ANNADATA

CONNECTING PEOPLE TO PEOPLE

A Second Year Project Report
Submitted to the Faculty
of the
Bennett University

By

Daksh Jain (E19CSE121)
Mihir Sirpaul (E19CSE217)
Sidharth Mittal (E19CSE411)
Vivan Singh Chouhan (E19CSE249)

Department of Computer Science Engineering November 2019
Greater Noida-201310, Uttar Pradesh, India

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

In the current scenario, fruits & vegetables arrive at the market through a manual calling system or agents. The farmers have to contact the cold storage/warehouse people through an agent to sell their fruit & vegetables. The agent contacts the carriers so that they can transport fruits & vegetables. Through this process, the farmer is able to connect with the cold storage/warehouse. Furthermore, for selling fruits & vegetables through agents, the cold storage/warehouses people also have to contact the wholesaler (aadat), they have to contact the retailers and finally the resident.

So, rather than reaching the agents, the farmer/cold storage/warehouse/wholesaler/ retailer can legitimately interface with everyone on a platform according to their purchasing ability and thus, The process can run smoothly by transporters. We aim to make interlink between all the people who made this process successful from farmers to the residents through an android app using the flutter framework. So to make this possible we have implemented an app using flutter framework and a website through mern stack.

1.1. Problem Statement

In the present time what happens is that the fruits & vegetables arrive at the market through a manual calling system or agents. The farmers have to contact the cold storage/warehouse people through an agent to sell their fruit & vegetables. The agent contacts the carriers so that they can transport fruits & vegetables. Through this process, the farmer is able to connect with the cold storage/warehouse. Furthermore, for selling fruits & vegetables through agents, the cold storage/warehouses people also have to contact the wholesaler (aadat), they have to contact the retailers and finally the resident.

2. BACKGROUND RESEARCH

After researching the pre-existing startups like Kisan Network, Farmers Fresh one, AgriBazaar, they all aim to bring together all the stakeholders like residents, carriers, and packaging partners on one platform.

Kisan Network- Aditya with his father started a startup in 2015. The startup aims to bring together all the stakeholders like residents, carriers, and packaging partners on one platform. They have built a platform on which 50000 farmers are registered over 6000 villages in multiple states of India.

https://yourstory.com/2020/01/agritech-startup-kisan-network-indian-farmers-tech-supply-chain

Farmers Fresh Zone- Pradeep started his startup in 2015. He created an online marketplace connecting farmers directly to the customers.

https://yourstory.com/2019/12/startup-bharat-farmersfz-agritech-organic-produce-ecommerce?utm_pageloadtype=scroll

AgriBazaar- When a farmer registers himself on their platform and uploads the data of his produce. The buyers place orders for the purchase according to their demand. Once the order is confirmed, they facilitate the picking up of produce from the farmer and then delivering it to the residents.

https://yourstory.com/2020/07/agritech-startups-empowering-farmers-coronavirus

But all these startups have taken the job of all the middlemen like cold storage and warehouse people, wholesaler and retailer. By studying these projects they cut out the jobs of a lot of people while we plan to democratize it. This way all the jobs will be democratized and the job of people will not go. The sellers can register themselves about the price, quantity and variety of fruit or vegetable they are selling. The buyers can select the quantity of a specific fruit or vegetable they want to buy. If they are ready to buy at the price of any sellers from the number of preferences, then the order will be placed. The buyer will then select his location and connect to the transporter. This is how the process will be successfully completed.

2)We personally contacted some wholesalers regarding the same issue. They said that due to lack of communication between the people on each level they are not receiving fruits & vegetables, and the demand of people is increasing which result in the increase of prices. We discussed with them on all the issues, and we aim to resolve all the issues which they are facing.

3) After consulting the ideas with the people currently in Industry and Product based companies, we got to know their perspectives too. They suggested that we use more effective software for the development of apps. They recommended us to add some great features which will help users to easily use the app. We aim to add all those features so that the application can be more user-friendly.

4) After doing some research, we got to know that machine learning can help us a lot for making this application a great app. After reaching out to multiple peoples, we aim to add a feature so that a user can decide from which place he should buy, where he will get better quality and pricing. They will be also able to track the delivery of their items.

