Team#10 Web Farms

PROJECT TITLE

Intelligent Agricultural Assistance

Department of Computer Science and Electrical Engineering

F I N A L P R O J E C T

Team**# 10**

Team Members

Maniraj Mohareer **Sunil Kumar Madikanti** **Arvind Tota** **Hari Naga Raju Velivela**

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1. Introduction

Project Goal:

The core idea of this project is to help farmers in boosting yield of their agriculture crop, supporting & guiding them throughout the process, from choosing a crop; till they sell the yield completely. The way we do is suggesting them with other probable crops that can be grown in their farm which are determined by various factors like; real time weather, chemical composition of the soil in which crops are grown, cycle of crops that were being grown over the years in that land. We also provide short term crops that can be grown when the major crop is germinating. We suggest methods to reduce the excessive use of fertilizers and pesticides, thereby promoting natural methods & effective utilization of the space in the field without increasing the competency to the major crop.

- **Motivation**

  Data Analysis has become very popular, analysis of data refers in examining data and deriving fruitful conclusion out of that data. Conventional methods are given a lot of preference in agriculture, modifying our pace of cultivation could increase the output considerably. Applying ingenuous data analysis to the vast amount of data gathered, will let us narrow down to a list of most efficient growing crops, other than the regular ones. This whole guidance could benefit the farmer in many ways. Along with the assistance given to the operations done on the field, helping them in selling the yield with digital marketing could improve the lives of farmers in many ways.

- **Uniqueness**

  Use of predictive analysis, a data mining technique; and determining the possible sustainable crops for a particular agricultural area by observing the patterns of the existing data makes this approach unique. Helping the farmers, dealing with the buying and selling of inputs and output yield also makes this not-like-one before.

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2. Project Objectives

1. **Suggesting alternate crops to increase productivity of the land.**

Lots of gathered data will be ready for analysis before the implementation of the project. Analysis will be done by inspecting, cleaning, transforming and modelling data with a goal of discovering useful information. This useful information combined with the user's input data, we or the program, gives out a list of probable crops that can be chosen alternatively than the conventional crop.

This gathered data includes, real time weather monitoring system even.

2. **Helping through the process until the crop yields.**

On the user's profile in the website, he/she can have access to a lot of information that is sorted in detail.

They include:

a. Steps to deal with different kinds of problems that a farmer might encounter over the period of crop.
b. Tips to improve farming yield.
c. Latest and advanced equipment that might improve their farming experience.
d. Real-time weather monitoring system.

We even, send alerts and cautions to be careful at different situations that might come along the way.

3. **Supporting in selling the yield with digital marketing.**

We will bridge the gap between the farmer and the retailer as a digital marketing website and manage the logistics and make it easy for the farmer to sell the yield at the comfort of sitting at home.

3. Project Plan for Execution

Pre-Proposal

- Brain Storming
- Main Goal & Objectives
- Features Disclosed

First Increment

- OAuth Authentication
- Project Outline
- Agile Implementation using Zenhub

Second Increment

- Integrating APIs to Web Application
- E-Commerce
- Interactive Dash Board Layout

Third Increment

- Data Base Design
- Data Base Integration

Fourth Increment

- Crop Health Prediction
- Deployment & Testing

4. Project Features

- **System Features**

1. Website

The website contains the gathered data tables from different sources, which include Geographical Conditions of the soil, Real-time weather monitoring: all these function in the back end. With good user interface, access will be easy and also each farmer can hold an account on the website. The very first time he creates an account, he needs to input the details of the crops and yield that had been grown on the farm over the years.

2. Dashboard

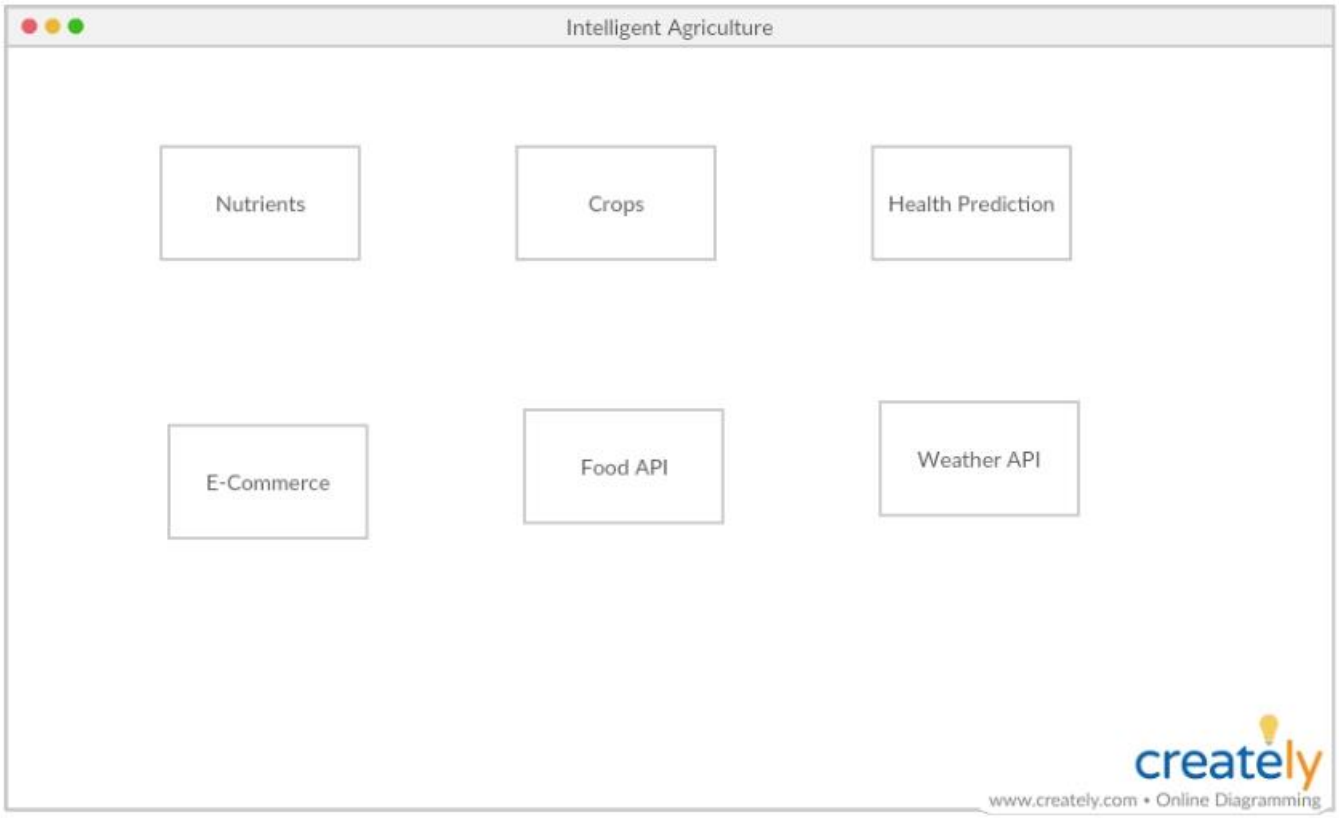
The account holders of the website will have a dashboard, on which the real-time factors can be easily seen, which makes it very easy to deal with the changes in the weather, monitor his resources. And even, a caution or alert will be sent to the farmer's email id whenever there is a need.

5. Achieved by Increments

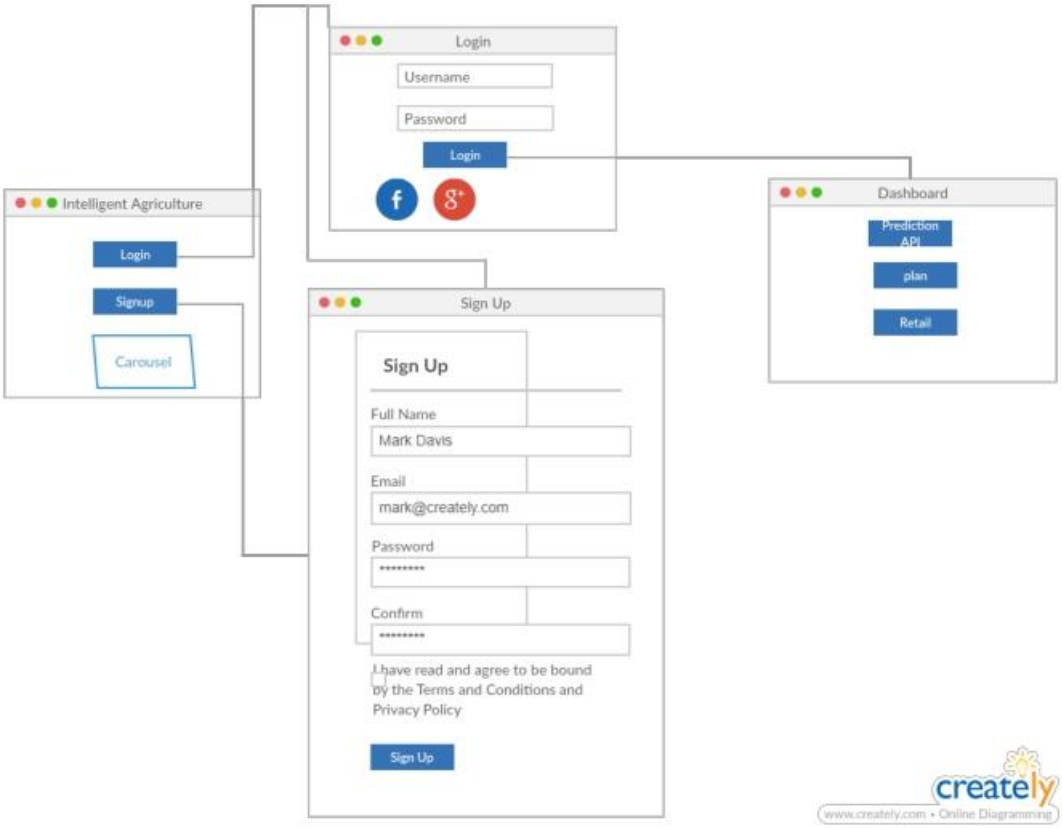
- OAuth Authentication
- Project Outline
- Agile Implementation using Zenhub
- Integrating APIs to Web Application
- E-Commerce
- Interactive Dash Board Layout
- Integrating APIs to Web Application
- E-Commerce
- Interactive Dash Board Layout
- Data Base Design
- Data Base Integration
- Crop Health Prediction
- Deployment & Testing

