Agricultural Resources Rental App

Sagar Nakum
201701182@daiict.ac.in
*D*hirubhai Ambani Institute of Information and Communication Technology
*G*andhinagar, India
Mentor : Prof.JayPrakash Lalchandani

***Abstract*—India has the second-highest population in the world and around 70 per cent of the population of our country is heavily dependent on agriculture and we earn 65 per cent of money through agriculture.**
But when it comes to technology development for agriculture in India as compared to other countries than India is far behind other developing countries. So I aim to provide Agricultural equipment, Vehicles and Labours easily to farmers so that they can increase their efficiency and save their time.
In modern days we will found a minimum of one person from every farmer's family who is using a smartphone so I have made AgriRent Application which will provide rent service to farmers, Using this app farmer can order Vehicle, Equipment and labours as per their need.

I. Introduction

AgriRent app has been developed using React Native platform.AgriRent application has been purely designed and made for only farmer's use. This application provides farmers easy renting service like vehicles, equipment and labours. Any farmer can order what they want through this app. This application also made for those farmers or people who want to give their vehicle, equipment and labours on rent. This application only made to make farmer's and renter's job easy they can save their time and get whatever they want on time.

II. Flow of working

1) Other Apps are available in this category
2) Collecting information about vehicles and equipment which we can rent to farmers
3) creating functionalities
4) Writing user stories
5) Use Case Diagram
6) UML Class Diagram
7) UML Sequence Diagram
8) System architecture Diagram
9) UI design
10) Implementation
11) Testing

III. Other Apps are available in this category

A. FARMS

This app will provide facilities to those farmers who want to give their machinery's on rent and want to take farming machinery's on rent.

B. JFarm

This app will help the farmer willing to provide their agricultural machinery, equipment on a rental basis. This app will provide a platform for sell and purchase of old agriculture machinery to farmers also.

C. KhetiGaadi

This app will help the individual farmers, willing to provide their agricultural machinery and equipment on rental basis to increase their farm income This app will provide a platform for sell and purchase of old agriculture machinery to farmers also.

D. Kisan Mail

Kisan Mail provides a rental platform for farming equipment and a local market place for farmers and shopkeepers, this is a one-stop platform for all farmer's needs

IV. Functionalities

Sign up : To use this application user need to register
Sign in : To use application user first need to Sign in to application.
Sign out : To use the application user first need to Sign in to the application.

A. Functionalities for Farmer

Profile : To view farmer's details
Update : to update details
Change password : user can change their password
Order vehicle : to order agricultural vehicle
Order Equipment : to order agricultural equipment
Order Labourers : to order labours
Place order : to place order
Manage Order : Farmers can manage their order
Chat : can chat with renter
Check order status : farmer can check their order status.
Complete order : to finish order
Cancel order : to cancel order
Change order timing : to change order timing
Repeat order : to repeat order

B. Functionalities for renter

Profile : To view renter's details
Update : to update details
Change password : to change password
Notifications : to notify user
Manage request : to accept or reject order request
Process order : to place order.
Submit completion id : to complete order
Chat : can chat with farmer
Check order status : to check order status
Cancel order : to cancel order
Update Vehicle list : renter can update vehicle list
Add vehicle : renter can add vehicle
Remove vehicle : renter can remove vehicle
Update equipment list : renter can update equipment list
Remove equipment : to remove equipment
Update no of labourers : to update labourers count

C. Functionalities for Admin

Profile : To view adman's details
Update : Admin can update details
Access account : to access account of every users
Block account : to block any user's account

V. User Stories

• As a new user I want to register in application so that I can use this application.
Acceptance Criteria
Scenario : New user want to register with valid mobile number
"Given I am new user.
And I am on the home screen of application.
When I fill the valid "mobile number and valid password" and I click on "register
as a farmer" button
Then I get registered in the application as farmer/renter."
• As a logged out user I want to login in to the application so that I can do my new transactions
Acceptance Criteria:
Scenario : The registered user login with valid mobile number and password.
"Given I am logged-out from the application.
And I am on the login page of application.
When I fill "Mobile number" and "Password" as my valid credentials
and click the login-as-farmer/login-as-rent
Scenario : The registered user forgot his password.
"Given I am logged-out from the application and I forgot my password.
And I am on the login page of the application
When I fill valid register "Mobile number" into login-as-farmer/login-as renter and click the forgot password button.
Then I can see create new password ."
Scenario : The registered user want to login with OTP.
"Given I am logged-out from the application.
And I am on the login page of the application.
When I fill the valid registered "Mobile number" into
login-as farmer/login-as-renter and click the login-with-OTP button.
Then I can submit OTP and logged in to the application.
• As a user I want to view my profile so that I can see my details.
• As a user I want to update my profile so that admin will know my updated details.
• As a user I want to change my password so that I can secure my data.
Acceptance criteria :
Scenario : I am logged in to the application and want to change my password.
"Given I am logged in to the application.
And I am on the profile page of the application.
When if I fill my previous password and I click on the change password button.
Then I can change my password that is not previous password."