2.1. **Proposed System**

In the existing system, residents buy fruits & vegetables either from retailers or through online preexisting startups like Big basket. As the farmers are not able to contact cold storage people very easily without hiring any agents, this results in the spoilage of fruits & vegetables. According to the research I have done, in most of the current startups, residents receive fruits & vegetables directly from farmers. As many of the residents go to their local market to buy the best quality of fruits & vegetables, they don't prefer to deliver at their homes too.

So, to overcome this problem and create more job opportunities, we aim to make an android application which connects all the people from farmers to residents. We aim to democratize the jobs rather than cutting them. So, the farmer/cold storage/warehouse/wholesaler/retailer can connect with everyone on one platform. According to the demand of the market, each one of them can order without wasting any sort of time.

2.2. Goals and Objectives

So, basically our first goal was to complete our courses that we have assigned to ourself so that we would be comfortable with our developing platforms.The courses are:-

1) https://www.udemy.com/course/learn-flutter-dart-to-build-ios-android-apps/
2) https://www.udemy.com/course/flutter-bootcamp-with-dart/
3) https://www.linkedin.com/learning/paths/become-a-web-developer

Then our second goal is design a mockup frontend UI(Registration, Login, Welcome Screens) and also to implement it successfully as per the design. Then after successful implementation of frontend UI we have to implement users Authentication which we have planned to be done through Google Firebase/MongoDb.After successful Authentication our goal is to implement the home page,buy page , selling page,add to cart or profile page. So these are our main goals of our project which we wanted to be done.

Table 1: Goal and Objectives

#	Goal or Objective
1	Make the app work on both platforms,on IOS and Android.
2	Our Website should be implemented successfully and should be fully functional.
3	Our UI should be very user friendly so that the users should be able to understand the app and the website without any problem.
4	Build a prototype that demonstrates the user interface by end of september 2020- in order to get early feedback from the potential users.
5	Should be able to understand the frameworks that we are using to implement the app and the website.
6	Make the system easy to support – provide good documentation, configuration/build files, administrator's manual.

3 PROJECT PLANNING

3.1 Project Lifecycle

So this project life cycle is basically a 4-step framework which is designed to help us make our project successful from start to the finish. So the purpose of our project life cycle is to create an easy to follow framework to guide you understand our planning for our project.

Initial Phase:- So first of all we brainstormed all our ideas and then we came up with this project as we all were already thinking about this idea for a while and this time we decided to work on this project .So our idea was basically that in the present time what happens is that the fruits & vegetables arrive at the market through a manual calling system or agents. Everyone has to contact the others manually or through an agent so the process is slow and also not efficient or feasible as they have to rely on others so to overcome this we thought of this idea that is o create more and more job opportunities, we aim to make an android application which connects all the people from farmers to residents. We aim to democratize the jobs rather than cutting them. So, the farmer/cold storage/warehouse/wholesaler/retailer can connect with everyone on one platform.

Planning and Execution Phase:- Our main priority was that our app and website should be user friendly since we knew that our potential customers will be common people like the farmers,cold storage people,transporters etc.So they should be able to use our app and website without any training or learning from other people.So we started to work on our project as soon as we finalized the idea ,but the implementation was not easy since we were using the flutter framework for our app and none of us had studied flutter were efficient enough to make such an app in the time span. So we immediately started to learn flutter from an online course and stare

building our app also side by side we were working on the back end.Our first priority was to make a ui prototype and take reviews from our potential clients as well as our mentors and all those who can give us their valuable feedback to us.Now our main aim was to finish our project as per the deadline so all of us started to work together ,we conducted meetings every 3-4 days to discuss the work so that we all should be on the same page.Also we decided to integrate a recommendation system using machine learning which was kind of a challenge and a risk for us since we were thinking that could be finish our project on time.

Closure Phase:-So now as we come near to the end of our deadline we took surveys from our mentor,faculty,senior and our potential users since the most important part for our project was the test cases that our app should be able to work for different people,different locations as well as different actions(buy or sell).We were able to learn many thing from this project apart from the technical things like app development,machine learning,Web Development,Version Controls like GIT (or GITHUB) but also like working on a team ,thinking critically and brainstorming ideas whenever needed ,also working under pressure and working together.In the future we will be deploying our app os the app store(ios platform) also we will be integrating a recommendation system for the users so that they will be able to choose from someone which they highly like and also according to their previous orders and the ratings.

