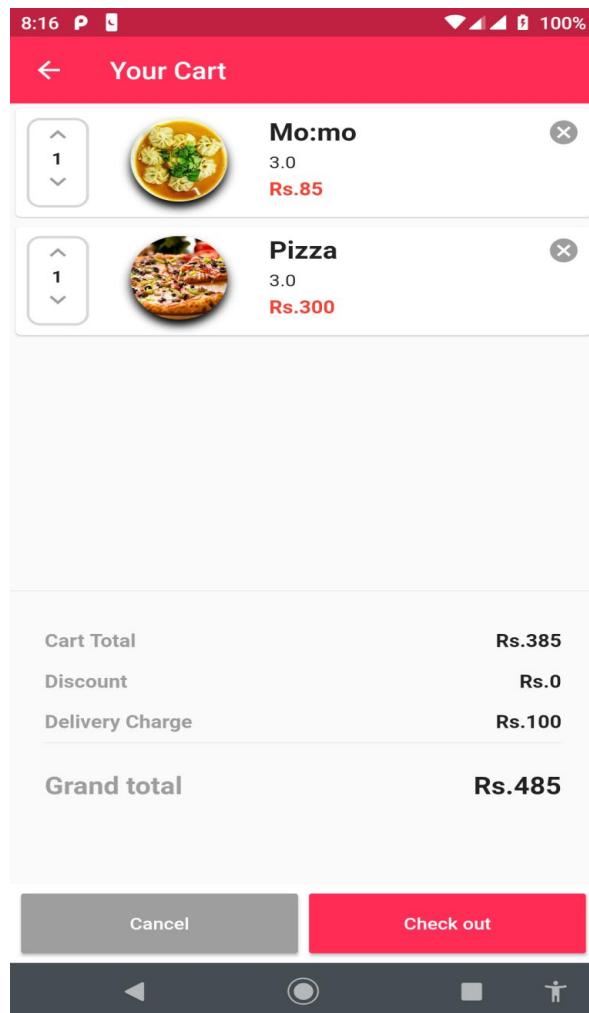


Figure 60: Cart

4.2.8. Confirm order

	Action
Test Case	The order the cart items
Expected Outcome	The order should be confirmed
Actual Outcome	The order was confirmed
Result	Test Successful.

Table 10: Confirm Order

4.2.9. Edit Profile

	Action
Test Case	Edit the name of the user
Expected Outcome	The name should be changed
Actual Outcome	The name was changed to Will
Result	Test Successful.

Table 11: Edit Profile

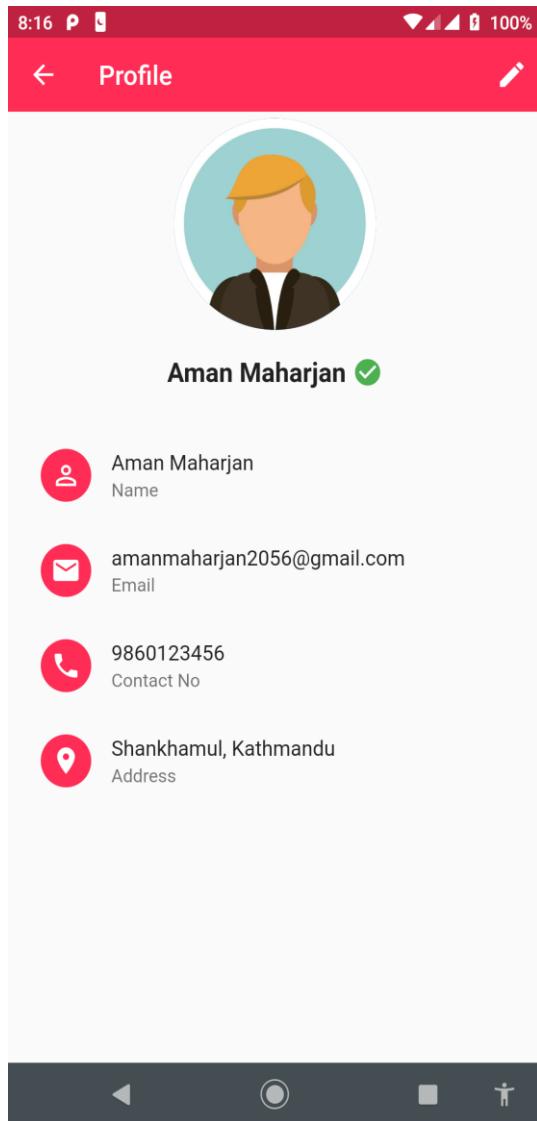


Figure 61: Edit Profile (a)

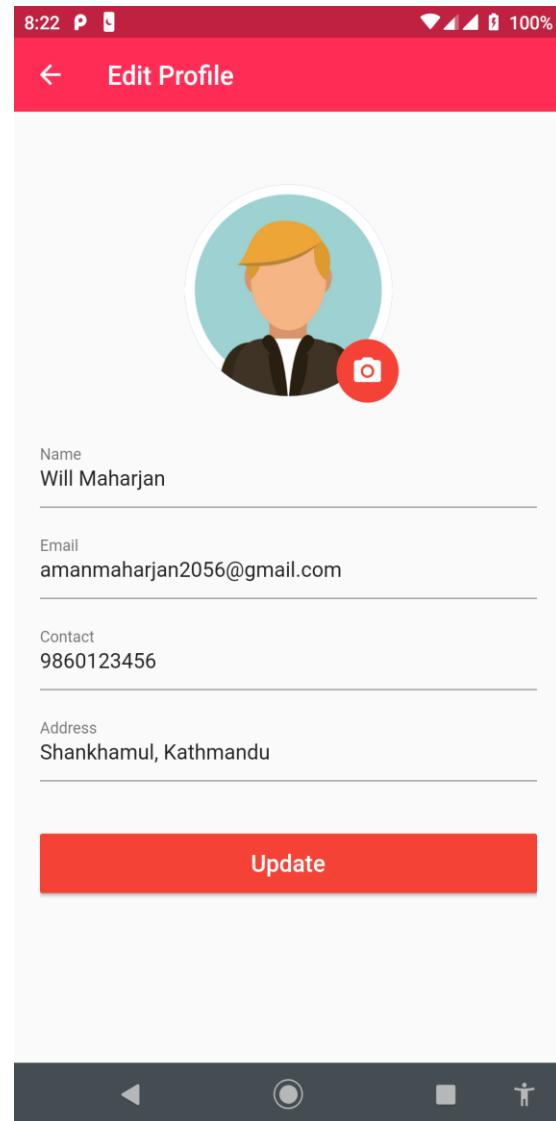


Figure 62: Edit Profile (b)

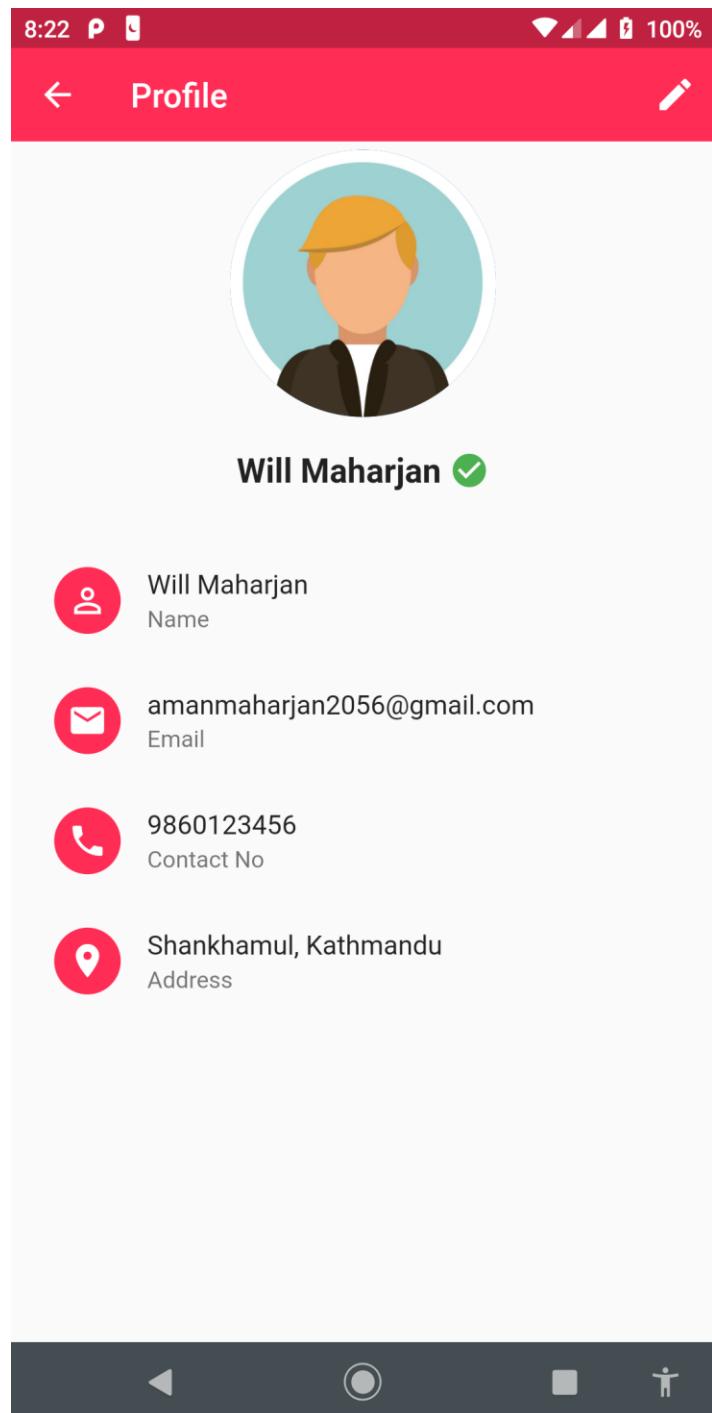


Figure 63: Edit Profile (c)

4.2.10. Edit Profile with empty Name

	Action
Test Case	Edit the name of the user leaving it empty
Expected Outcome	An error message should be displayed.
Actual Outcome	An error was shown saying "Name Required"
Result	Test Successful.

Table 12: Edit Profile with empty Name

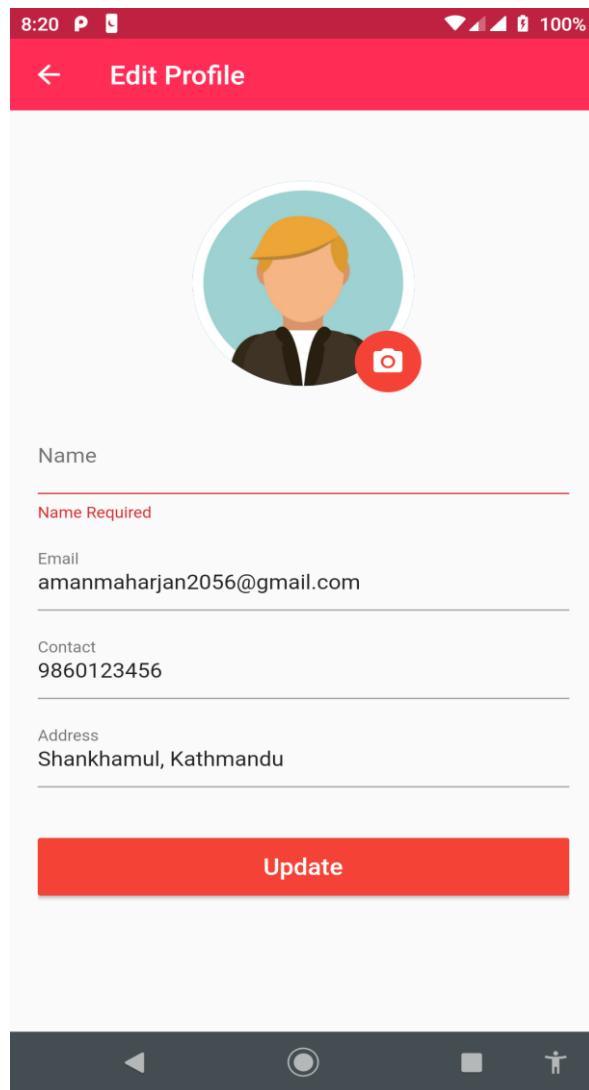


Figure 64: Edit Profile with empty Name

4.2.11. Check History

	Action
Test Case	Check for History.
Expected Outcome	Open History
Actual Outcome	The history was successfully opened.
Result	Test Successful.