6. Wire Frames

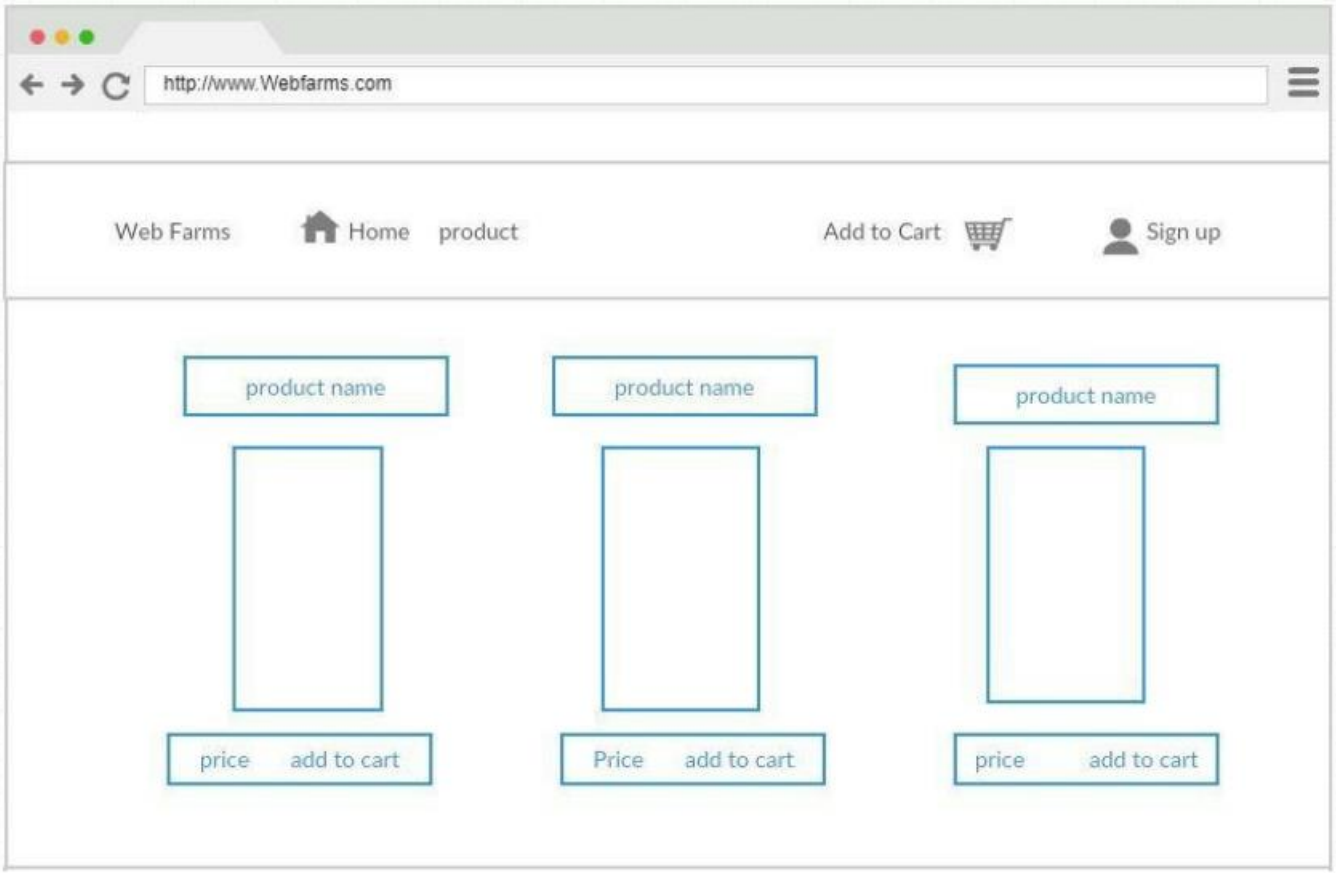
Dashboard:



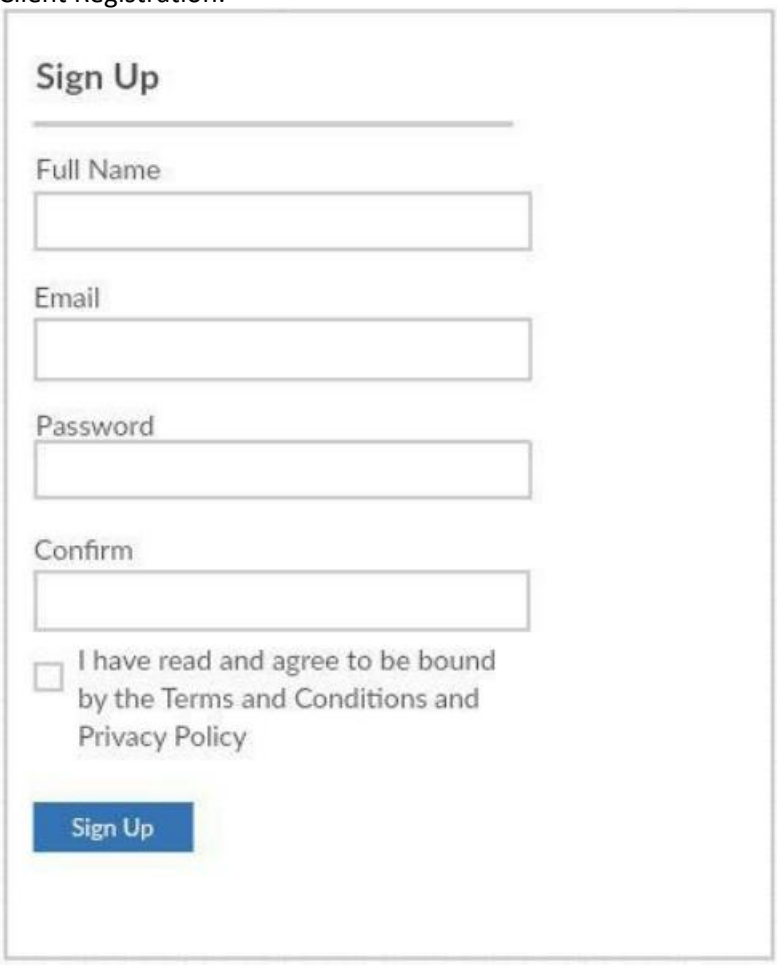
Main Page:


Intelligent Agriculture
Login
Signup
Carousel
Login
Username
Password
Login
Sign Up
Sign Up
Full Name
Mark Davis
Email
mark@creately.com
Password
Confirm
I have read and agree to be bound by the Terms and Conditions and Privacy Policy
Sign Up
Dashboard
Prediction API
plan
Retail
creately
www.creately.com • Online Diagramming

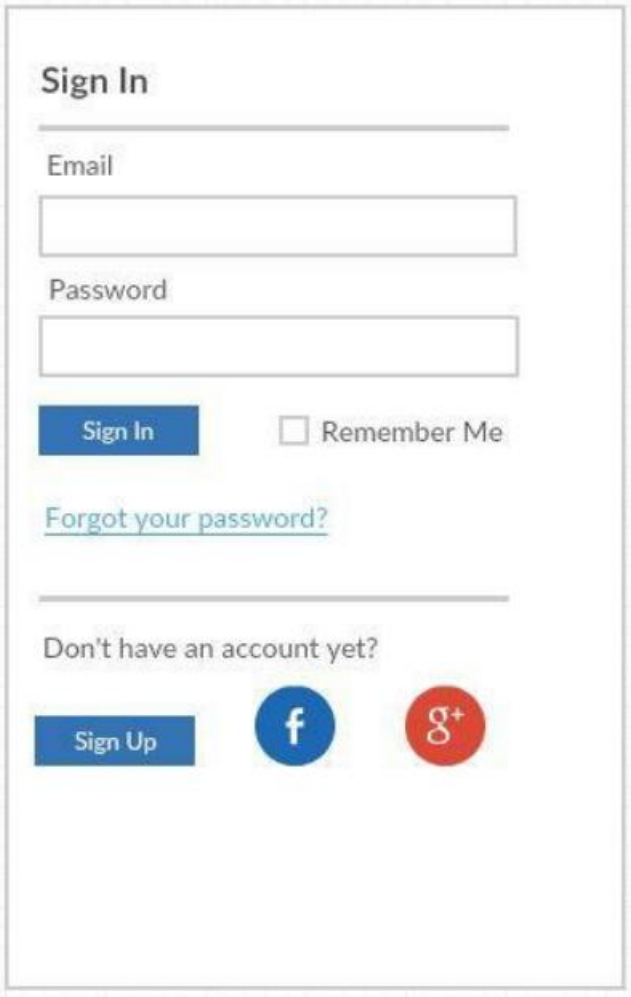
E-commerce:
Home Page:



Client Registration:



Client Login:



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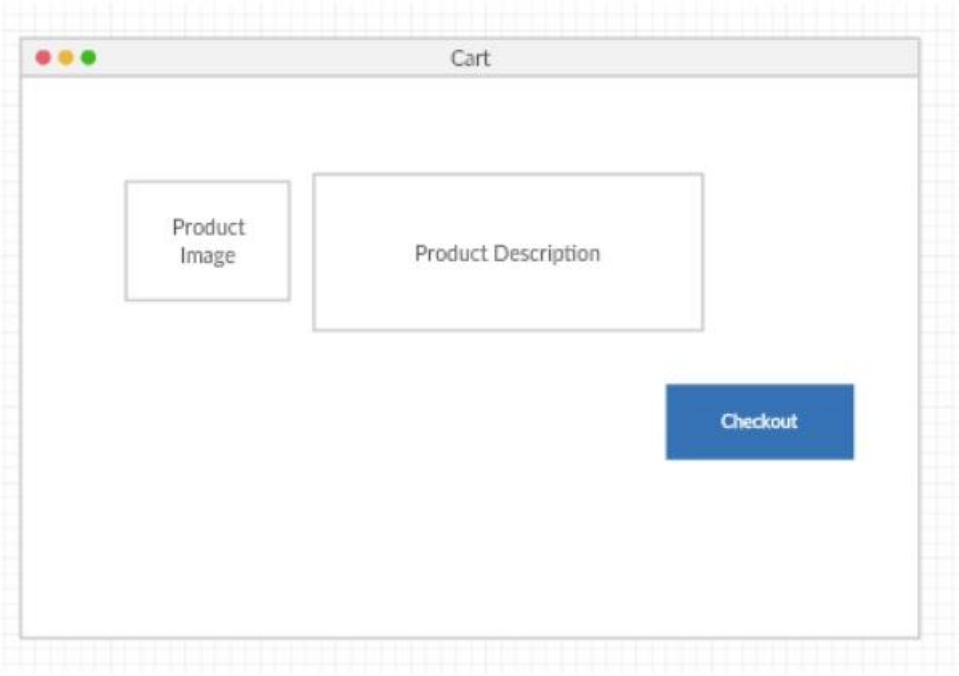
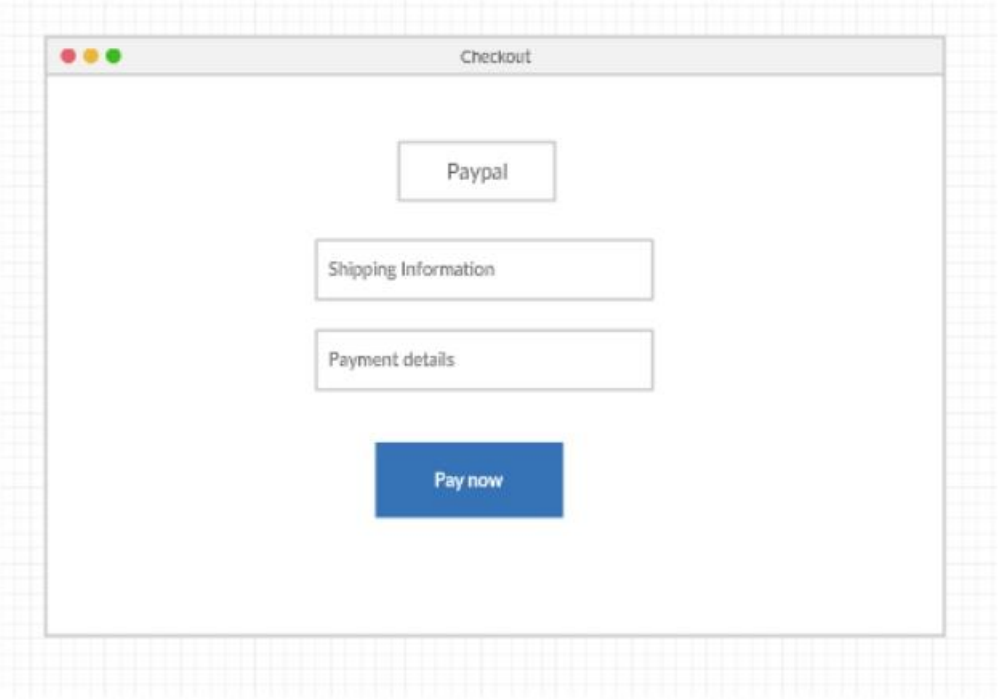
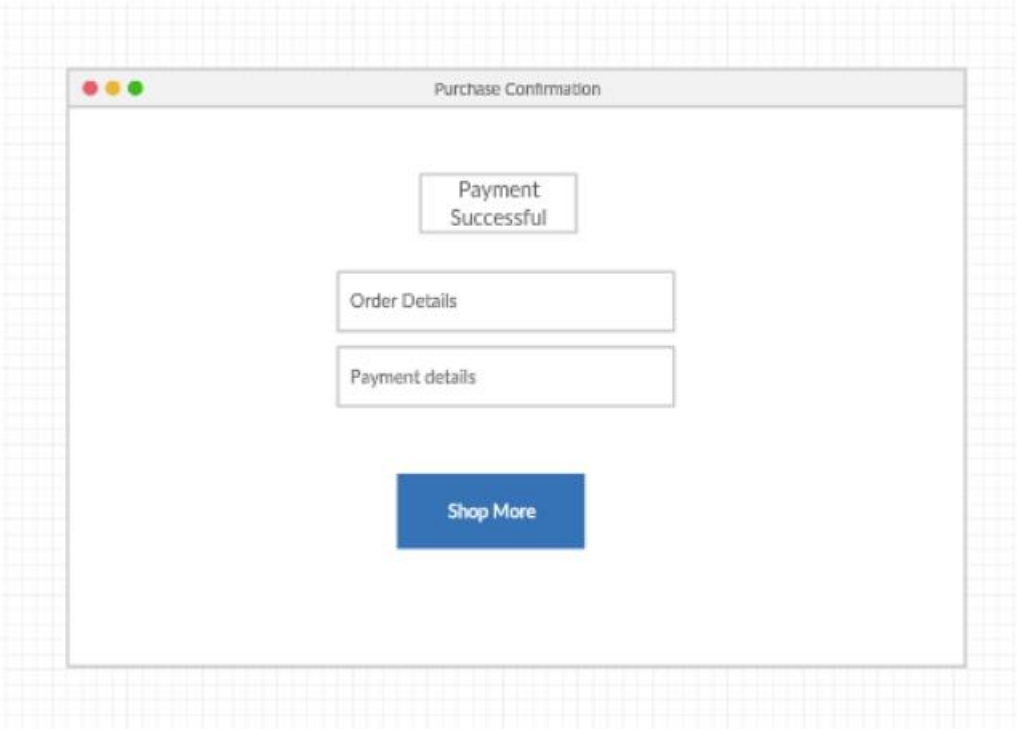

Cart
Product Image
Product Description
Checkout

Paypal:


Checkout
Paypal
Shipping Information
Payment details
Pay now

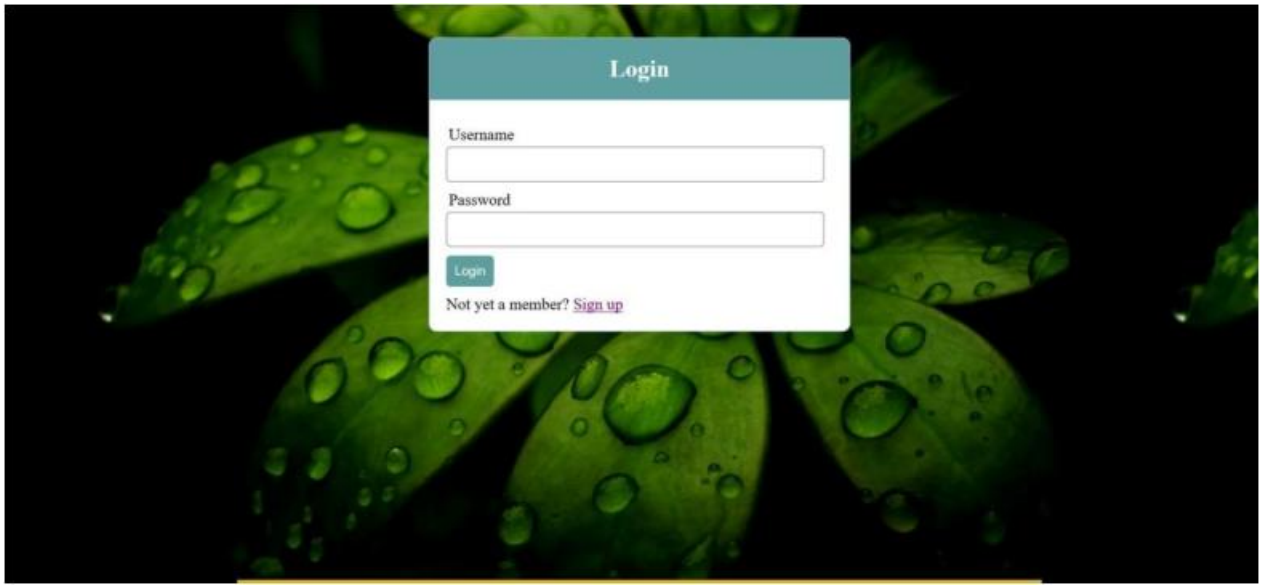
Purchase Confirmation:



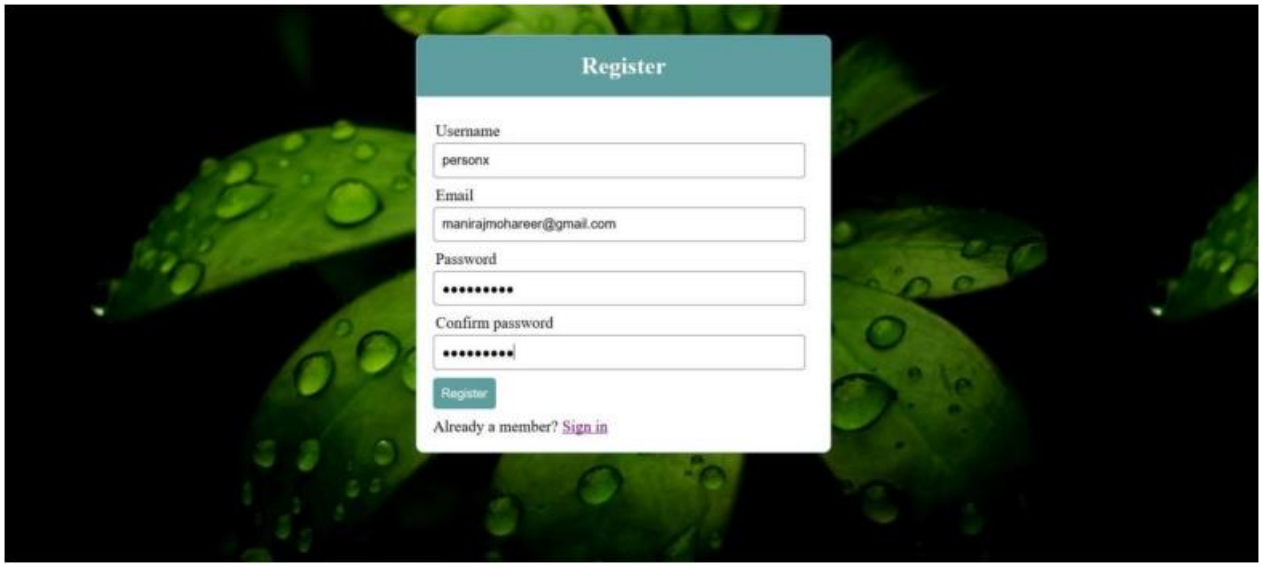
7. Screen Shots

1.Welcome Screen with Animation

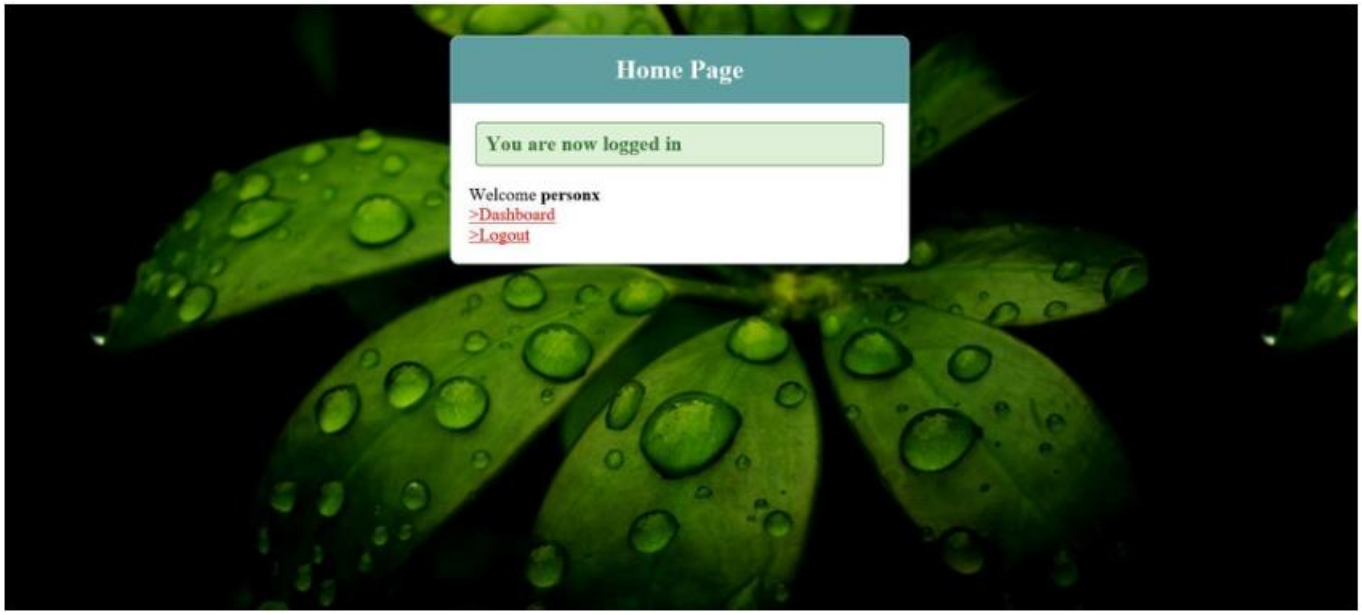
2. Login



3.Signup



4.Home Page



4. Dash Board

5. Fertilizer

NUTRIENTS TABLE

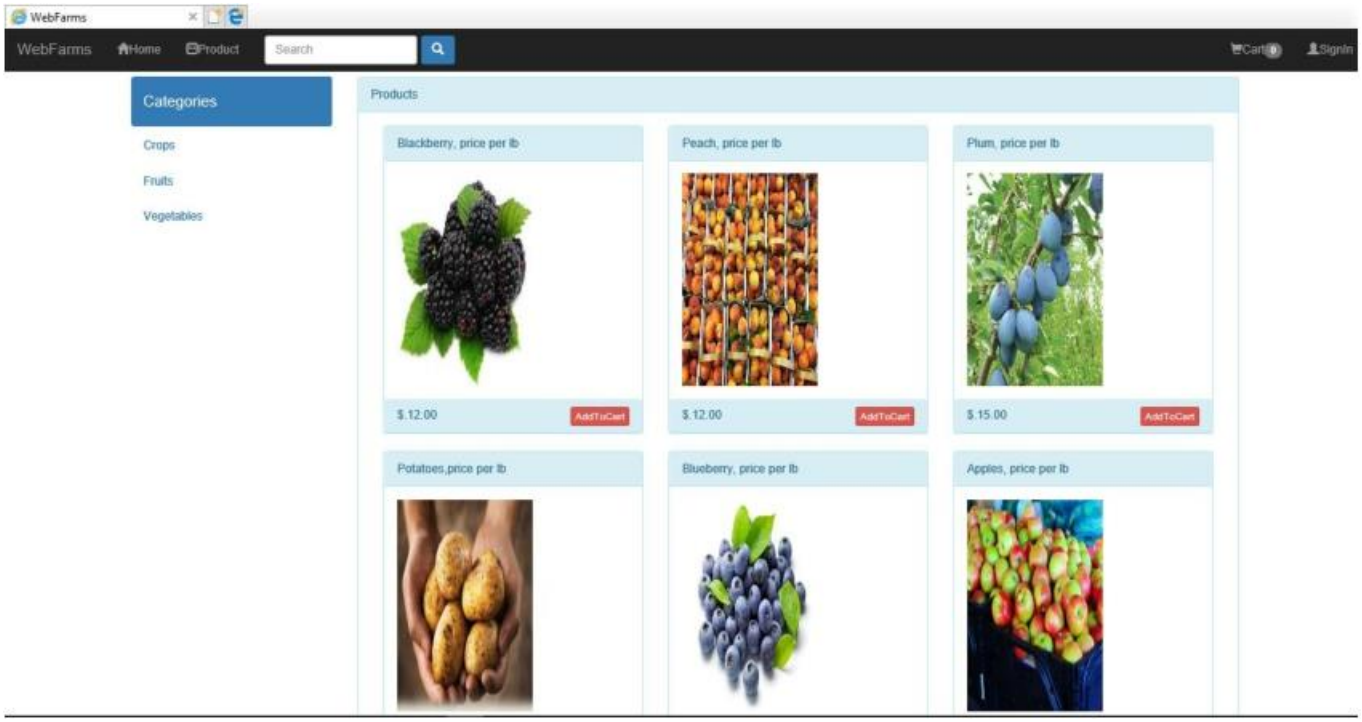
for particular crop

NUTRIENTS	FERTILIZERS
Nitrogen	Ammonium nitrate
Phosphorus	Rock Phaspate
Potassium	Potassium Chlorite
Calcium	Calcium Nitrate
Megnesium	Epson Salt
Sulphur	Ammonium Thio Sulphate
Iron	Ferrous Sulphate
Manganese	Manganese Oxide
Zinc	Zinc Sulphate