3.2 Project Setup

Table 2: Requirements

#	Decision Description
1.	**HARDWARE REQUIREMENTS:** Intel Core i3, 256 GB HDD, 4096 MB RAM (Server). Windows 8 or later,Mac OS Mohave, 1024 MB RAM (Client). Mobile with Android 8 or later.
2.	**SOFTWARE REQUIREMENTS:** Windows 8 or later, Flutter SDK, Android Studio, Android Emulator or any external device, Node.js, Express, Suitable IDE, MongoDB.

2.3. Stakeholders

Table 3: Stakeholders

Stakeholder	Role
Dr.Tapas Badal	Mentor
Nidhi Chahal	Instructor
Daksh Jain	Team member
Mihir Sirpaul	Team member
Sidharth Mittal	Team member
Vivan Singh Chouhan	Team member
User 1	Big Producers
User 2	Cold Storage/Warehouse
User 3	Retailers
User 4	Residents
User 5	Transporters

2.4. Project Resources

Table 4: Resources

Resource	Resource Description	Quantity
Database Server	A database server for our app as well as our website ,MongoDB and Firebase.	1
Capstone Team	Our team who will be the primary developers of the project.	4
Mentor	Our mentor who will be able to provide us with technical assistance..	1
Mac Workstation	An OS X workstation with X Code for developing the OS X version of the software.	1
Android Phone	An Android phone to be used as test hardware for the mobile version of the software.	2
PC/Laptop	For developing the android app using dart and flutter.	2
IDE	Android Studio or Visual Studio Code for coding and developing apps through flutter.	2

2.5. Assumptions

Table 5: Assumptions

#	Assumption
A1	Our team will be meeting once every 3-4 days to discuss the progress.
A2	Firebase will be available to us for a limited amount of users and we will shift to MongoDB in future.
A3	Team members will be able to handle their roles and work.
A4	Team will be able to complete their courses on time and will be able to make a prototype of the app.
A5	We should be able to set up a database server in time.
A6	The development test data provided will be sufficient to create an accurate prediction of user actions.

3. SYSTEM ANALYSIS AND DESIGN

3.1. Overall Description

So our project ANNADATA basically is an idea to overcome the current manual system in the agriculture and transporting field so basically in the present time what happens is that the fruits & vegetables arrive at the market through a manual calling system or agents,so we aim to make an android application and a website which connects all the people from farmers to residents. We aim to democratize the jobs rather than cutting them. So, the farmer/cold storage/warehouse/wholesaler/retailer can connect with everyone on one platform.Our app was implemented by the flutter framework using dart language designed by google ,we tried to make our app simple as well as properly designed with new features.As most of our users will be common people such as farmers,cold storage people,local market people,consumers so we tried to make our ui easy to use.So using Flutter our app development becomes easy as google has provided with many built in features as well as methods to design our app.We have tried to provide many methods and functions for navigation to make more efficient and easy to use application.For our app we used used the firebase platform for our backend,since it is also very efficient.Our team has also implemented these features on the website as well,we made our website using the mern stack (MongoDB, Express, React, and Node. js) as well as basic frontend languages like HTML,CSS.

So as soon as the user enter their credentials,it will navigate to the main home page which will be opened according to the user like if a farmer login the home page will be opened for the farmer that is only those features which are designed for the farmer shall be available,for farmer basic features like buy,sell feature will be available also for all type of users a profile is made which will show their information ,also the sell feature would be available on the profile page on the home page for each user their transaction details will be shown on some chart or a graph.These features are available on the app as well as the website.

3.2. Users and Roles

Table 6: User and Roles

User	Description
Website Developer	Our capstone team members who worked on the website ,its frontend as well as the backend,set up the database and populate it with data.
App Developer	Our capstone team members who worked on the app part,setting up firebase and also other features
Database Administrator	Our team member who shall be handling all the databases and check for the proper functioning of the database.