Table 13: Check History

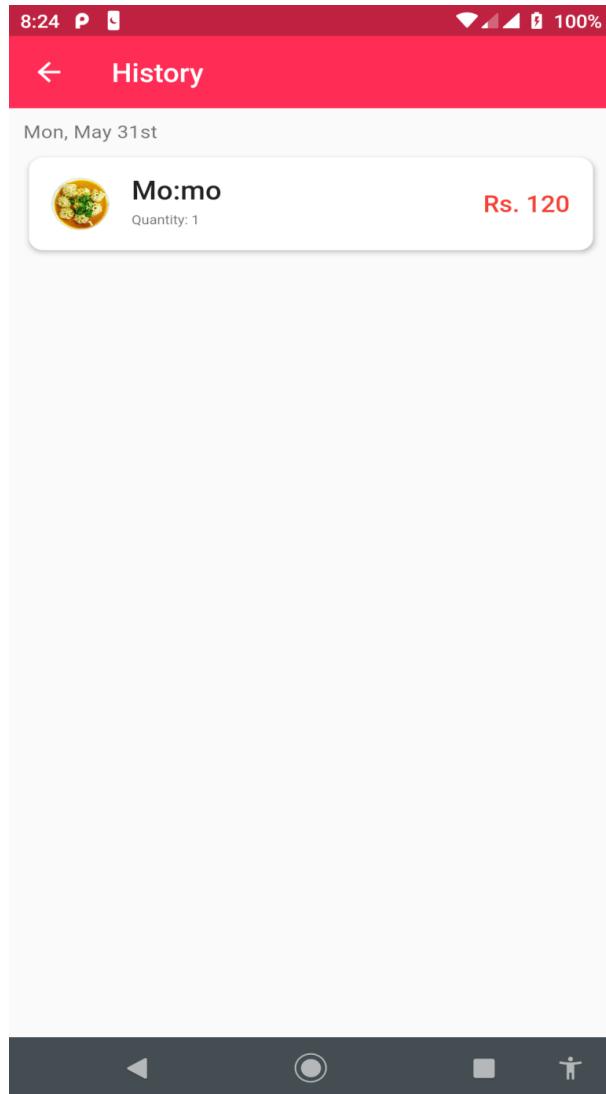


Figure 65: Check History

4.2.12. Check Terms and Conditions

	Action
Test Case	Check for Terms and Conditions.
Expected Outcome	Open Terms and conditions.
Actual Outcome	The Terms and Condition was opened.
Result	Test Successful.

Figure 66: Check Terms and Conditions

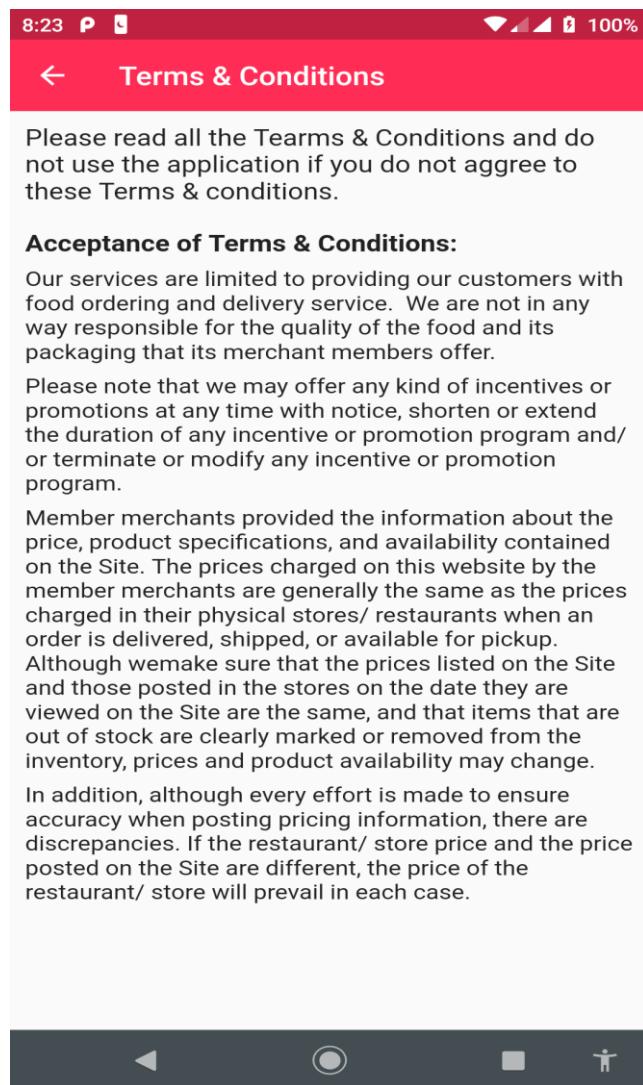


Figure 67: Check Terms and Conditions

4.2.13. Logout

	Action
Test Case	Logout form the system.
Expected Outcome	The user should be out of the system.
Actual Outcome	The user was out of the system and the login page was displayed.
Result	Test Successful.

Table 14: Logout

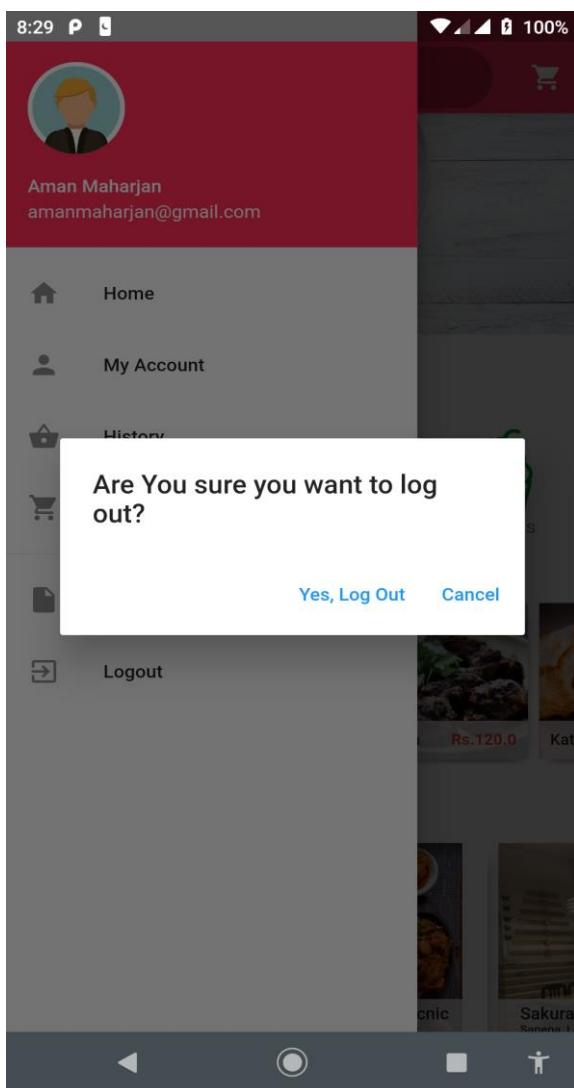


Figure 68: Logout (a)

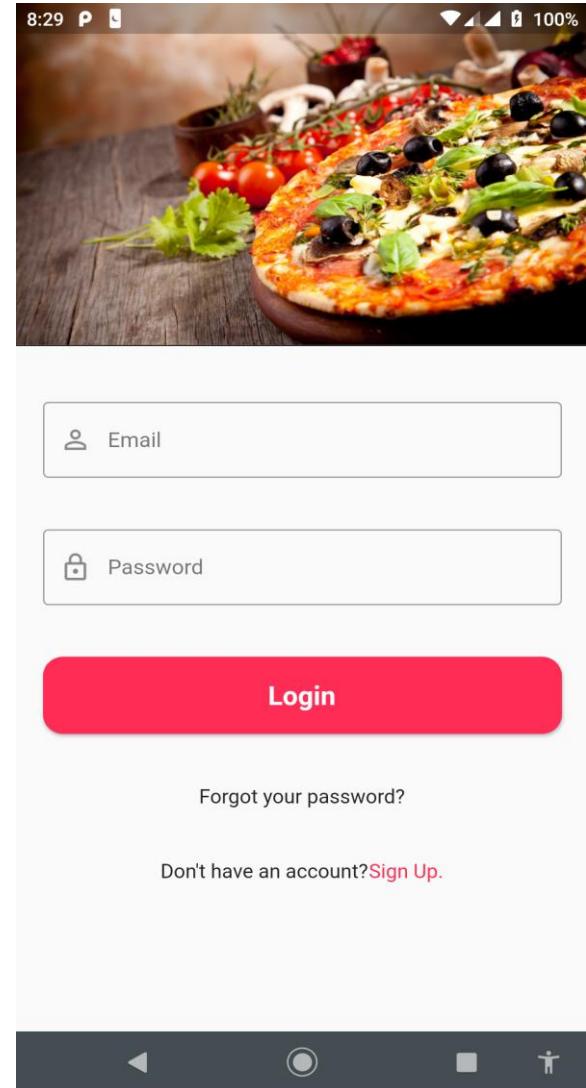


Figure 69: Logout (b)

4.3. Critical Analysis

This project aims to provide a platform for foodies where they can order food online from the application. The system is provide the list of many restaurants and their dishes. Than the user can order from any restaurants. With this system it will increase the efficiency of the ordering process for both customers and restaurants, reduce human error, and provide high-quality service to the customers. Customers can also view the product they are ordering which helps customers in visually confirming the order they have placed.

Even after the effort there are some limitation in the project. In the near future I will try to make the system more flexible. Adding promo codes will attract the customer will be very beneficial. Food start tracking will help user predict how long the food is going to take which will also be beneficial for us.

The system as a whole has been functional and successful, but it still needs more features to make the system more business applicable. The flexibility of the system will also be improved. As for now there are very few restaurants available and few dishes available. Food waste management will help save environment as well as satisfy the customer as they will be able to get the food in lower price. So overall the system meats the aims of the project but still lacks fexibility.

5. Chapter 5: Conclusion

5.1. Legal, social and ethical issues

5.1.1. Legal issues

Legal issue is any issue that arises from a particular set of facts (law). It requires a court decision to act. (Bajracharya, 2019)

As per the provisions of “Nepal Food Act, 2023 (1967)”, A person intending to produce, sell, distribute, store or process the prescribed foodstuffs shall have to obtain license as prescribed under the Nepal Food Act 2023 (1967). (Nepal Law Commission, 1967) There was a case in India where the FDA (Food and Drug Administration) filed 22 cases for adjudication against Zomato and Swiggy in Mumbai for violating FSSAI (Food Safety and Standards Authority of India) Act, 2006. They were found working without a license and the food portals were delivering their food to consumers without ensuring that the outlets had a license. (The Indian Express, 2020) There was even news where a delivery man of one food delivering company, found tempering the food packets to be delivered to the customer after which Zomato fired the delivery man for tampering food packs. So before making our application public we must register our application as a business. And we must even have loyal employees who will not betray us, in order to do that we must have good communication with them and maintain neutrality with all the employees.

5.1.2. Social issues

Any problems that influences a considerable amount of individuals in any society is known as Social issue. It does not require a court decision but mostly concerns with individuals wellbeing, moral values, cultures and rights. (Bajracharya, 2019)

A society may view online food delivery system differently, each person has their own perspective, some may find it very useful and some may find it as scam total useless. In the context of Nepal, most of the people do not like the idea of online food delivery system as there may be a difference in quality and quantity. But the teenager and

business-minded people are liking the idea of online food delivery system as it saves lots of time which results in money. The food delivery system has also affected social skills of the peoples, instead of dining together with family and friends, the fact that we can order food directly from our homes significantly reduces the time we spend with them.