A. USER → FARMER

• As a user I want to place as many order as possible so that my work finish as early as possible
• As s user I want notification when my order is accepted or cancelled.
• As a farmer I want to see my order list.
• As a user I want to change my order timing so that if I have any emergency I can manage it.
Acceptance criteria :
Scenario : I am logged in to the application and want to change order timing.
"Given I am logged in to the application.
And I am on the selected order page of the application.
When I click on the change timing button.
Then if I am satisfying t I can change timing of the order."
• As a user I want to cancel my order so that if I have any urgency than I can manage it.
Acceptance criteria :
Scenario : I am logged in to the application and I want to change my order timing.
"Given I am logged in to the application.
And I am on the selected order page of the application.
When I click on the change timing button and if order timing is short from threshold.
Then I can change order timing."
• As a farmer I want to chat with renters so that we can adjust timing in case of any urgency.
Acceptance criteria :
Scenario : I am logged in to the application and want to chat with renters.
"Given I am logged in to the application.
And I am on the selected order page of the application.
When I click on the chat button.

Then I can chat with renters."
• As a user I want suggestion list of renters suited with my order details so that I can decide whom to give order.
• As a user I want details about renters such as how much they charge per unit, how much orders they have completed , there vehicle details ,other farmers review so that I can decide who is best.
• As a user I want to repeat my order so that if I want same order on different time or renter cancel my order than I don't need to place another order

B. USER → VEHICLE RENTER

• As a user I want to update vehicle list so that I can add or remove vehicle.
• As a user I want chat with farmer so that if I have any urgency than we can manage it.
• As a user I want that farmer can cancel order minimum 20 minutes before I leave for order so that my time won't be wasted.
• As a user I want to see my order list.
• As a user I want details of order such as time when vehicle required , date , approximate time to finish order so that I can decide that I want to take order or not.
• As a user I want that I can cancel my order so that if I have any urgency than I can manage it.
• As a user I want notifications when I get order or my order is cancelled by farmer.
• As a user I want notifications from admin that this vehicle is in more demand so that we can increase our business.

C. USER→EQUIPMENT RENTER

• As a user I want to update equipment list so that I can add or remove equipment.
• As a user I want notifications from admin that which equipment is in more demand so that we can increase our business.
• As a user I want chat with farmer so that if I have any urgency that we can manage it.
• As a user I want that farmer can cancel order minimum before 1 day so that my time won't be wasted and I can take another order.
• As a user I want to see my order list.
• As a user I want details of farmer such as date when equipment required , approximate how many days equipment required so that I can decide whether I want to take order or not.
• As a user I want that I can cancel my order so that if I have any urgency I can manage it.

D. USER→LABOURER RENTER

• As a user I want to update number of labour so that if some labour leave or enter I can change it.
• As a user I want chat with farmer so that if I have any urgency that we can manage it.
• As a user I want that farmer can cancel order minimum before 1 day so that my time won't be wasted and I can take another order.
• As a user I want to see my order list
• As a user I want details of farmer such as date when labours required , approximate how many days labours required so that I can decide I want to take order or not.
• As a user I want that I can cancel my order so that if I have any urgency I can manage it.