FEEDBACKS FROM USERS THOSE WHO INTERACTS WITH THIS SYSTEM

Potential User 1 Feedback: Consumer: Minakshi Jain

It will help us a lot as on one click, we will be able to buy fruits and vegetables and it will be reaching directly home.

Potential User 2 Feedback: Aadat

Mani Gupta, Roorkee

Sometimes we are not able to connect with the warehouse people due to lack of connections. It will help me to connect with them and my work will become very easy.

Potential User 3 Feedback: Shopkeeper

Sanjay Sharma, NEEDS SHOP, Jaipur

We are in direct contact with the customers and sometimes there is a problem as we are not able to fulfil customers' needs due to insufficient stock. It will help us to buy and make connections with multiple warehouses and aadat people.

Potential User 4 Feedback: Warehouse

Mukesh Agarwal

We are not sometimes able to connect with farmers and aadat people. This platform will help us to increase our connections.

Potential User 5 Feedback: Farmer

Anil Kumar

Many times we are not able to find buyers. Fruits, vegetables and crops get rotted because of that. It will help us to make connections, and we will be able to sell at any price according to our needs.

3.3. User Stories (Requirements)

3.3.1. **Product Backlog Items**

ID	Feature name	Story points
5	Register online	3
4	Upload an item/service to sell	4
10	Purchase an item/service online	3
17	Review system	2
13	Search for an item	3
21	Profile updation	3

Estimated User Story Points: 3
Actual Completed User Story Points: 3

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
100	Onset	***As a*** *buyer,* ***I want*** *to be able to register online,* ***So that*** *I get registered quickly.*	**C**	**3**	**3**	**100%**

Acceptance Criteria		Verification
110	A user cannot submit a form without completing all the mandatory fields	Create a test case to verify non-empty fields.
111	Information from the form shall be stored in the registration database after form submission	Create test case to verify information is stored in the database.
112	An acknowledgment email/SMS shall be sent to the user after submitting the form.	Create test cases to verify sending of acknowledgement email/SMS after successful payment.
113	A user should be verified through an otp sent to the given mobile number.	Create test cases to verify sending of an otp and verify the user through it.

ID	Tasks	Resource
1	*Create a registration page with all required fields (FName, LName, organization, Address details, email, credit card details) and register button at the bottom.*	**Team member 1**
2	*Develop a backend functionality that checks required fields are non-empty when user clicks on register button.*	**Team member 2**
3	*Built a functionality which stores registration data in the database according to the specifications and sends acknowledgement email/SMS to the registered email/SMS else display payment failure message.*	**Team member 3**
4	*Built a functionality that sends a randomly generated otp to the user phone number and verifies the user once the otp is entered in the browser.*	**Team Member 4**

SPRINT 2

Estimated User Story Points: 7
Actual Completed User Story Points: 4+

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
200	Onset	***As a*** *seller,* ***I want*** *to list my services/products* ***So that*** *I can reach customers easily.*	**C**	**4**	**4**	**100%**

Acceptance Criteria		Verification
210	Verify the user is an authorised seller.	Create test cases to verify the status of the current user as a seller or a service provider.
211	A user cannot submit a form without completing all the mandatory fields.	Create a test case to verify non-empty fields**.**
212	Information from the form shall be stored in the products database after form submission.	Create a test case to verify information is stored in the database.

ID	Tasks	Resource
1	Create a method that verifies the current user as a seller through the status stored in the database.	Team member 1
2	*Create a products page with all the required fields.*	Team member 2
3	*Develop a backend functionality that checks required fields are non-empty when the seller clicks on the add product button.*	Team member 3
4	*Built a functionality which stores product data in the database according to the specifications and sends an visual confirmation to the registered seller.*	Team member 4

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
220	Onset	***As a*** *buyer,* ***I want*** *to purchase products online* ***So that*** *I can save my precious time,*	**WIP**	**3**	**-**	**40%**

Acceptance Criteria		Verification
221	Verify the user is registered on the platform.	Create test cases to verify the status of the current user as a buyer.
222	Verify user's delivery address and payment method.	Create a test case to verify a non-empty address and payment method field.
223	Payment shall be accepted via credit/debit card.(if online payment is selected)	Create a test case to verify credit card payment method from bank.
224	Update the products database with the reduced quantity and update the orders database with the necessary information.	Create a test case to verify information is updated in the database.
225	An acknowledgment email/SMS shall be sent to the buyer and seller after the order is placed.	Create test cases to verify sending of acknowledgement email/SMS after successful payment.