5.1.3. Ethical issues

The problem that occurred during decision making between moral imperative (the principle that compels people to do the right thing) is known as an ethical issue. It is a situation where acts are neither acceptable nor preferable for a society or an individual. In simpler terms, it is an occasion when the moral standard is being questioned, it is the belief in the right or wrong area or system. (Bajracharya, 2019)

The following are the ethical issues related to online food delivery system: The customer privacy is one of the main concern, it should have no loose ends. All the information provided by the customers should be secure making sure that limited information will only be provided to the delivery man. The payment information will not have any access not even the admin of the system. Another ethical issue is the wages for a delivery man being low, as we are trying to sell product from other restaurants we cannot increase the price of food as we want. This situation opens up an ethical dilemma. We will be providing 75% of the delivery cost of each delivery to the delivery man himself and try to avoid the conflict.

5.2. Advantages

The advantages of online food delivery system are as follows:

- **Simplicity:** Given its simplicity and transparency, people admire the online food delivery service. People decide what they are going to order, where they are going to order, how they pay and when to deliver.
- **Wide Variety:** Since various restaurants are linked to the application people can order from any restaurant. There is vast menu will provide people the advantage of even comparing the food from different restaurant and order the food according to their need.
- **Time savior:** Since people can order food from their home/ work it saves time for them in cooking the food or even going out for dining after a hour of searching for a good restaurant.
- **Payment:** As we offer different types of payment form Cash on delivery, e-wallet like khalti it is easier for the customer. As if they do not have any cash they can simply pay through their e-wallet.
- **User Friendly:** The UI of the application is very simple. People can easily use the application without any difficulties. In the home screen they can see the food lists and the restaurants list through which they can order food

5.3. Limitations

Although I have tried my best to make this project easy to use and flexible but there are some limitations. Through the system provides wide range of functions that the user can use, there are some complex task which could not be complete due to various reasons. Lack of time was one of the major problem; due to which I had to ignore some of the features which I had planned but was not completed. Some of the limitations of the system are as follows:

- The user cannot track the food state in the application.
- The food waste management feature is not available
- There is no promo codes in the system
- There is no website for the application so the application cannot be opened through web browsers

5.4. Future work

Even if the project was completed in the given time there are still some limitations to the system. The following tasks can be done in the future to improve and complete the system to its full potential:

- Host the food application online and make it available for the public
- Work on more user friendly UI
- Add food state tracking function
- Work on Food waste management system
- Improvement in restaurants interface
- Work on implementing promo codes

6. Chapter 6: References

Bajracharya, Y. (2019) *legal and social issues description*. Lecture Slide. Islington College.

Django Software Foundation and individual contributors. (2019) *Django* [Online]. Available from: <https://docs.djangoproject.com/en/3.0/ref/databases/> [Accessed 28 Dec 2019].

EDUCBA. (2020) *EDUCBA* [Online]. Available from: <https://www.educba.com/what-is-laravel-framework/> [Accessed 20 May 2020].

flutter-dev. (2020) *Flutter* [Online]. Available from: <https://flutter.dev> [Accessed 20 May 2020].

Guru99. (2019) *Prototyping Model in Software Engineering: Methodology, Process, Approach* [Online]. Available from: <https://www.guru99.com/software-engineering-prototyping-model.html> [Accessed 28 Oct 2019].

larashout. (2018) *What is Laravel and Why You Should Learn it?* [Online]. Available from: <https://www.larashout.com/what-is-laravel-and-why-you-should-learn-it> [Accessed 23 December 2019].

McKinsey & Company. (2019) *The changing market for food delivery* [Online]. Available from: <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-changing-market-for-food-delivery> [Accessed 3 Nov 2019].

Nepal Law Commission. (1967) License to be obtained. *Food Act, 2023 (1967)*, p.8.

Oracle Corporation. (2020) *MySQL* [Online]. Available from: <https://www.mysql.com/about/> [Accessed 20 May 2020].

PythonForBeginners. (2019) *PythonForBeginners* [Online]. Available from: <https://www.pythonforbeginners.com/learn-python/what-is-django/> [Accessed 28 Dec 2019].

Rouse, M. (2003) *What is MySQL? - Definition from WhatIs.com* [Online]. Available from: <https://searchoracle.techtarget.com/definition/MySQL> [Accessed 2019].

Rouse, M. (2019) *e-commerce (electronic commerce)* [Online]. Available from: <https://searchcio.techtarget.com/definition/e-commerce> [Accessed 2019].

SoftwareTestingHelp.com. (2019) *Spiral Model – What Is SDLC Spiral Model?* [Online]. Available from: <https://www.softwaretestinghelp.com/spiral-model-what-is-sdlc-spiral-model/> [Accessed 02 Jan 2020].

TechTarget. (2019) *Prototyping Model* [Online]. Available from: <https://searchcio.techtarget.com/definition/Prototyping-Model> [Accessed 28 Oct 2019].

The Indian Express. (2020) *The Indian Express* [Online]. Available from: <https://indianexpress.com/article/cities/mumbai/mumbai-fda-files-22-cases-for-adjudication-against-zomato-and-swiggy-5498158/> [Accessed 23 May 2020].

TOOLSQA.COM. (2013- 2020) *WaterFall Model* [Online]. Available from: <https://www.toolsqa.com/software-testing/waterfall-model/> [Accessed 02 Jan 2020].

tutorialspoint. (2019) *Flutter Tutorial* [Online]. Available from: <https://www.tutorialspoint.com/flutter/index.htm> [Accessed 21 December 2019].

tutorialspoint. (2019) *Laravel - Overview* [Online]. Available from: https://www.tutorialspoint.com/laravel/laravel_overview.htm [Accessed 2019].

Tutorialspoint. (2020) *tutorialspoint* [Online]. Available from: https://www.tutorialspoint.com/dart_programming/index.htm [Accessed 19 May 2020].

Wrike. (2006-2019) *What is Agile Methodology in Project Management?* [Online]. Available from: <https://www.wrike.com/project-management-guide/faq/what-is-agile-methodology-in-project-management/> [Accessed 02 Jan 2020].

7. Chapter 7: Appendix

7.1. Appendix A: Pre-survey

7.1.1. Pre-survey form

The screenshot shows a survey form titled "Food Ordering App". The introduction asks users to take time to fill the form and appreciate their opinions. It describes the app as a mobile application for ordering food online from multiple restaurants. A note indicates that fields marked with an asterisk (*) are required.

Email address *
Your email _____

Name
Your answer _____

Which smartphone do you use? *

Android
 IOS
 Windows
 Other: _____

Figure 70: Pre-survey form 1

Have you ever ordered food online? *

Yes
 No

Do you face problem finding good quality food? *

Yes
 No

How often do you go out to eat? *

Daily
 Weekly
 Monthly
 occasionally
 Never

Do you think ordering food online will make things easier for both customers and restaurants? *

Yes
 No
 Maybe

Figure 71: Pre-survey form 2

On a scale of 1 - 5, do you think ordering food online will be effective? *

1 2 3 4 5

Not Effective Effective

Do you think food waste management system (Offer food in less price during closing time) will be effective? *

Yes
 No
 Maybe

If you have any suggestions/features for improving the app please free to send feedback!

Your answer

Submit

Never submit passwords through Google Forms.

This form was created inside of Islington College. [Report Abuse](#)

Figure 72: Pre-survey form 3

7.1.2. Sample of filled Pre-survey forms

Food Ordering App

Please, take some time to fill this form.
Your opinions will be highly appreciated.

Food ordering app is a mobile application that will allow people to order food online throughout multiple restaurants.

* Required

Email address *

np01cp4a170231@islingtoncollege.edu.np

Name

Aman

Which smartphone do you use? *

Android

iOS

Windows

Other: _____

Figure 73: Sample data of Pre-survey 1

Have you ever ordered food online? *

Yes
 No

Do you face problem finding good quality food? *

Yes
 No

How often do you go out to eat? *

Daily
 Weekly
 Monthly
 occasionally
 Never

Do you think ordering food online will make things easier for both customers and restaurants? *

Yes
 No
 Maybe

Figure 74: Sample data of Pre-survey 2

On a scale of 1 - 5, do you think ordering food online will be effective? *

1 2 3 4 5

Not Effective Effective

Do you think food waste management system (Offer food in less price during closing time) will be effective? *

Yes
 No
 Maybe

If you have any suggestions/features for improving the app please feel free to send feedback!

The app will be better with promo codes.

Submit

Never submit passwords through Google Forms.

This form was created inside of Islington College. [Report Abuse](#)

Figure 75: Sample data of Pre-survey 3

7.1.3. Pre-survey Result

Which smartphone do you use?

40 responses

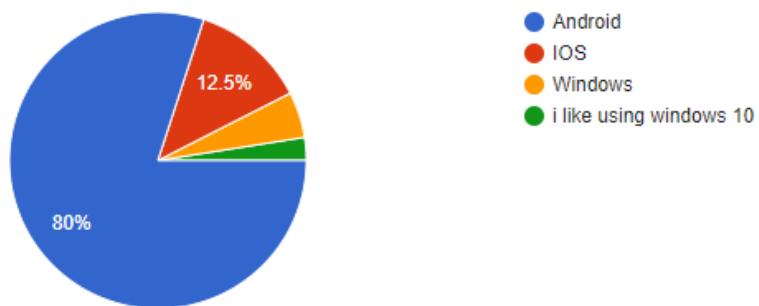


Figure 76: Pre-Survey 1

Have you ever ordered food online?

40 responses

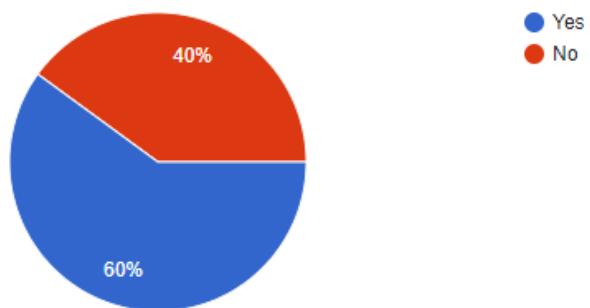


Figure 77: Pre-Survey 2

Do you face problem finding good quality food?

40 responses

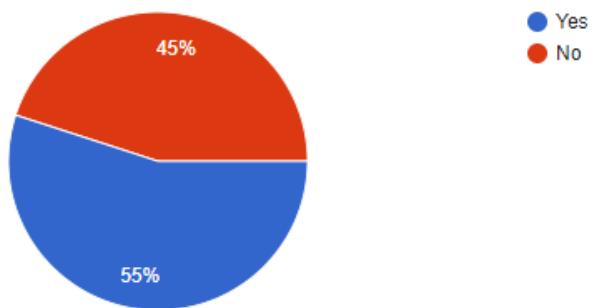


Figure 78: Pre-Survey 3

How often do you go out to eat?

40 responses

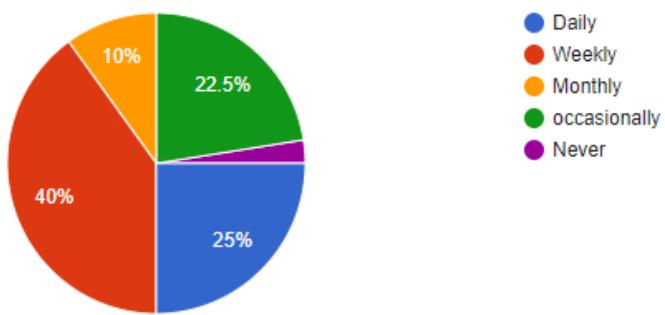


Figure 79: Pre-Survey 4

Do you think ordering food online will make things easier for both customers and restaurants?

40 responses

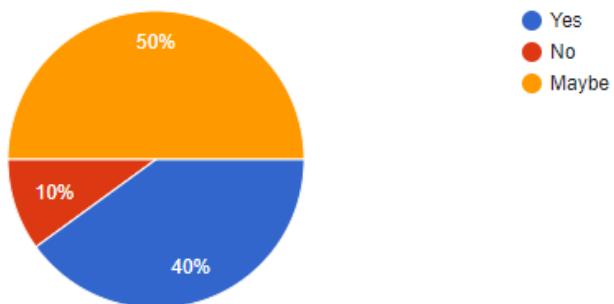


Figure 80: Pre-Survey 5

On a scale of 1 - 5, do you think ordering food online will be effective?