E. USER→ADMIN

• As a user I want to login in to the application so that I can provide service to Farmer and renter.
Acceptance criteria :
Scenario : admin want to login through valid admin key.
"Given I am admin.
And I am on the login page of the application.
When I fill valid admin key and click on admin-login button.
Then I can see logged in as admin in to application.
• As a user I want that I can access any user account so that if user have any problem than I can solve it.
• As a user I want that I can send notifications to more than one user or individual.
• As a user I want that I can verify every renter account after registering so that if someone is fraud than I can identify it.
• As a user I want that I can block any user account who is fraud so that they can't cheat other users

VI. USE CASE DIAGRAM

Fig. 1. Use case

VII. Implementation details

A. Front-end

• Sign in and sign up for views. Interactive functionalities for Sign in and Sign up
• create a fire-base to store the received data from the back-end
• Ui designing of every page
• Add/update vehicles
• Process orders
• location setting
• date setting
• time setting
• User will be notified via gmail
• Generating order id for both type's of users
• Admin can add users
• Admin can update details of users

B. Back-end

• Make a server that is always available to handle each request for the application
• Sign in and sign up functions to approve the coming authentication requests from the application
• Functions that return required data like order lists, vehicle lists, filter the list of renters according to queries, pass on the updates of orders received from farmer
• Maintain the profile of all users according to the schema.

C. Connection

• Define HTTP requests on the Application side to interact with the server and ask for some data or authorise something
• make real-time stream through the socket for real-time communication

VIII. Environment setup

Installing dependencies
1)installing Node via Chocolatey
2)open Administrator command prompt run
"choco install -y nodejs.install openjdk8"
3)Download and Install Android Studio
4)check following boxes "Android SDK" ,"Android SDK Platform","Android Virtual Device"
5)Install Android SDK
6)Configure the ANDROID HOME environment variable
7)Add platform tools to Path
8)Now run "npx react-native init AwesomeProject"
to create new project
9)compilation and running details has been added below

IX. App Compilation and Running

For compiling and running there are two options
1) In real device
2) In Android AVD MANAGER

I have used "real Device"

A. In Real Device

1)Install Android Studio
2)Download SDK managers tools
3)Install USB debugging App
4)Connect your mobile to computer through USB
5)Go to "Open Developer Options"
6)Select Developer Option and USB debugging
7)Run a Command adb devices
8)it will show your devices there
9)Now Run a command "npx react-native run-android"
10)it will start building app
11)It will download and install App in connected device
12)it will compile your code and show App
13)to compile your code –¿ make changes
in code and reload it will show output

B. In Android AVD MANAGER

1)Install Android Studio
2)Download SDK managers tools in android studio
3)Download AVD in indroid studio
4)Now open project directory in terminal and run
"npx react-native start"
5)Metro Bundler will run that terminal through your app compilations
6)Now open another project directory in terminal and run "npx react-native run-android"
7)It will start building app
9)to compile your code –¿ make changes in code and reload it will show output

X. Manual testing

A. Use case 1: User Login

Testing for email verification
Test case 1:
Custom I/P : dakevan2000@gmail.com
Expected O/P : true
Actual O/P : true
Remark : working fine
Test case 2 :
Custom I/P : abcd@gmail.com
Expected O/P : not registered yet
Actual O/P : not registered yet
Remark : working fine
Test case 3 :
Custom I/P : abcd@
Expected O/P : invalid email

Actual O/P : invalid email
Remark : working fine

B. Use Case 2: User Signup

Testing for Email verification:
Test case 1 :
Custom I/P : 201701182@daiict.ac.in
Expected O/P : true
Actual O/P : true
Remark : working fine
Test case 2 :
Custom I/P : av.@gmail.com
Expected O/P : false
Actual O/P : false
Remark : working fine
Test Case 3 :
Custom I/P : acd@gmail
Expected O/P : false
Actual O/P : false
Remark : working fine
Test Case 4 :
Custom I/P : dakevan2000@gmail.com
Expected O/P : Already registered
Actual O /P Already registered
Remark : working fine
Remark : working fine

C. Password and confirmed password should be matched

Test Case 1:
Custom I/P : (1) abcdef (2) abcdef
Expected O/P : true
Actual O/P : true
Remark : working fine
Test Case 2:
Custom I/P : (1) abcdef (2) abcdea
Expected O/P : false
Actual O/P : false
Remark : working fine

D. mobile number

Test Case 1:
Custom I/P : 1234567890
Expected O/P : true
Actual O/P : true
Remark : working fine
Test Case 2 :
Custom I/P : 123456
Expected O/P : false
Actual O/P : false
Remark : working fine
Test Case 3:
Custom I/P : 12345678901
Expected O/P : false
Actual O/P : false
Remark : working fine

XI. SYSTEM TESTING

1) Negative testing :
–While sign up I entered the wrong name and the wrong email format to test it allow me to sign up or not
–While changing the password i entered the wrong password to see it password or not
–While ordering Vehicle/equipment I didn't enter mandatory filled to test an order will be placed or not
–while ordering Vehicle/Equipment i enter wrong email format to test it place order or not
Like this i test functionalities of application.