6. Weather

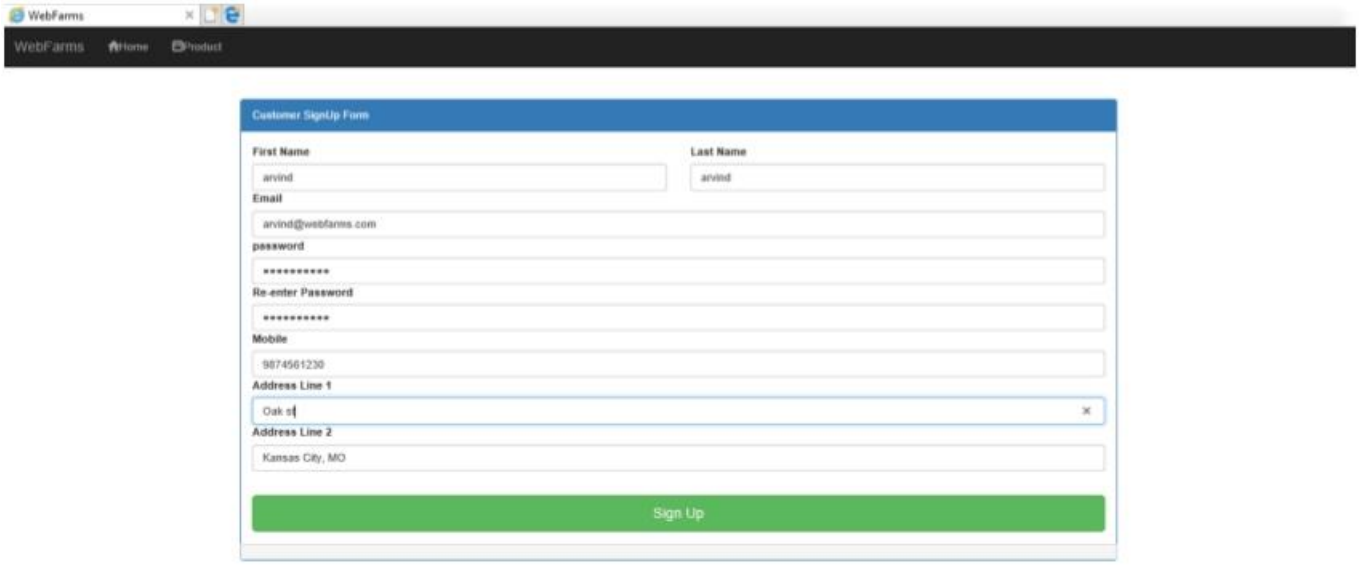

Current location: Kansas City, MO
Current Temp: 58.8 F (14.9 C)
Current Wind: From the SSW at 1.2 MPH Gusting to 3.1 MPH

7. E-Commerce Page

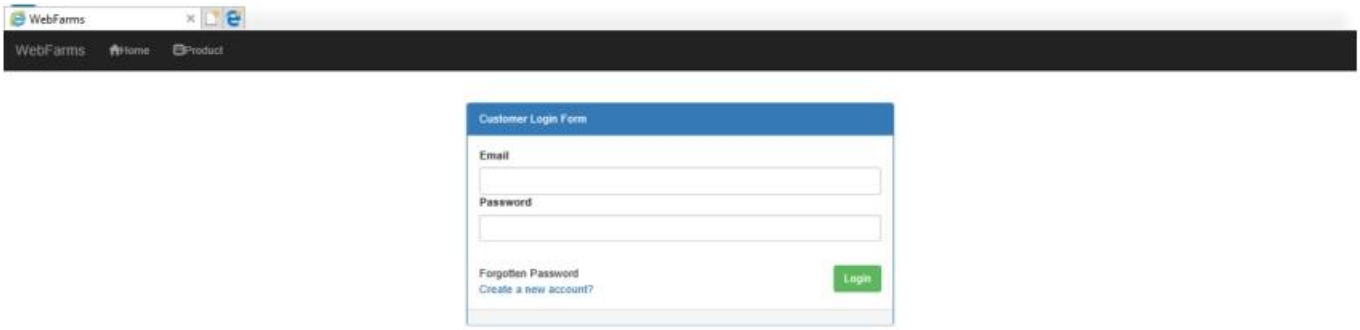


8. E-Commerce Client Side:

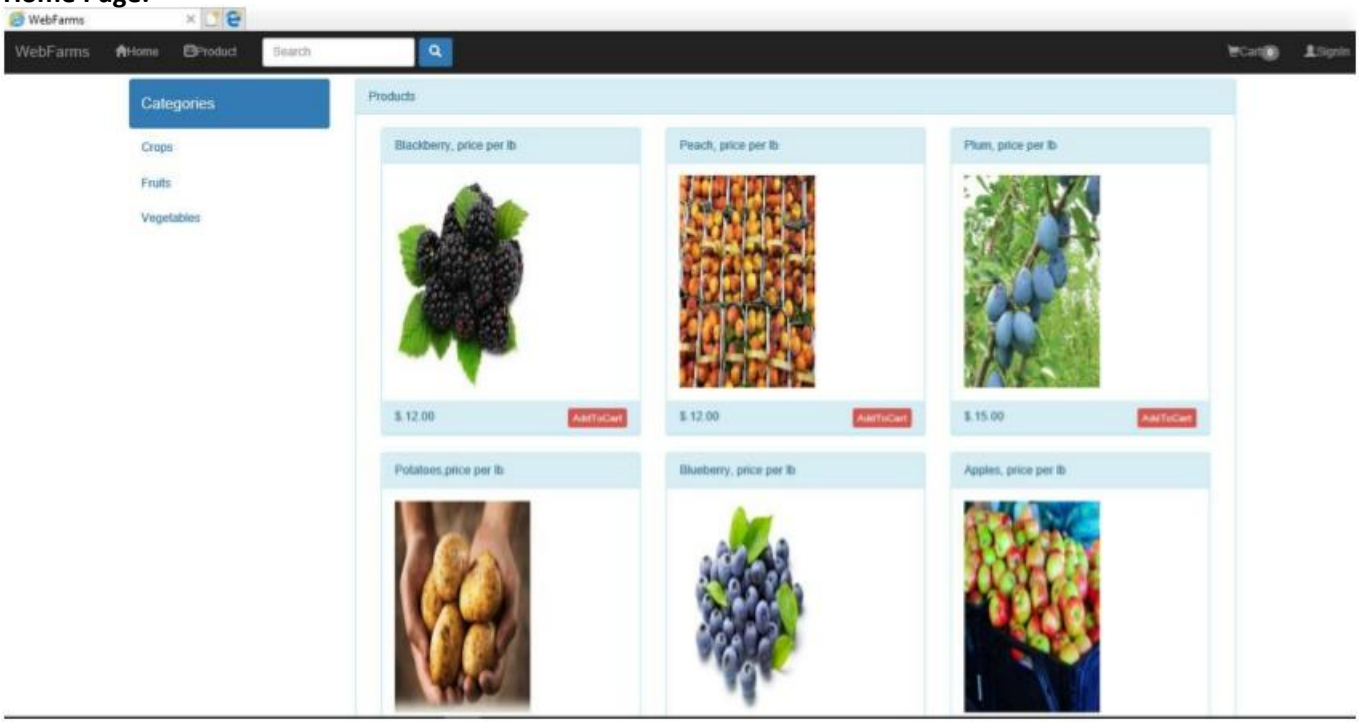
Register:



Login:



Home Page:



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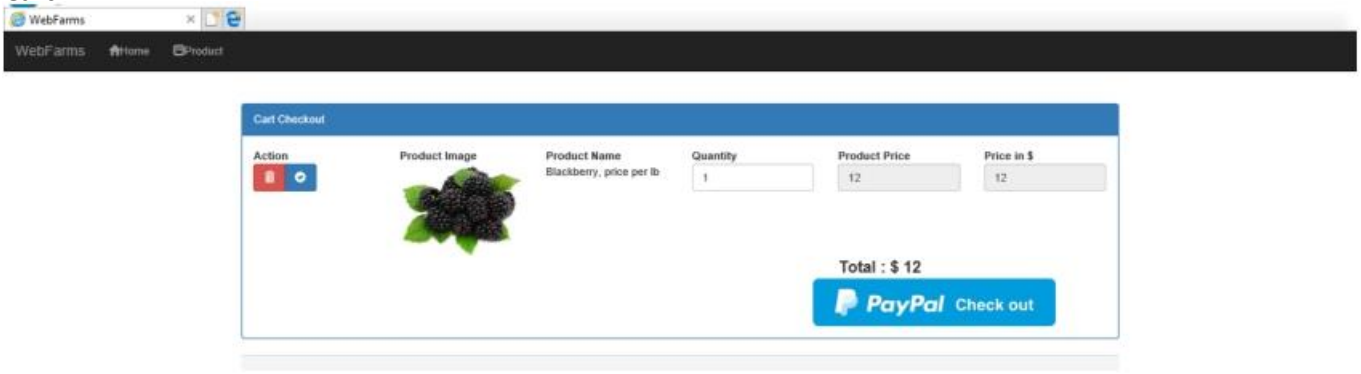