ID	Tasks	Resource
1	Create a method that verifies the current user is registered on the platform.	Team member 1
2	*Create a checkout page for the user to enter the necessary information.*	Team member 2
3	*Built a functionality which updates the product data in the database and stores the order according to the specifications in the orders database and sends an acknowledgment from the seller to the buyer.*	Team member 3 and 4

SPRINT 3

Estimated User Story Points: 5
Actual Completed User Story Points: N/A

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
300	Onset	**As a** seller, **I want** the buyers to leave reviews on my product/services **So that** I can improve.	**NS**	**2**		
Acceptance Criteria			**Verification**			
310	Verify that the product has been purchased by the user wanting to leave a review.		Create test cases to verify that the current user has purchased the product.			
311	Update the products database with the required information.		Create a test case to verify information is updated in the database.			

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
400	Onset	**As an** buyer, **I want** to search the products or a service i require **So that** i can save time.	**NS**	**3**		
Acceptance Criteria			**Verification**			
410	Buyer should be able to search by the name and category.		Create test cases to verify search results by name and category.			
411	Buyer should be able to search by rating and popularity.		Create test cases to verify search results by rating and popularity.			

SPRINT 4

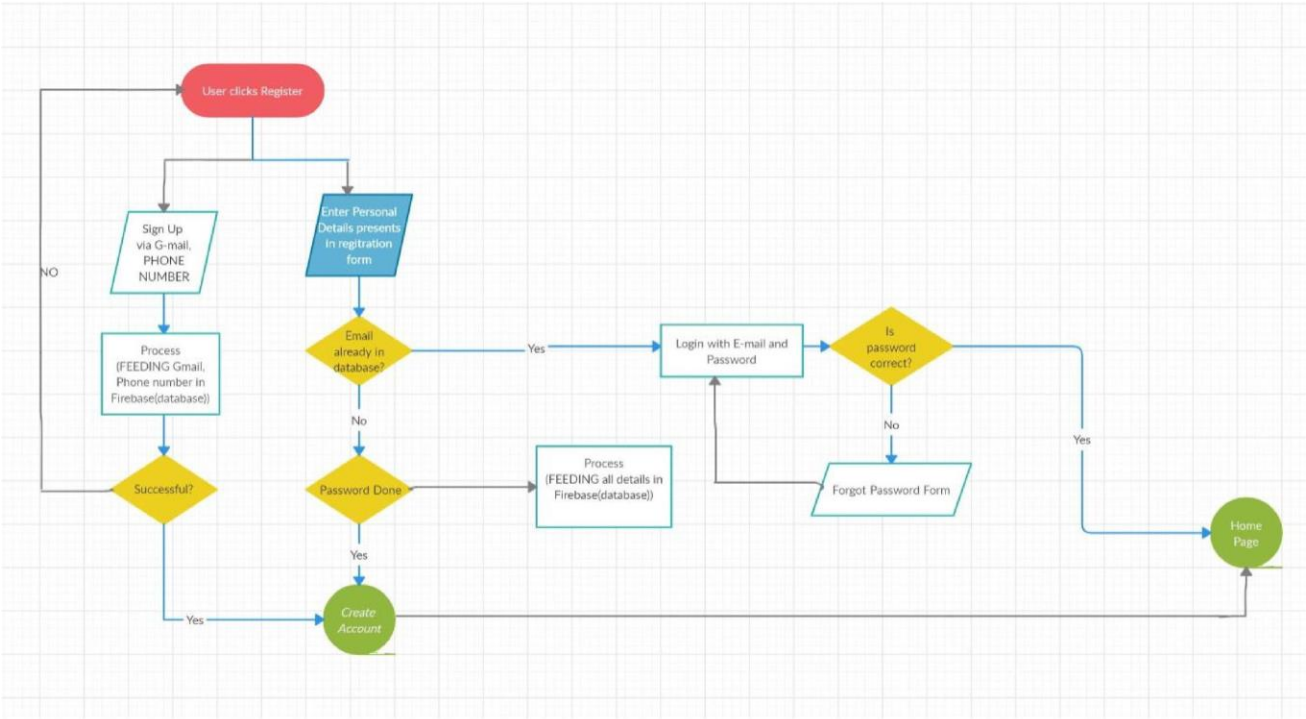
Estimated User Story Points: 3
Actual Completed User Story Points: N/A