40 responses

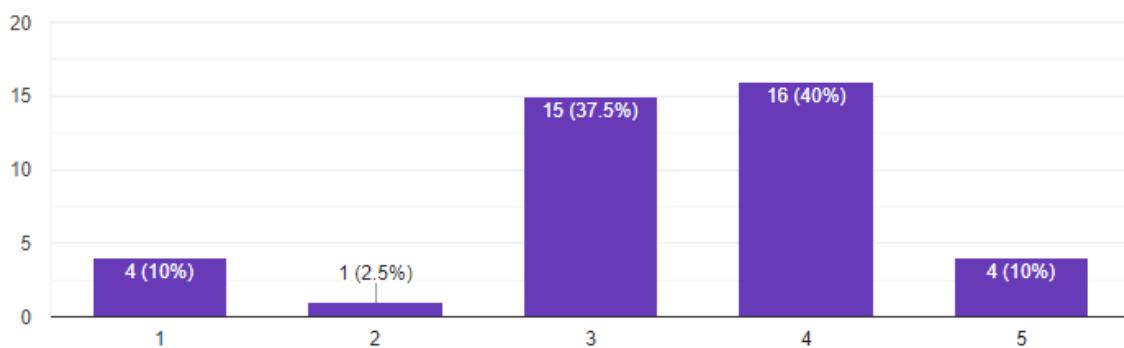


Figure 81: Pre-Survey 6

Do you think food waste management system (Offer food in less price during closing time) will be effective?

40 responses

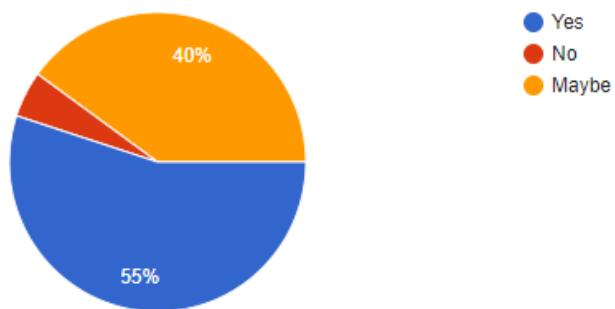


Figure 82: Pre-Survey 7

7.2. APPENDIX B: POST-SURVEY

7.2.1. Post-survey form

User Feedback

Please, take some time to fill this form.
Your opinions will be highly appreciated.

Food ordering app is a mobile application that will allow people to order food online throughout multiple restaurants.

* Required

Email address *

Your email

Name

Your answer

Would you be interested in using the food ordering application? *

Yes

No

Figure 83: Post-survey form 1

Would you be interested in using the food ordering application? *

Yes
 No

which platform do you think food application will be efficient on *

Mobile Application
 Website
 Both Mobile Application and Website
 Other: _____

Do you want the toppings selection feature in the application ? *

Yes
 No

Figure 84: Post-survey form 2

Would you like to order the food for next day or two in advance? *

Yes
 No
 Maybe

What do you look in the food application *

User Friendly UI
 Creative
 Attractive
 Functionality
 All of above

Do you think mobile app will be more efficient than Website? *

Yes
 No
 Maybe

Figure 85: Post-survey form 3

How likely would you recommend the application to a friend or colleague? *

1 2 3 4 5

Not at all Definitely

Do you like the features in the Application? *

Yes
 No

Did you find easy to order food from the system? *

Yes
 No

How easy/complex do you think the application is? *

1 2 3 4 5

Easy to use Difficult to use

Figure 86: Post-survey form 4

Would you contact us if you face any problem in the system? *

Yes

No

Maybe

Submit

Never submit passwords through Google Forms.

Figure 87: Post-survey form 5

7.2.2. Sample of filled Post-survey forms

User Feedback

Please, take some time to fill this form.
Your opinions will be highly appreciated.

Food ordering app is a mobile application that will allow people to order food online throughout multiple restaurants.

* Required

Email address *

Amanmaharjan2056@gmail.com

Name

Aman

Would you be interested in using the food ordering application? *

Yes

No

Figure 88: Sample data of Post-survey form 1

which platform do you think food application will be efficient on *

Mobile Application
 Website
 Both Mobile Application and Website
 Other: _____

Do you want the toppings selection feature in the application ? *

Yes
 No

Would you like to order the food for next day or two in advance? *

Yes
 No
 Maybe

Figure 89: Sample data of Post-survey form 2

What do you look in the food application *

User Friendly UI
 Creative
 Attractive
 Functionality
 All of above

Do you think mobile app will be more efficient than Website? *

Yes
 No
 Maybe

How likely would you recommend the application to a friend or colleague? *

1 2 3 4 5

Not at all Definitely

Figure 90: Sample data of Post-survey form 3

Do you like the features in the Application? *

Yes
 No

Did you find easy to order food from the system? *

Yes
 No

How easy/complex do you think the application is? *

1 2 3 4 5

Easy to use Difficult to use

Would you contact us if you face any problem in the system? *

Yes
 No
 Maybe

Submit

Figure 91: Sample data of Post-survey form 4

7.2.3. Post-survey result



Figure 92: Post-Survey 1

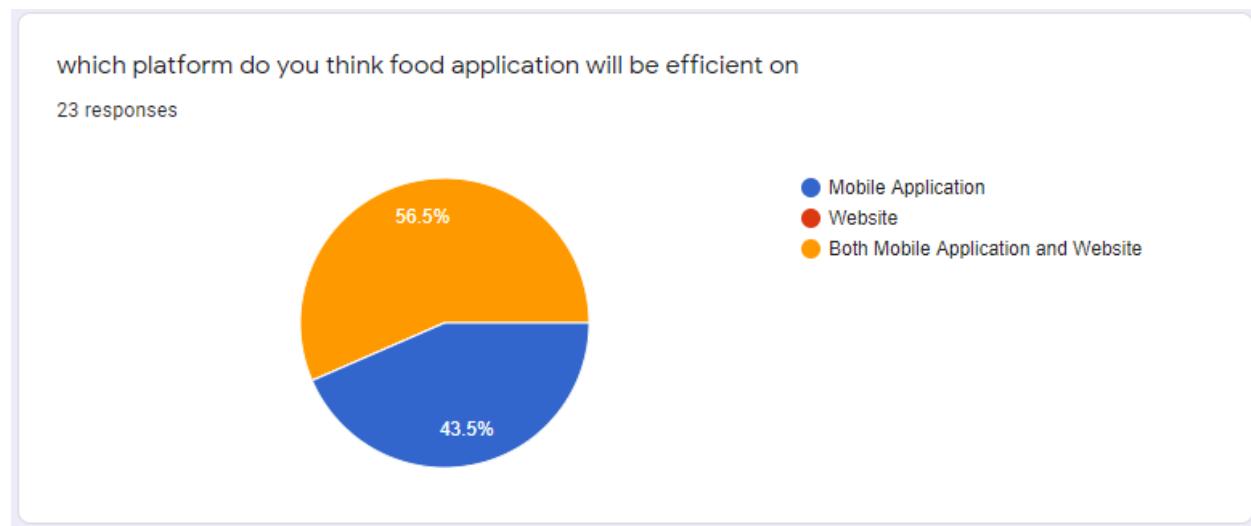


Figure 93: Post-Survey 2

Do you want the toppings selection feature in the application ?

23 responses

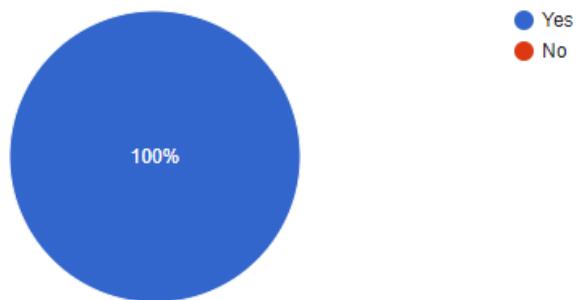


Figure 94: Post-Survey 3

Would you like to order the food for next day or two in advance?

23 responses

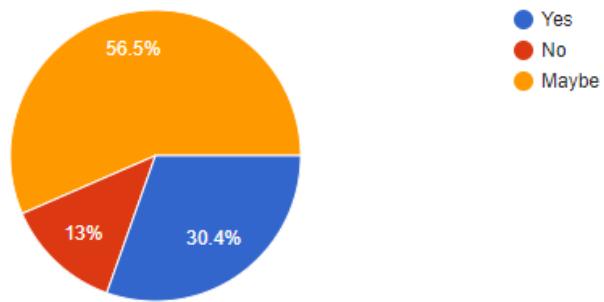


Figure 95: Post-Survey 4

What do you look in the food application

23 responses

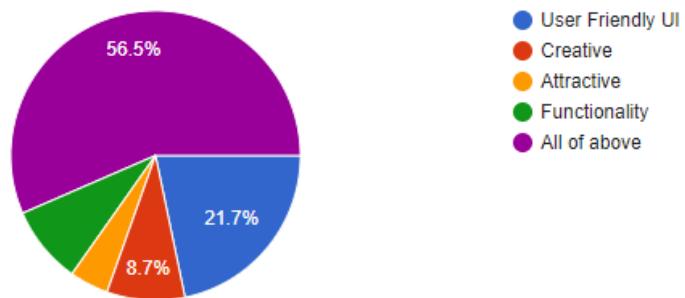


Figure 96: Post-Survey 5

Do you think mobile app will be more efficient than Website?