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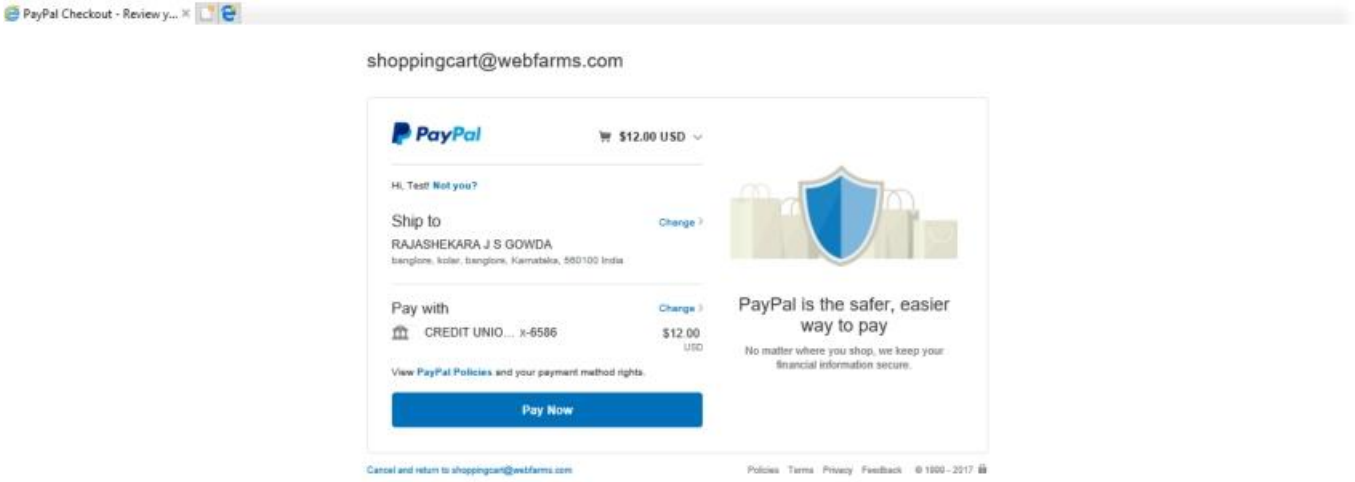
PayPal Checkout - Review y...
shoppingcart@webfarms.com
PayPal
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Hi, Test! Not you?
Ship to
Change
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bangalore, kolar, banglore, Karnataka, 560100 India
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View PayPal Policies and your payment method rights.