ID	Added	Description	Status	Story Points	Actual Equivalent Story Points	% Completed
500	Onset	**As a** registered member, **I want** to update the data in my profile as per my requirement **So that** my data is upto date for easy running.	**NS**	**3**		
Acceptance Criteria			**Verification**			
510	Verify the user is registered on the platform.		Create test cases to verify the status of the current user as a buyer.			
511	A user cannot submit a form without completing all the mandatory fields.		Create a test case to verify non-empty fields**.**			
512	Update the users database with the new information provided by the user.		Create a test case to verify information is updated in the database.			

3.4. Design diagrams/ UML diagrams/ Flow Charts/ E-R diagrams

Figure 5: Flow Chart Diagrams

Figure 5.1:- Front End/Authentication



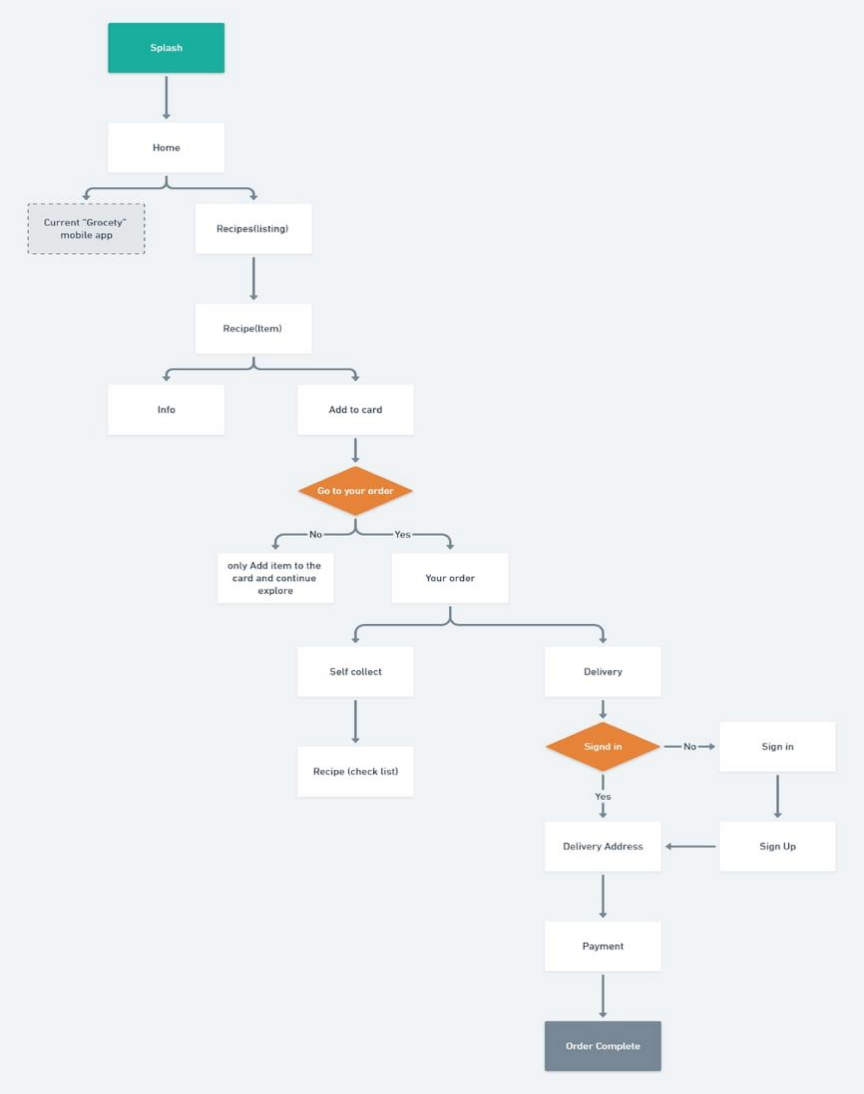
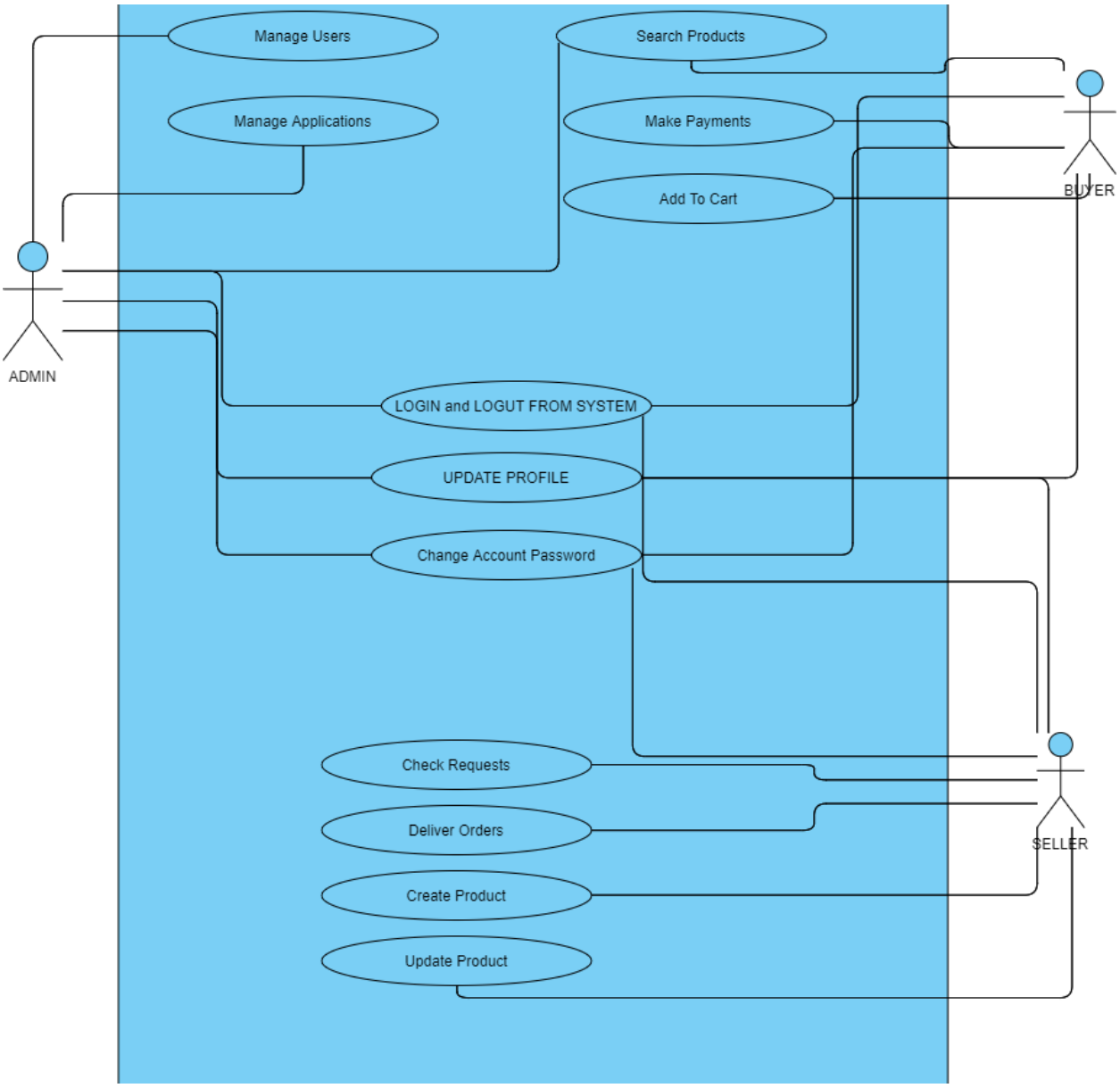


Figure 5.2:- Functionality

6. USE CASE DIAGRAM



7. CLASS DIAGRAM