23 responses

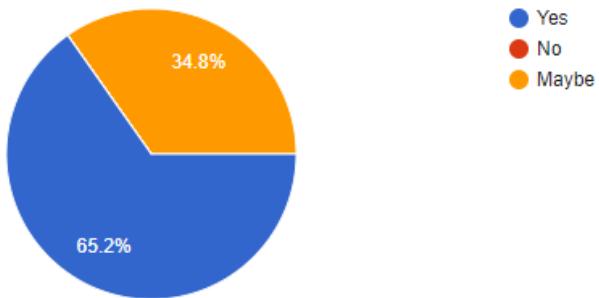


Figure 97: Post-Survey 6

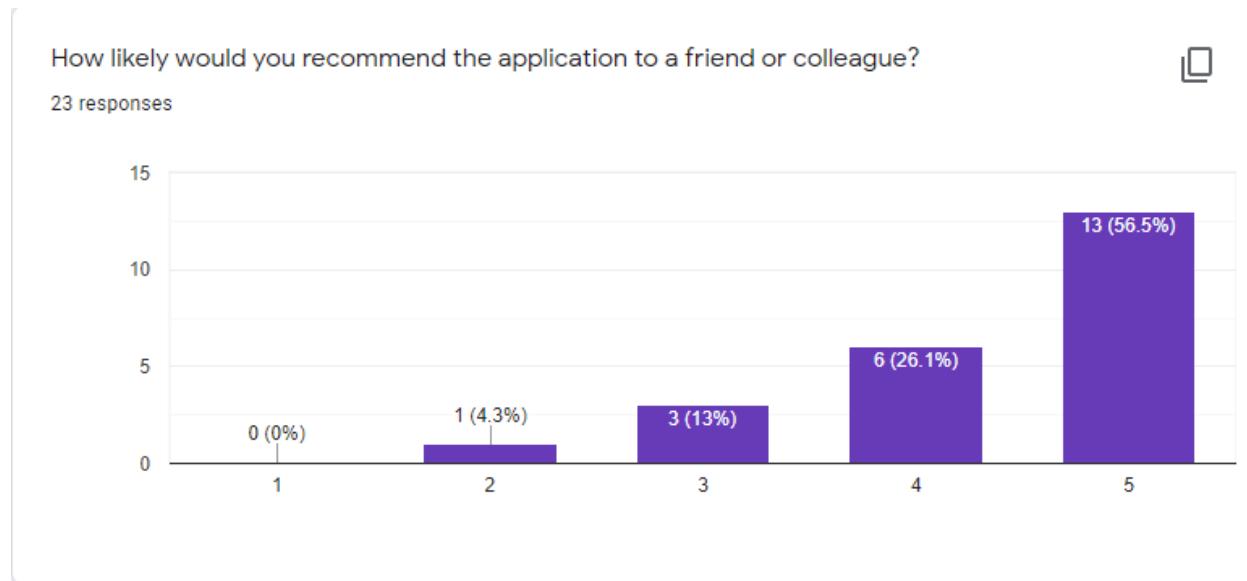


Figure 98: Post-Survey 7

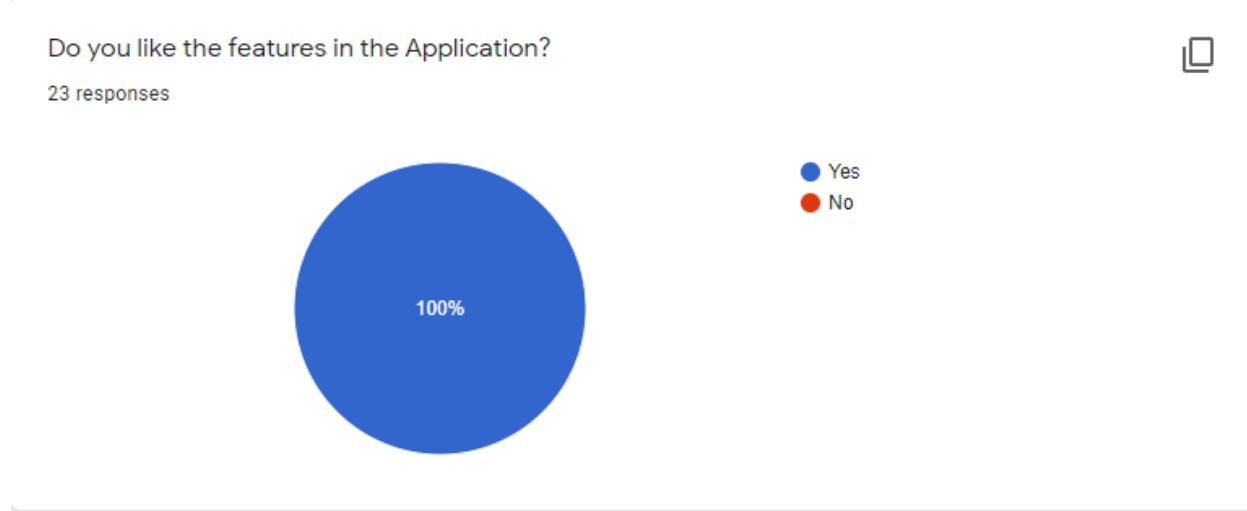


Figure 99: Post-Survey 8

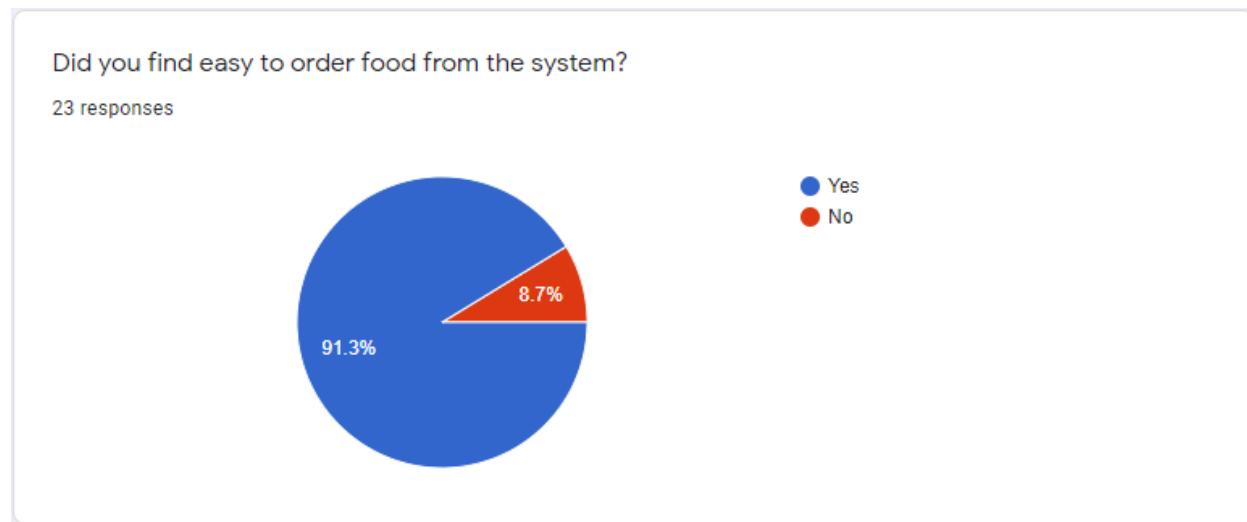


Figure 100: Post-Survey 9

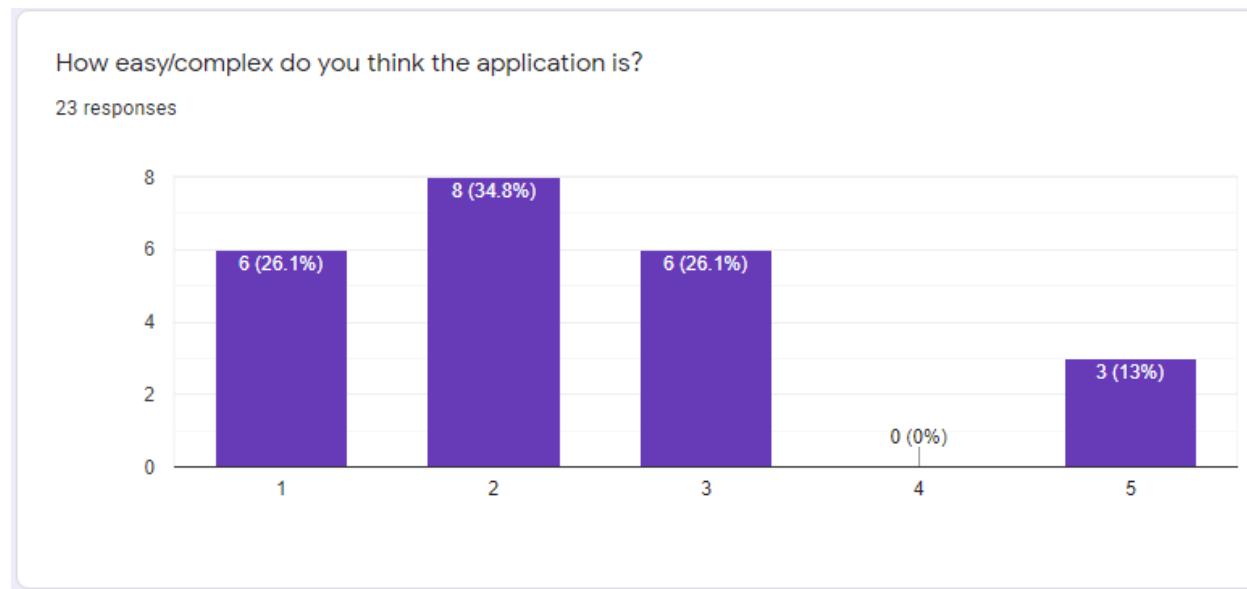


Figure 101: Post-Survey 10

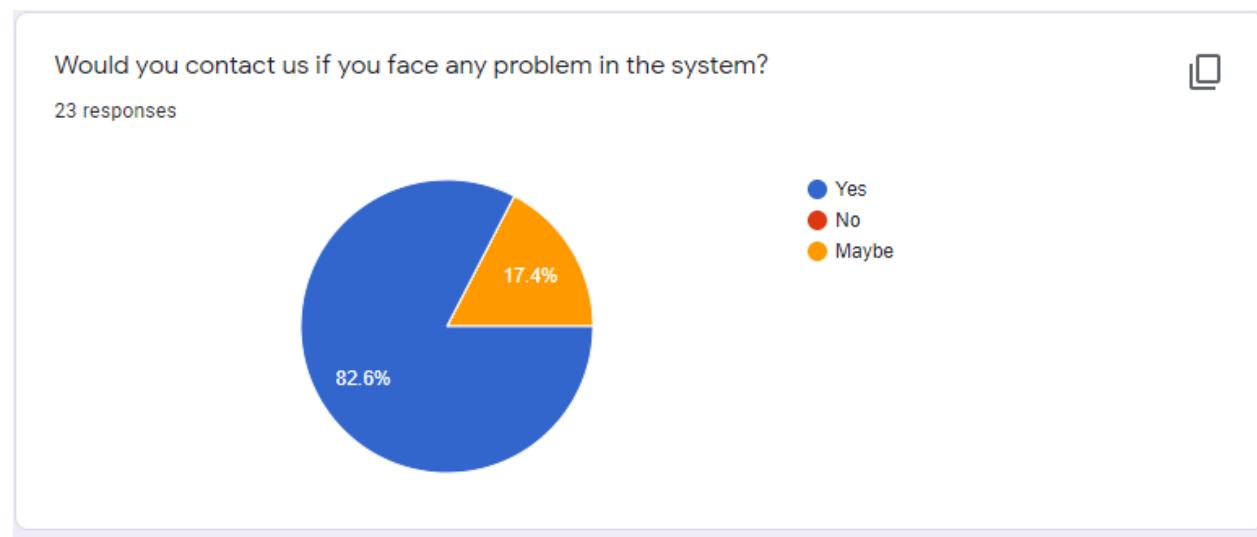


Figure 102: Post-Survey 11

7.3. Appendix C: Sample Code

7.3.1. Sample code of the UI

Drawer

```
import 'package:flutter/material.dart';
import 'package:fyp_version_1/src/screens/main/homepage.dart';
import 'package:fyp_version_1/src/screens/main/cart.dart';
import 'package:fyp_version_1/src/screens/main/history.dart';
import 'package:fyp_version_1/src/screens/main/myAccount.dart';
import 'package:fyp_version_1/src/screens/main/terms.dart';

class DrawerExtend extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Drawer(
      child: ListView(
        children: <Widget>[
          // user details
          UserAccountsDrawerHeader(
            accountName: Text('Aman Maharjan'),
            accountEmail: Text('amanmaharjan@gmail.com'),
            currentAccountPicture: GestureDetector(
              child: CircleAvatar(
                backgroundImage: AssetImage("Assets/images/profile.jpg"),
              ),
            ),
            ),
            ),
            // home
            InkWell(
              child: ListTile(
                title: Text('Home'),
                leading: Icon(Icons.home),
              ),
              onTap: () {
                Navigator.push(context,
                  MaterialPageRoute(builder: (context) => new Homepage()));
              },
            ),
            //My Account
            InkWell(
              child: ListTile(
                title: Text('My Account'),
```

```
        leading: Icon(Icons.person),
    ),
    onTap: () {
        Navigator.push(context,
            MaterialPageRoute(builder: (context) => new ProfileScreen()));
    },
),
//My orders
InkWell(
    child: ListTile(
        title: Text('History'),
        leading: Icon(Icons.shopping_basket),
    ),
    onTap: () {
        Navigator.push(context,
            MaterialPageRoute(builder: (context) => new HistoryScreen()));
    },
),
//Shopping Cart
InkWell(
    child: ListTile(
        title: Text('Shopping Cart'),
        leading: Icon(Icons.shopping_cart),
    ),
    onTap: () {
        Navigator.push(
            context, MaterialPageRoute(builder: (context) => new Cart()));
    },
),
Divider(),
//Terms and Condition
InkWell(
    child: ListTile(
        title: Text('Terms & Conditions'),
        leading: Icon(Icons.insert_drive_file),
    ),
    onTap: () {
        Navigator.push(context,
            MaterialPageRoute(builder: (context) => new Terms()));
    },
),
//Logout
InkWell(
    child: ListTile(
        title: Text('Logout'),
```

```
        leading: Icon(Icons.exit_to_app),
    ),
    onTap: () {
        // async {
        //   await _auth.signOut();
        // },
    }

    showDialog(
        context: context,
        child: AlertDialog(
            title: Text('Are You sure you want to log out?'),
            actions: <Widget>[
                FlatButton(
                    onPressed: () {
                        Navigator.of(context).pop(false);
                    },
                    child: Text('Yes, Log Out'),
                ),
                FlatButton(
                    onPressed: () {
                        Navigator.of(context).pop(false);
                    },
                    child: Text('Cancel'),
                ),
            ],
        ),
    );
},
),
],
),
);
}
}
```