2) Usability testing
I run this application in front of users of this application and non users of this application to test what users feel about this application
– I run my app in front of farmers to test what they feel about application
– I run my app in front of engineers(my college friends) to test what they feel about application

Functional testing : I have taken lot of farmers interview to know about what types of functionalities they want?
– Farmers can order every vehicle and equipment
– Farmers can place multiple orders
Non Functional testing : As i was developer of this i thought
– Farmers can repeat same order by changing date and time
– Farmers can Delete their account
– Farmers can update their details – Farmers will get mail confirmation after placing orders

XII. ACKNOWLEDGEMENT

I would like to thank professor JayPrakash Lalchandani for his guidance throughout the BTP. He guides me very well. He is such a good mentor to me, because of that I have completed this application without any experience. I also want to thank BTP coordinator prof. Gagan Gard for his support throughout the BTP completion.

XIII. REFERENCES

• Introduction to React Native Document
• Toward Better Documentation : React-Native
• react-native-document-picker
• Yarn packages manager
• React js: A JavaScript library for building user interfaces
• Geeksforgeeks

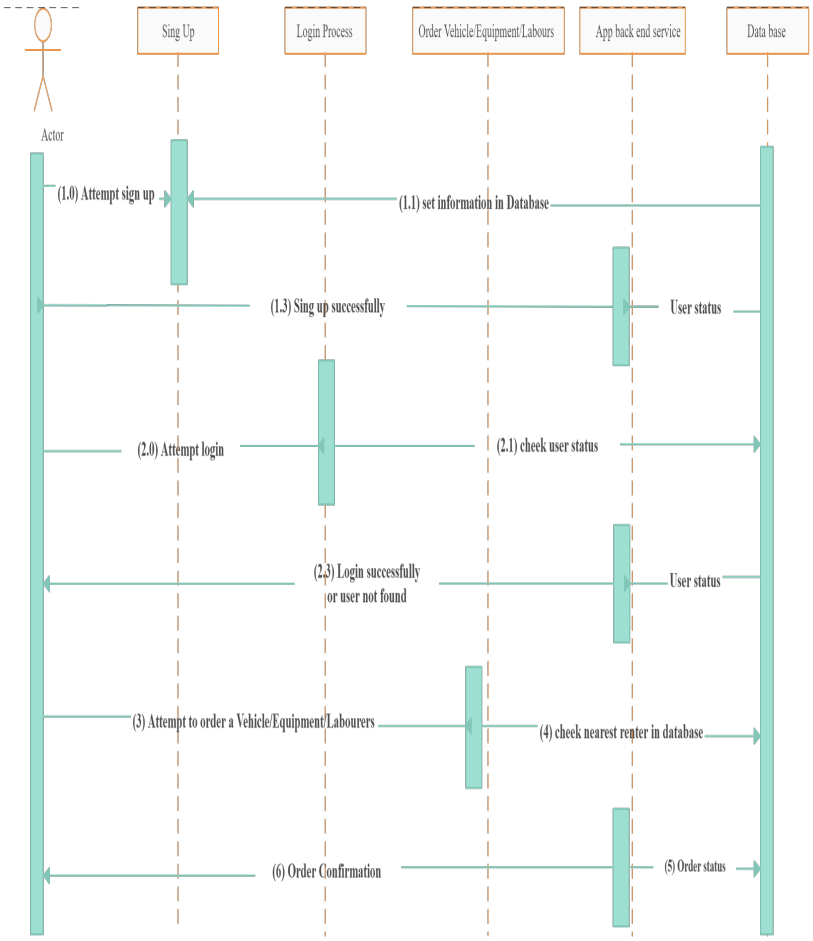

Fig. 2. UML Sequence Diagram

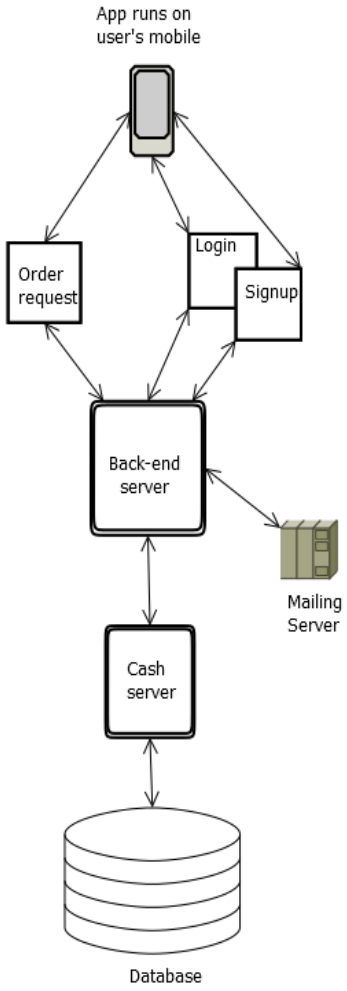

Fig. 3. System Architecture Diagram

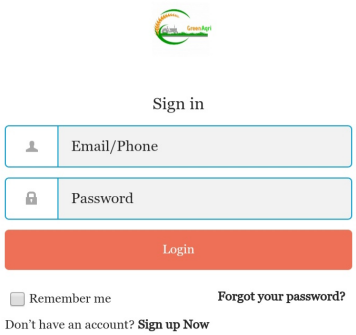

Fig. 4. Signin page

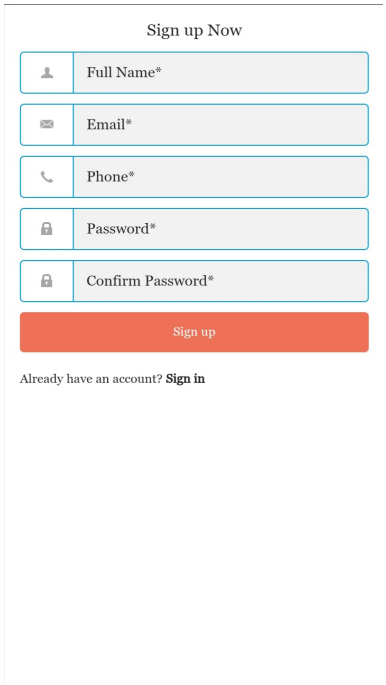

Fig. 5. Signup page

Fig. 6. Home page

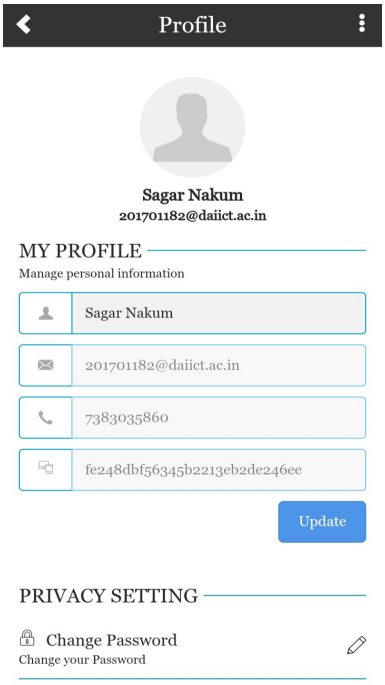

Fig. 7. Profile

Fig. 8. Order Vehicle

Fig. 9. Order equipment

Fig. 10. Vehicle Order page

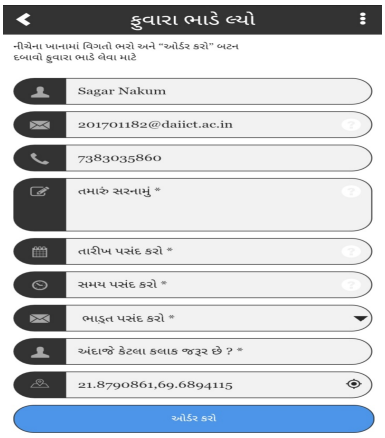

Fig. 11. Equipment Order page

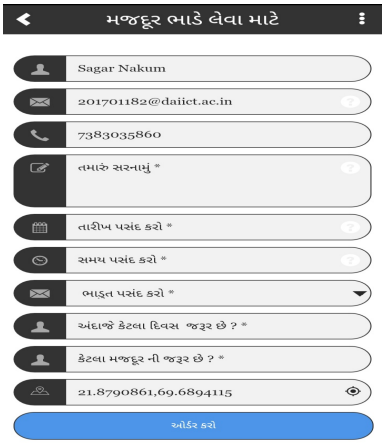

Fig. 12. Labours Order page

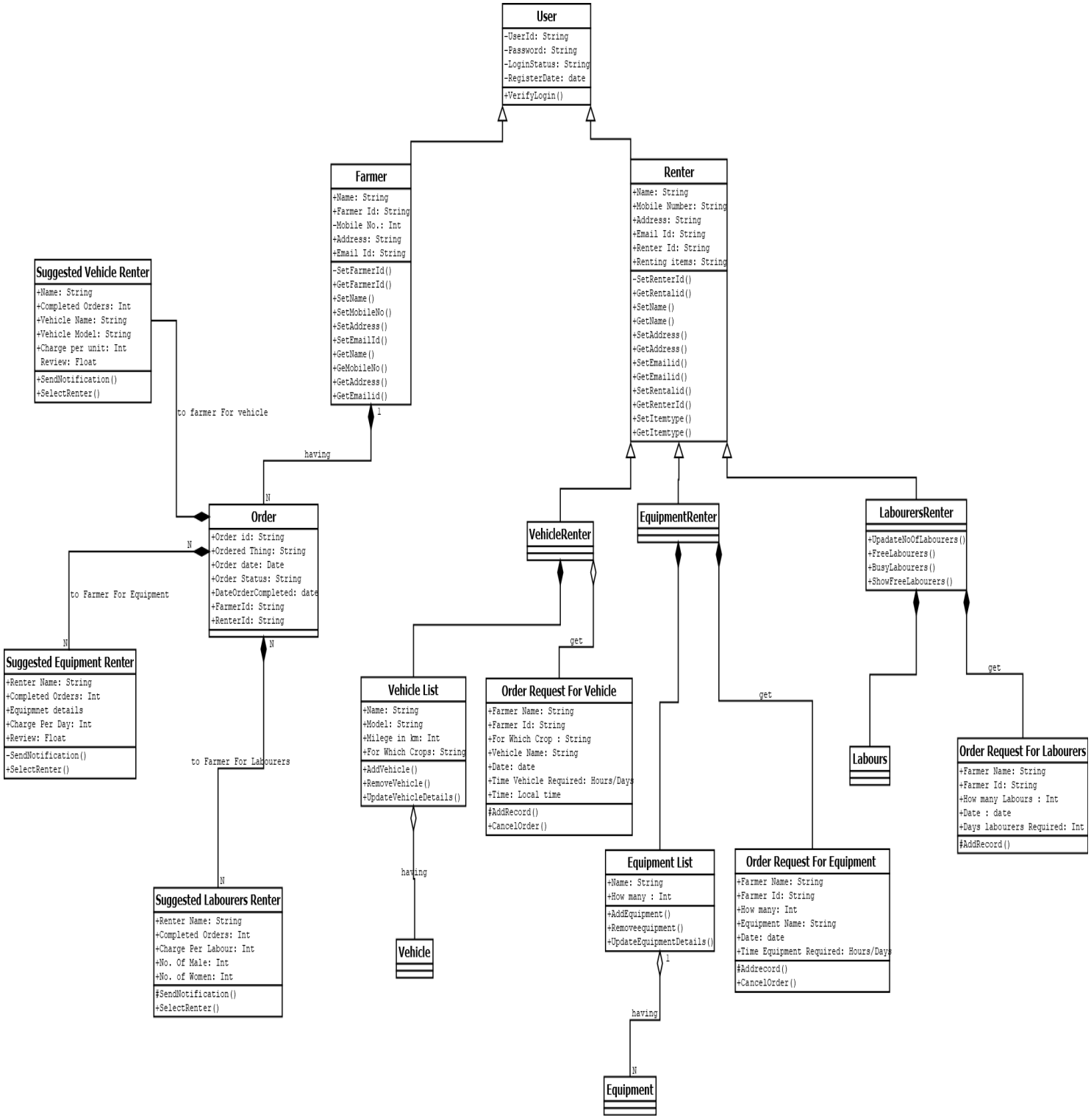

Fig. 13. UML Class diagram