Register

```
import 'dart:convert';
import 'package:flutter/material.dart';
import 'package:fyp_version_1/src/mixins/validation_mixin.dart';
import 'package:fyp_version_1/api.dart';
//import 'package:fyp_version_1/src/screens/main/homePage.dart';
```

```
class Signup extends StatefulWidget {
    createState() {
        return SignupState();
    }
}

class SignupState extends State<Signup> with ValidationMixin {
    //get all the methods from validateMixin

    final GlobalKey<FormState> formKey = GlobalKey<FormState>(); //gain access on form widget
    final TextEditingController passwordController =
        TextEditingController(); //to get access of password field value
    String email = '';
    String password = '';
    String name = '';
    String mobileNumber = '';

    bool _isLoading = false;

    Widget build(context) {
        return Scaffold(
            body: Container(
                margin: EdgeInsets.all(20.0),
                child: SingleChildScrollView(
                    child: Form(
                        key: formKey,
                        child: Column(
                            children: [
                                Container(margin: EdgeInsets.only(top: 50.0)),
                                nameField(),
                                Container(margin: EdgeInsets.only(top: 25.0)),
                                emailField(),
                                Container(margin: EdgeInsets.only(top: 25.0)),
                                numberField(),
                                Container(margin: EdgeInsets.only(top: 25.0)),
                                passwordField(),
                                Container(margin: EdgeInsets.only(top: 25.0)),
                                confirmPasswordField(),
                                Container(margin: EdgeInsets.only(top: 25.0)),
                                submitButton(),
                            ],
                        ),
                    ),
                ),
            ),
        );
    }
}
```

```
        ),
    );
}

Widget nameField() {
    return TextFormField(
        decoration: InputDecoration(
            border: OutlineInputBorder(),
            labelText: 'Name',
            hintText: 'Adam Levine',
        ),
        validator: (String value) {
            if (value.isEmpty)
                return 'Name can not be empty.';
            else
                return null;
        },
        onSaved: (String value) {
            name = value;
        },
    );
}

Widget emailField() {
    return TextFormField(
        decoration: InputDecoration(
            border: OutlineInputBorder(),
            labelText: 'Email',
            hintText: 'you@example.com',
        ),
        keyboardType: TextInputType.emailAddress,
        validator: validateEmail,
        onSaved: (String value) {
            email = value;
        },
    );
}

Widget numberField() {
    return TextFormField(
        decoration: InputDecoration(
            border: OutlineInputBorder(),
            labelText: 'Mobile Number',
            hintText: '9841000000',
        ),
    );
}
```

```
        validator: validateNumber,
        onSaved: (String value) {
            mobileNumber = value;
        },
    );
}

Widget passwordField() {
    return TextFormField(
        obscureText: true,
        decoration: InputDecoration(
            border: OutlineInputBorder(),
            labelText: 'Password',
            hintText: '*****',
        ),
        controller: passwordController,
        validator: validatePassword,
        onSaved: (String value) {
            password = value;
        },
    );
}

Widget confirmPasswordField() {
    return TextFormField(
        obscureText: true,
        decoration: InputDecoration(
            border: OutlineInputBorder(),
            labelText: 'Confirm Password',
            hintText: '*****',
        ),
        validator: (String value) {
            if (passwordController.text != value)
                return 'Password does not match';
            else
                return null;
        },
        onSaved: (String value) {
            password = value;
        },
    );
}

// Widget termsandconditionsButton(){
//     return SwitchListTile(
```

```

//      value: _formData['Accept Terms and Conitions'],
//      onChanged: (bool value) {
//          setState(() {
//              _formData['Accept Terms and Conitions'] = value;
//          });
//      },
//  )
// }

Widget submittButton() {
    return ButtonTheme(
        minWidth: MediaQuery.of(context).size.width,
        height: 60.0,
        shape: RoundedRectangleBorder(
            borderRadius: BorderRadius.circular(15.0),
        ),
        child: RaisedButton(
            //color: Colors.red,
            color: Color.fromRGBO(255, 45, 85, 1),
            textColor: Colors.white,
            child: Text(
                _isLoading ? 'Creating...' : 'Signup',
                style: TextStyle(
                    fontSize: 20,
                    fontWeight: FontWeight.bold,
                ),
            ),
            onPressed: _isLoading ? null : _handleSignup
        // () {
        //     if (formKey.currentState.validate()) {
        //         //only saves if valid
        //         formKey.currentState.save();
        //         print(formKey.toString());
        //     }
        // }
        // showDialog(
        //     context: context,
        //     child: AlertDialog(
        //         title: Text('Alert'),
        //         content: Text('Registration Successful'),
        //         actions: <Widget>[
        //             FlatButton(
        //                 onPressed: () {
        //                     Navigator.of(context).pop(false);
        //                 },
        //             ),
        //         ],
        //     ),
    );
}

```

```

        //           child: Text('OK'),
        //           )
        //           ],
        //           ),
        //           );
        //           },
        //           ),
        //           ),
        //           );
      });

void _handleSignup() async{
  setState(() {
    _isLoading = true;
  });

  var data = {
    'name' : name,
    'email' : email,
    'password' : password,
    'mobileNumber' : mobileNumber,
  };

  var res = await CallApi().postData(data, 'register');
  var body = json.decode(res.body);
  print(body);

  showDialog(
    context: context,
    child: AlertDialog(
      title: Text('Alert'),
      content: Text('Registration Successful'),
      actions: <Widget>[
        FlatButton(
          onPressed: () {
            Navigator.of(context).pop(false);
          },
          child: Text('OK'),
        )
      ],
    ),
  );
  // Navigator.push(
  //   context,
  //   new MaterialPageRoute(builder: (context) => Homepage()),
  // );
}

```

```
    }  
}
```

Home Page

```
import 'package:flutter/material.dart';  
import 'package:fyp_version_1/src/shared/drawer.dart';  
import 'package:fyp_version_1/src/components/imageCarousel.dart';  
import 'package:fyp_version_1/src/components/categories.dart';  
import 'package:fyp_version_1/src/components/dishes.dart';  
import 'package:fyp_version_1/src/components/restaurants.dart';  
import 'package:fyp_version_1/src/screens/main/cart.dart';  
  
//import 'package:http/http.dart' as http;  
//import 'dart:convert';  
  
class Homepage extends StatefulWidget {  
    @override  
    _HomepageState createState() => _HomepageState();  
}  
  
class _HomepageState extends State<Homepage> {  
    TextEditingController _searchController = TextEditingController();  
  
    @override  
    Widget build(BuildContext context) {  
        return MaterialApp(  
            title: 'Food App',  
            debugShowCheckedModeBanner: false,  
            theme: ThemeData(  
                primaryColor: Color.fromRGBO(255, 45, 85, 1),  
                accentColor: Color.fromRGBO(3, 150, 30, 1),  
            ),  
            home: Scaffold(  
                resizeToAvoidBottomInset: false,  
                appBar: AppBar(  
                    title: Material(  
                        borderRadius: BorderRadius.circular(30.0),  
                        color: Color.fromRGBO(0, 0, 0, 0.01),  
                        elevation: 0.2,  
                        child: TextFormField(  
                            controller: _searchController,
```



```
CategoriesList(),  
  
//=====Dishes=====  
Padding(  
    padding: EdgeInsets.only(  
        top: 30.0,  
        bottom: 10.0,  
        left: 10.0,  
        right: 10.0,  
    ),  
    child: Text(  
        'Hot Deals',  
        style: TextStyle(  
            fontSize: 15.0,  
            fontStyle: FontStyle.italic,  
            color: Color.fromRGBO(255, 45, 85, 1),  
        ),  
    ),  
,  
),  
Container(  
    height: 130.0,  
    child: Dishes(),  
,  
  
//=====Restaurants=====  
Padding(  
    padding: EdgeInsets.only(  
        top: 30.0,  
        bottom: 10.0,  
        left: 10.0,  
        right: 10.0,  
    ),  
    child: Text(  
        'Restaurants',  
        style: TextStyle(  
            fontSize: 15.0,  
            fontStyle: FontStyle.italic,  
            color: Color.fromRGBO(255, 45, 85, 1),  
        ),  
    ),  
,  
),  
Container(  
    height: 180.0,  
    child: Restaurants(),  
,
```

```
        ],
    ),
    //side navagation
    drawer: DrawerExtend(),
),
);
}

// getData() async {
//   var url = 'http://192.168.0.103/';
//   http.Response response = await http.get(url);
//   var data = jsonDecode(response.body);
//   print(data.toString());
// }

// Future getData() async{
//   var url = 'http://0.0.0.0:8000/';
//   http.Response response = await http.get(url);
//   var data = jsonDecode(response.body);
//   print(data.toString());
// }

// @override
// void initState(){
//   getData();
// }

}
```

7.4. Appendix D: Designs

7.4.1. Gantt chart

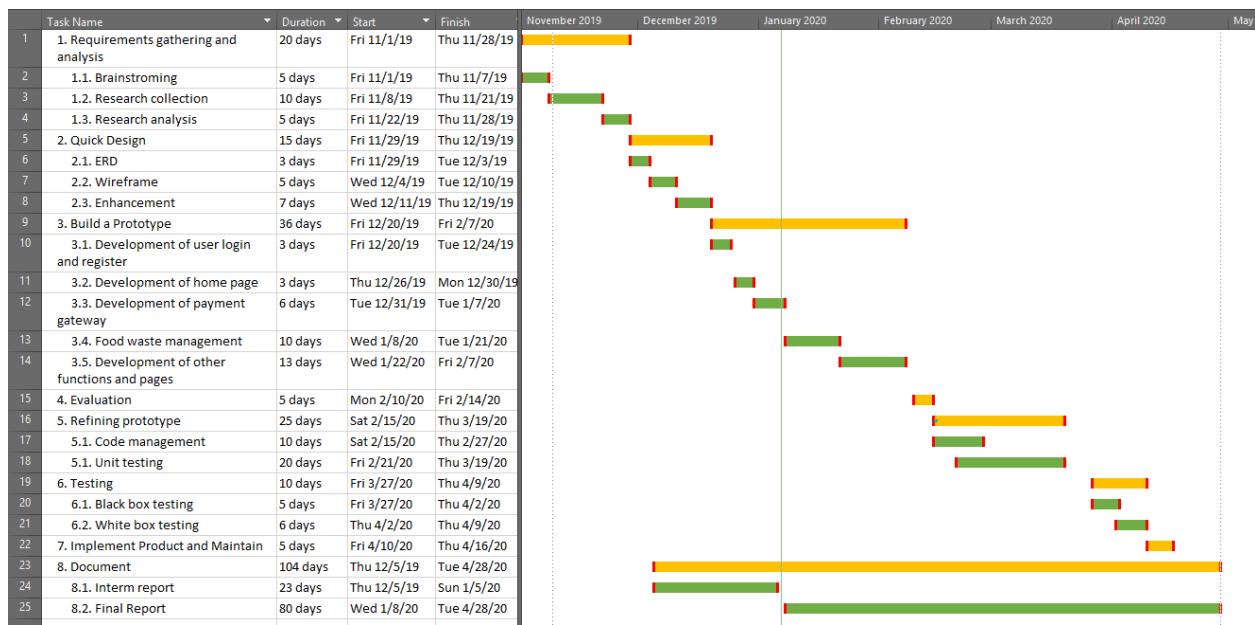


Figure 103: Gantt chart

7.4.2. Work breakdown structure

7.4.3. Use case

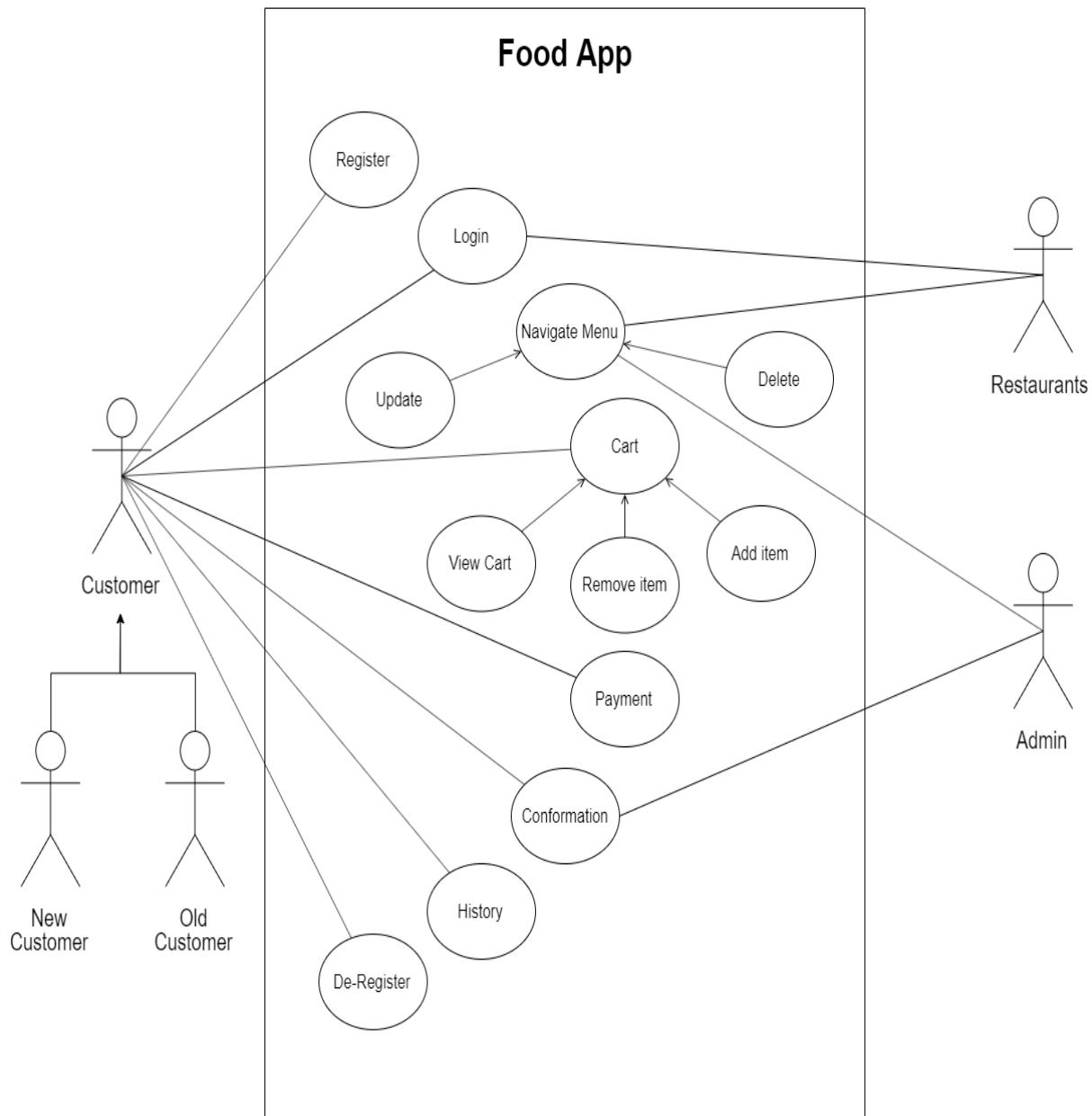


Figure 104: Use case

7.4.4. Wireframe

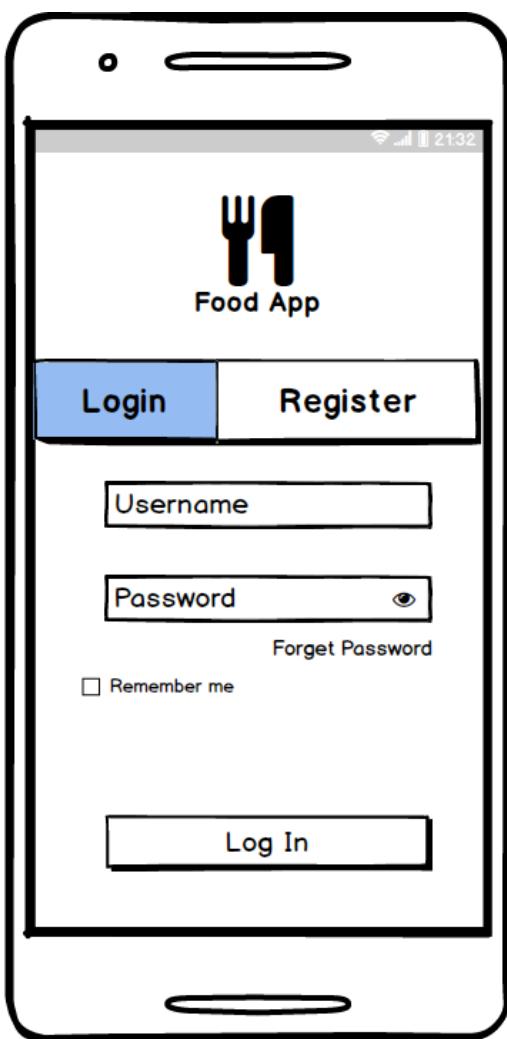


Figure 105: front page wireframe

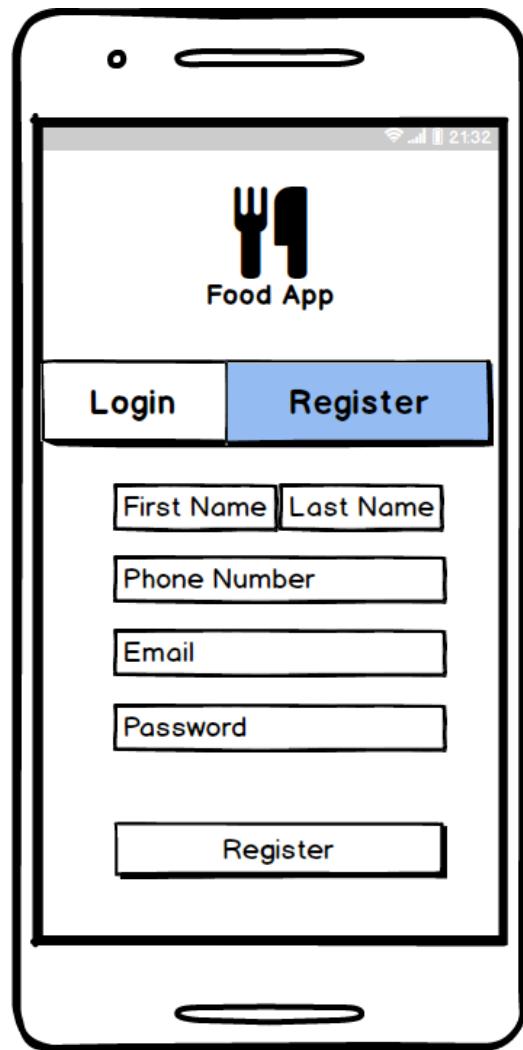


Figure 106: Register page wireframe

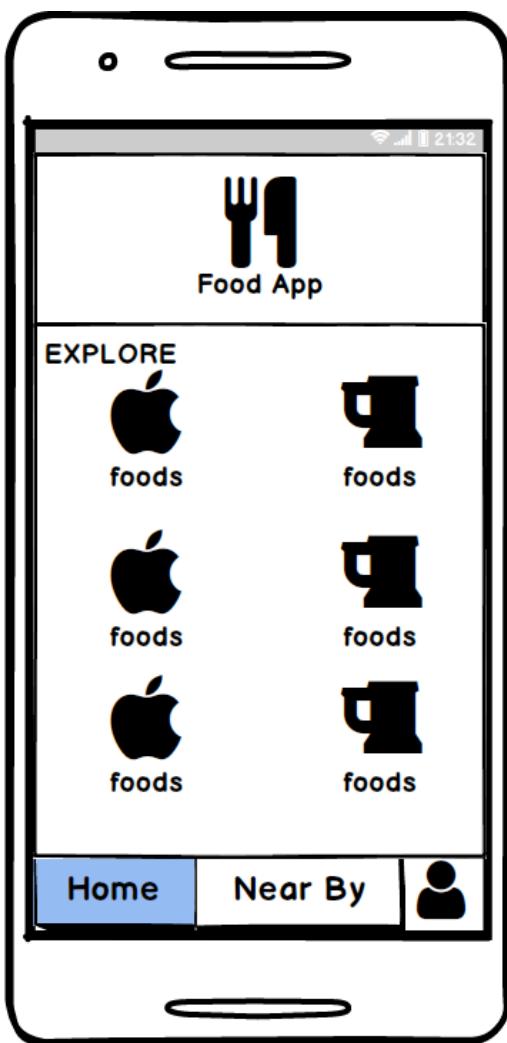


Figure 107: Home page wireframe

Figure 108: Nearby wireframe

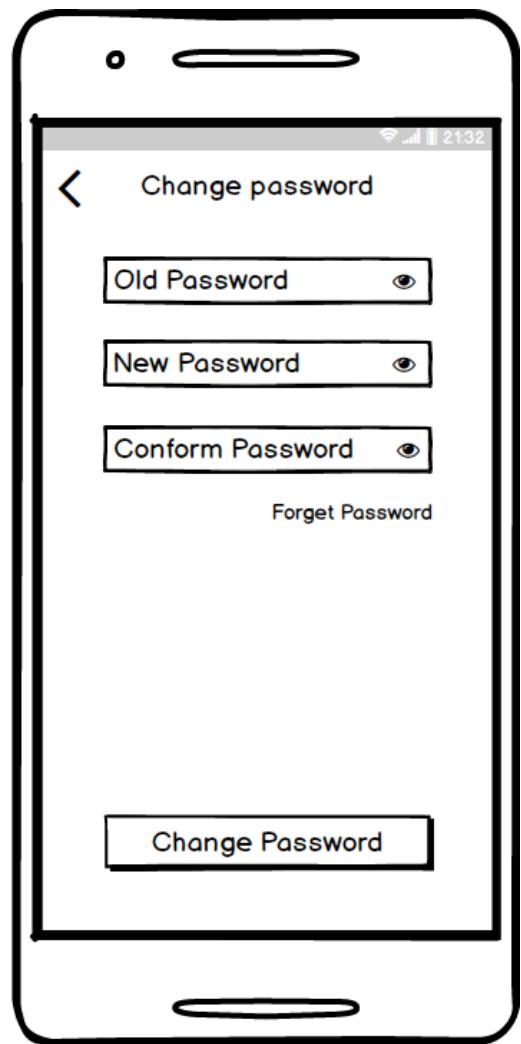
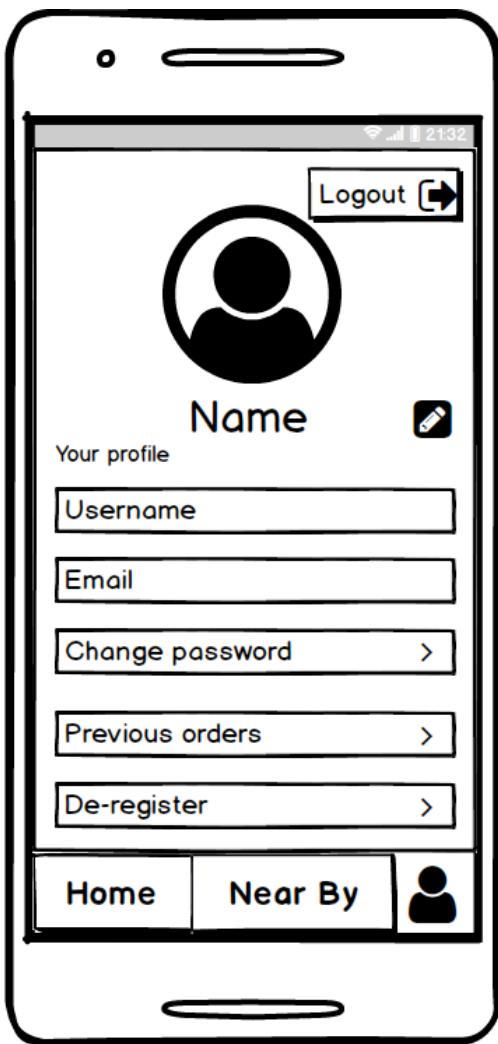


Figure 109: user dashboard wireframe

Figure 110: Change password wireframe



Figure 111: De-activate wireframe

Figure 112: Logout wireframe

7.5. Appendix E: screenshots of the system

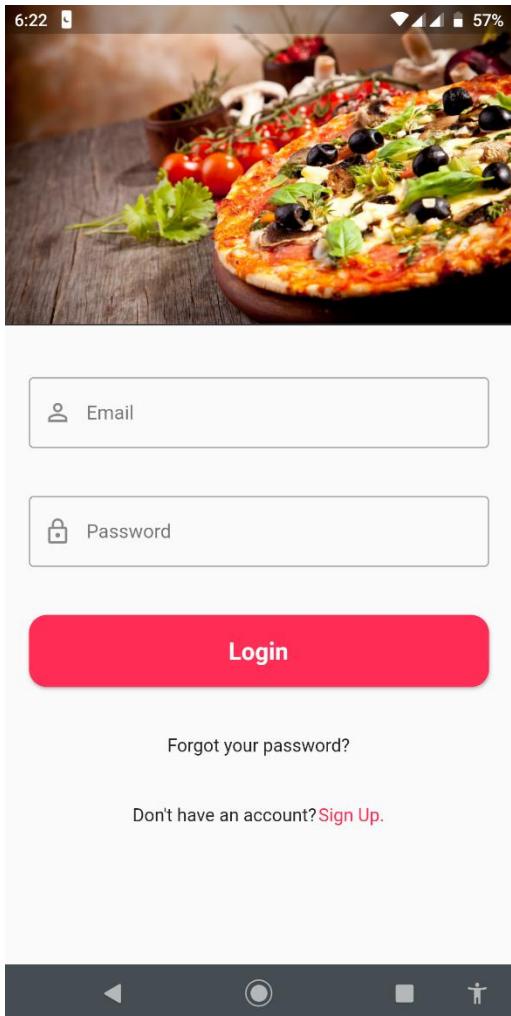


Figure 113: Signup page

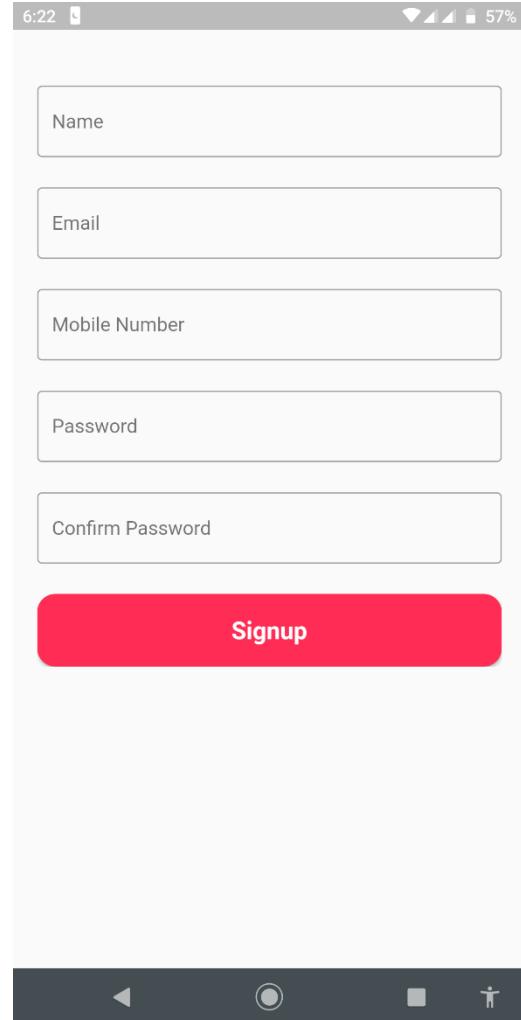


Figure 114: Signup page

This screenshot shows a mobile application's signup screen. It features five input fields with red borders and error messages below them:

- Name:** A text input field with the placeholder "Name". Below it is the error message "Name can not be empty."
- Email:** A text input field with the placeholder "Email". Below it is the error message "Invalid Email ID".
- Mobile Number:** A text input field with the placeholder "Mobile Number". Below it is the error message "Enter Valid Phone Number".
- Password:** A text input field with the placeholder "Password" and a blue border. Below it is a placeholder "....".
- Confirm Password:** A text input field with the placeholder "Confirm Password". Below it is the error message "Password does not match".

A large red button at the bottom is labeled "Signup".

Figure 115: Signup validation

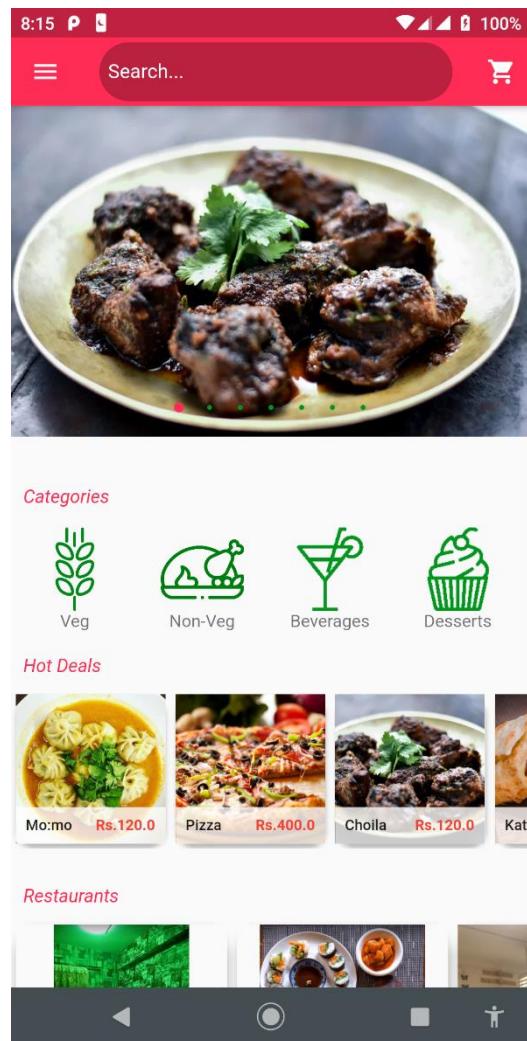


Figure 116: Home page

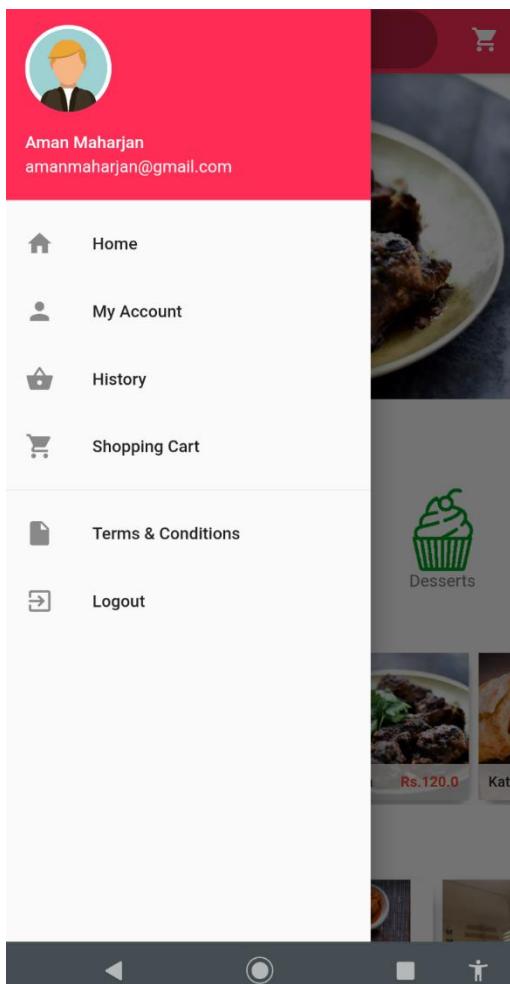


Figure 117: Dashboard

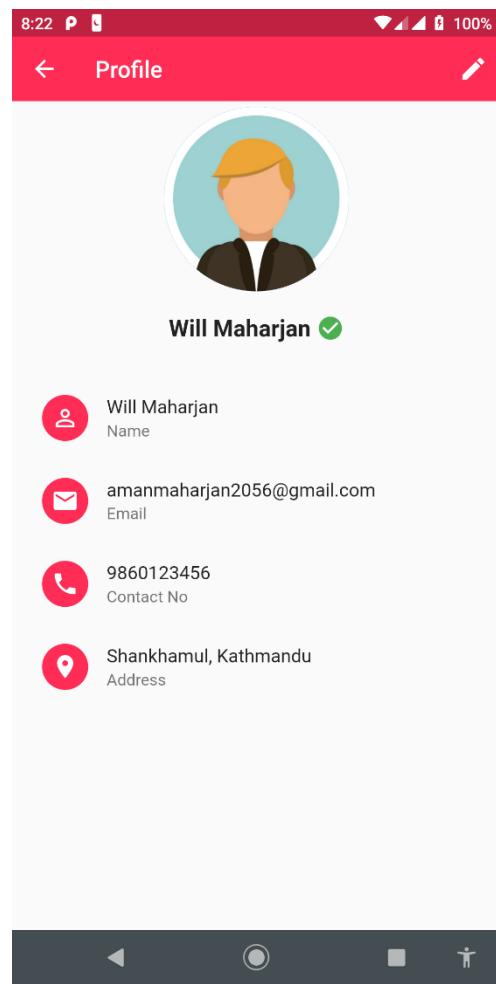


Figure 118: My Account

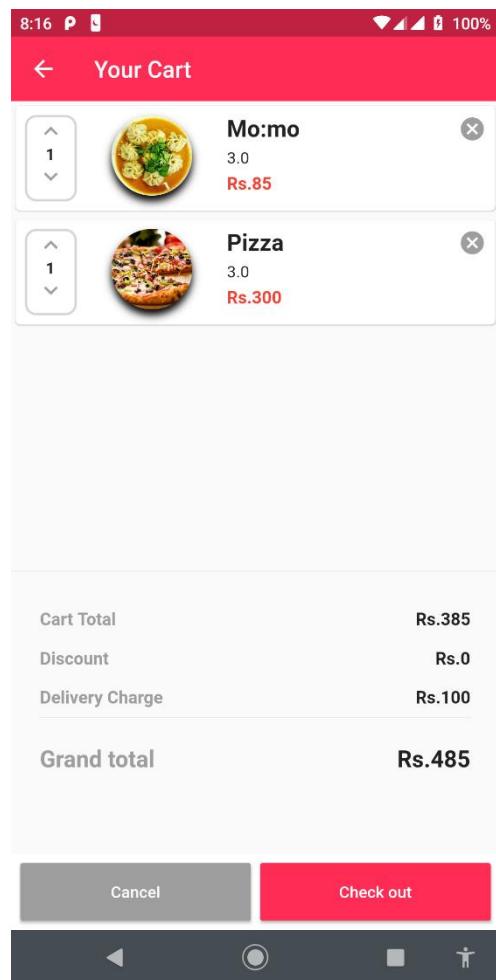
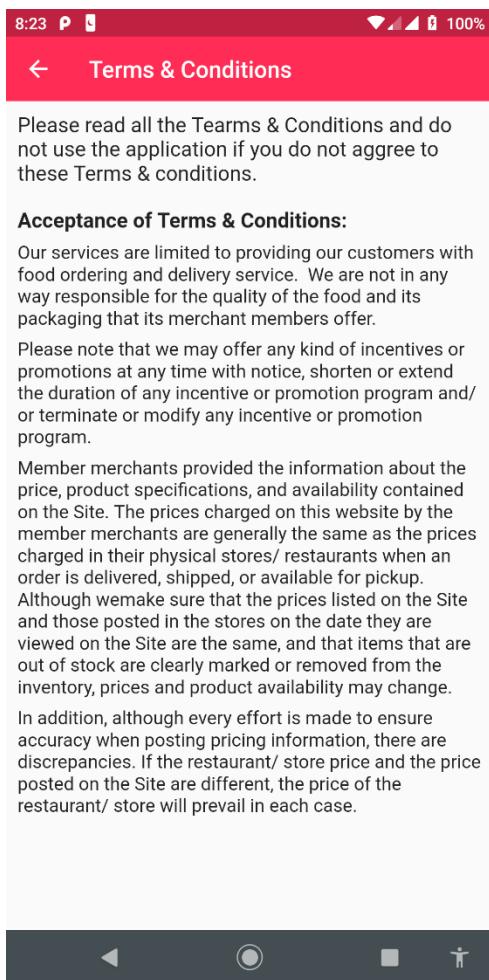


Figure 119: Terms and condition

Figure 120: Cart