Pay Now
PayPal is the safer, easier way to pay
No matter where you shop, we keep your financial information secure.
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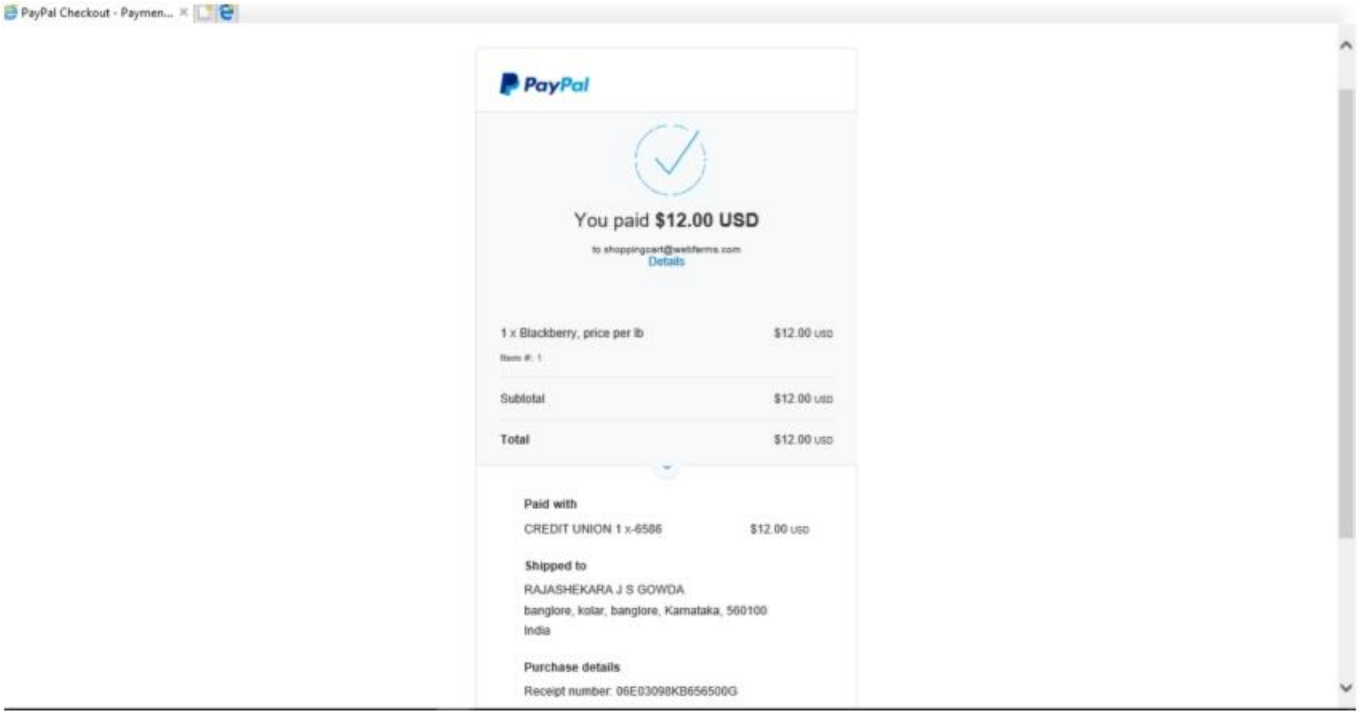
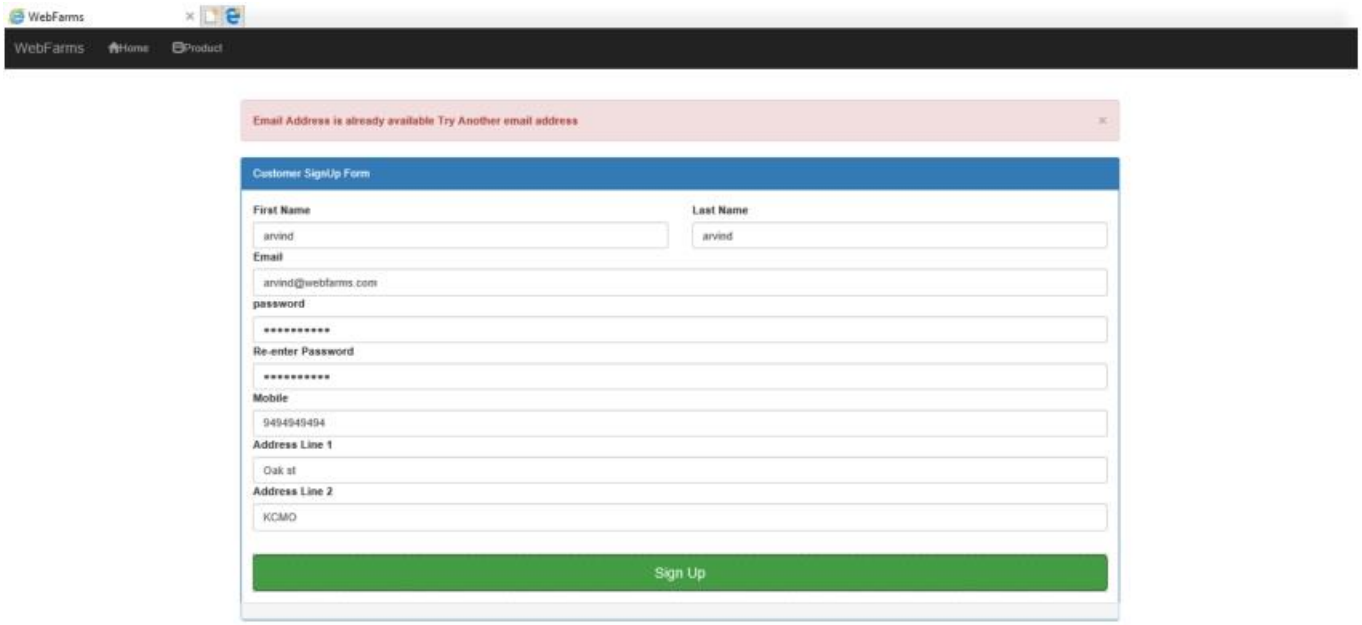
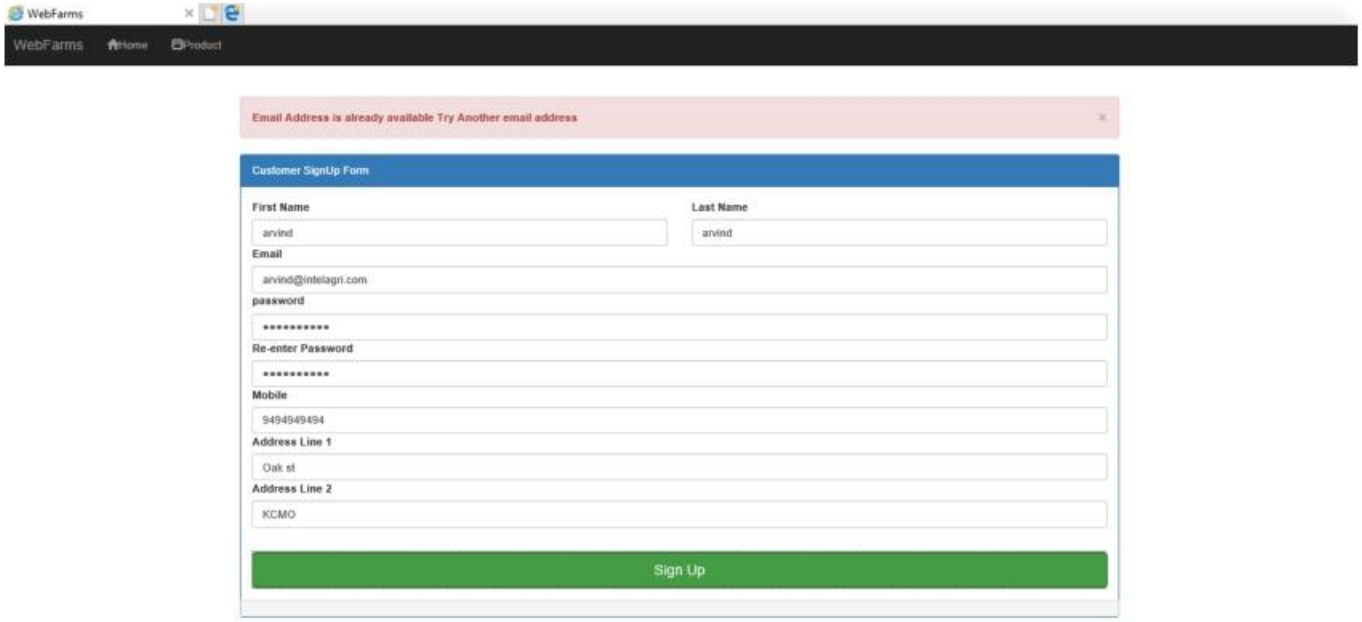
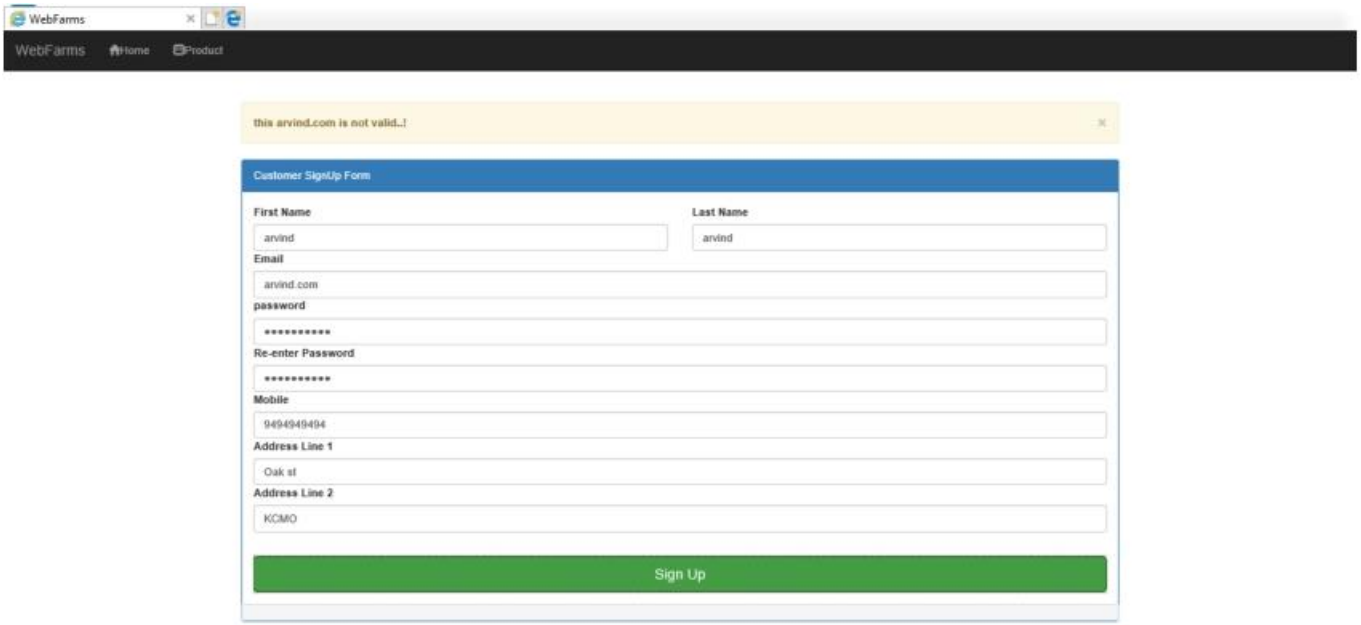
Purchase Confirmation:



Validations:
Registration Page:



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Home
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Customer SignUp Form
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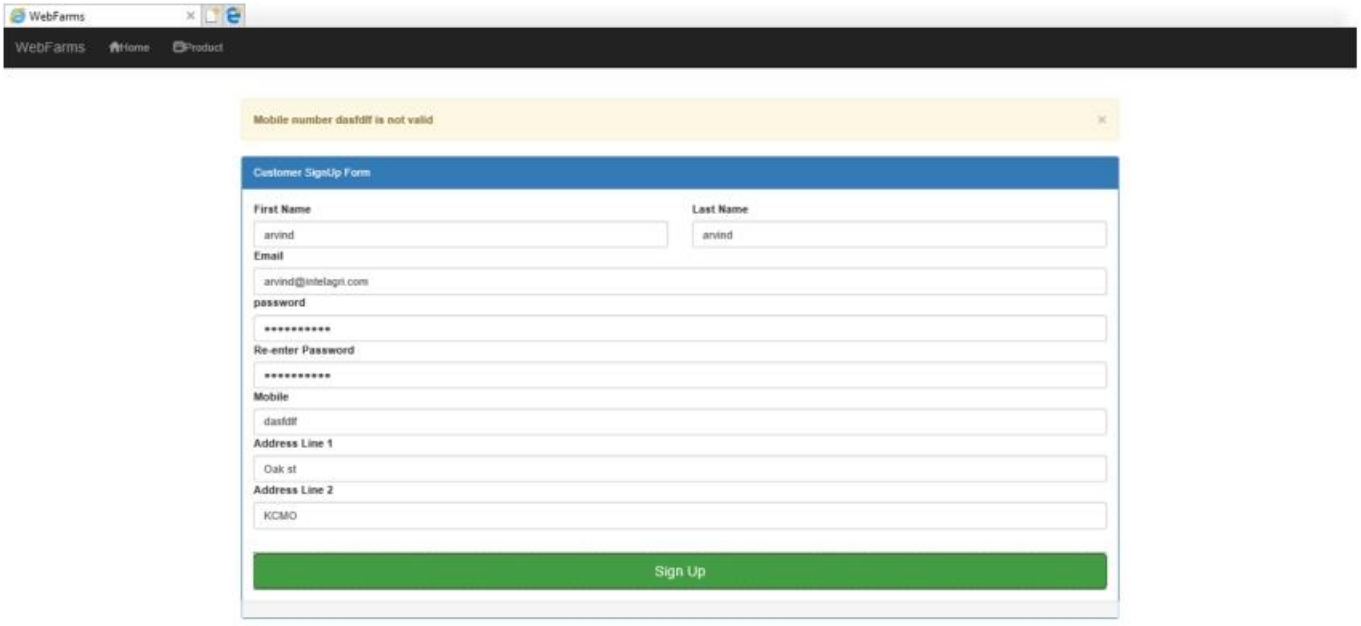
WebFarms
WebFarms
Home
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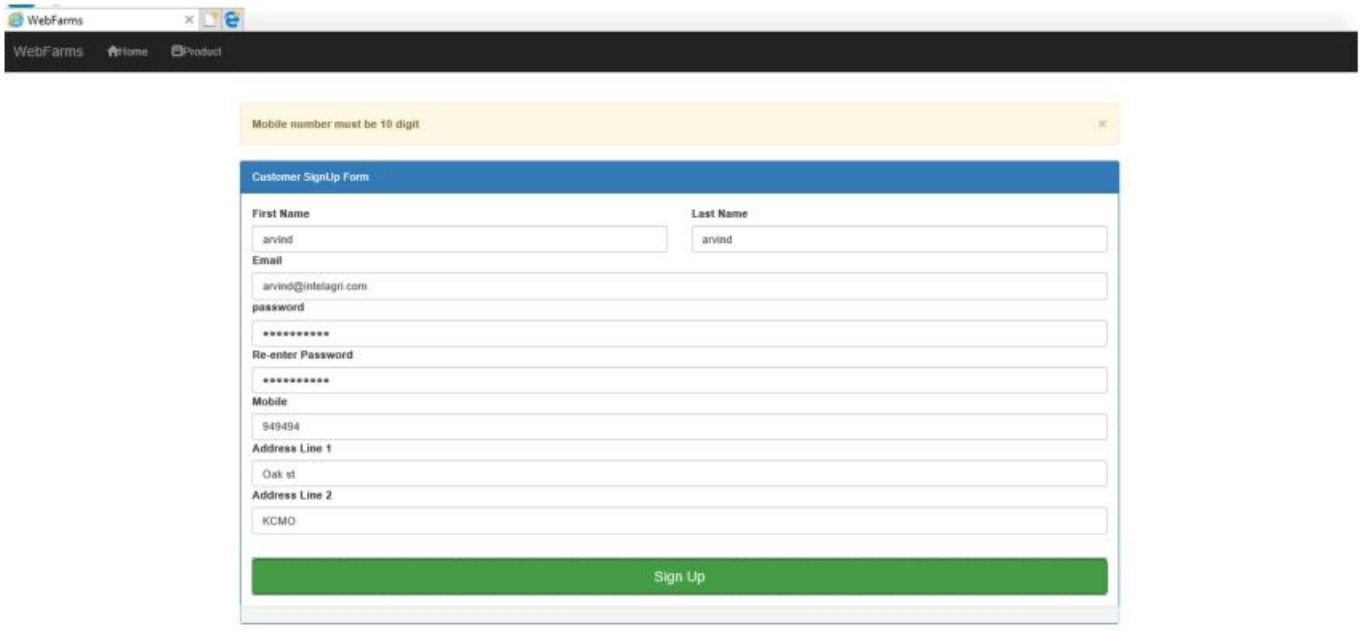
WebFarms
WebFarms
Home
Product
Mobile number must be 10 digit
Customer SignUp Form
First Name
arvind
Last Name
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Email
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Address Line 2
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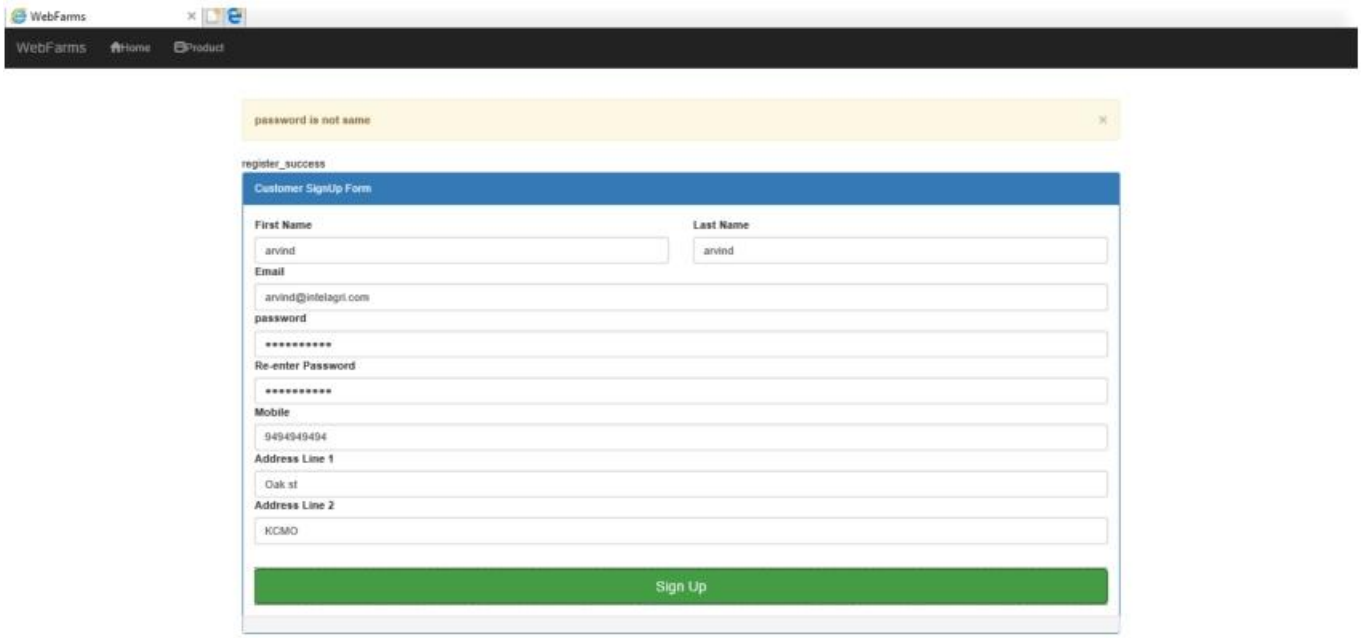
Sign Up


WebFarms
WebFarms
Home
Product
password is not same
register_success
Customer SignUp Form
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arvind
Last Name
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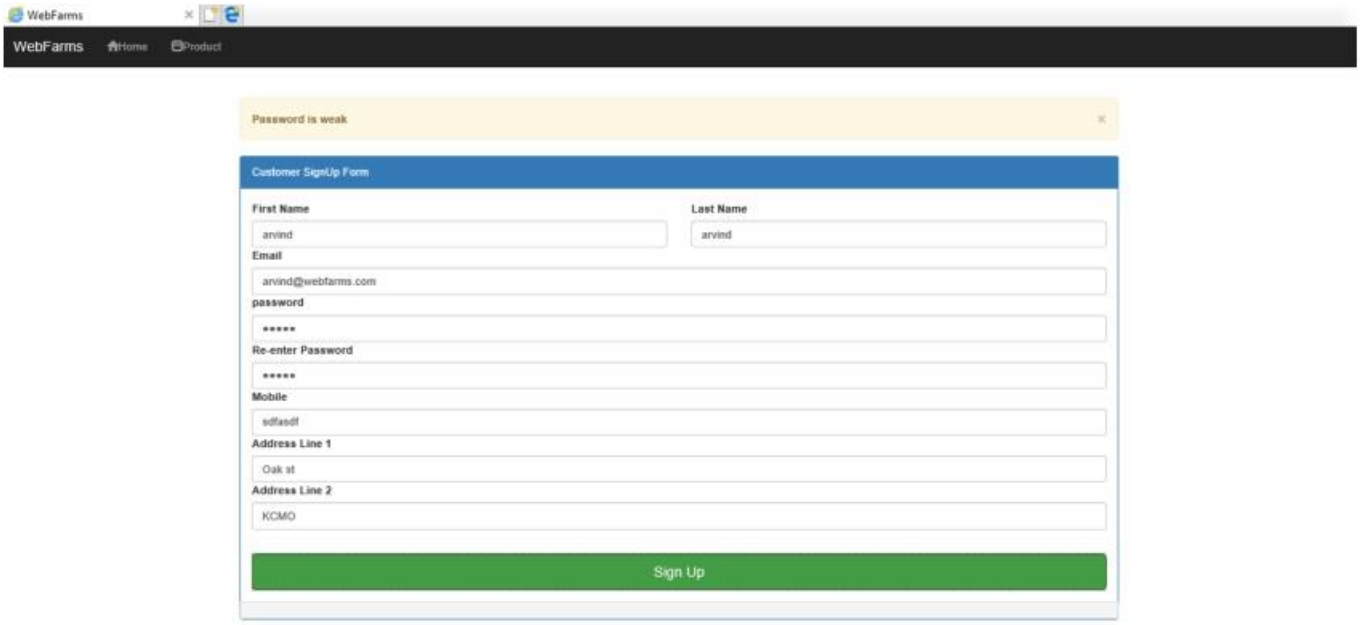
WebFarms
WebFarms
Home
Product
Password is weak
Customer SignUp Form
First Name
arvind
Last Name
arvind
Email
arvind@webfarms.com
password
Re-enter Password
Mobile
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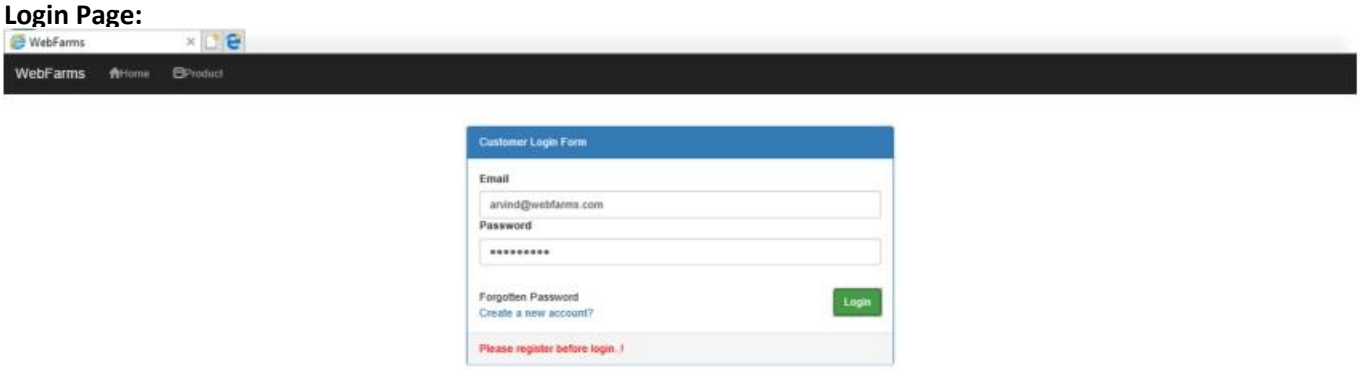
Address Line 2
KCMO
Sign Up

Login Page:


WebFarms
WebFarms
Home
Product
Customer Login Form
Email
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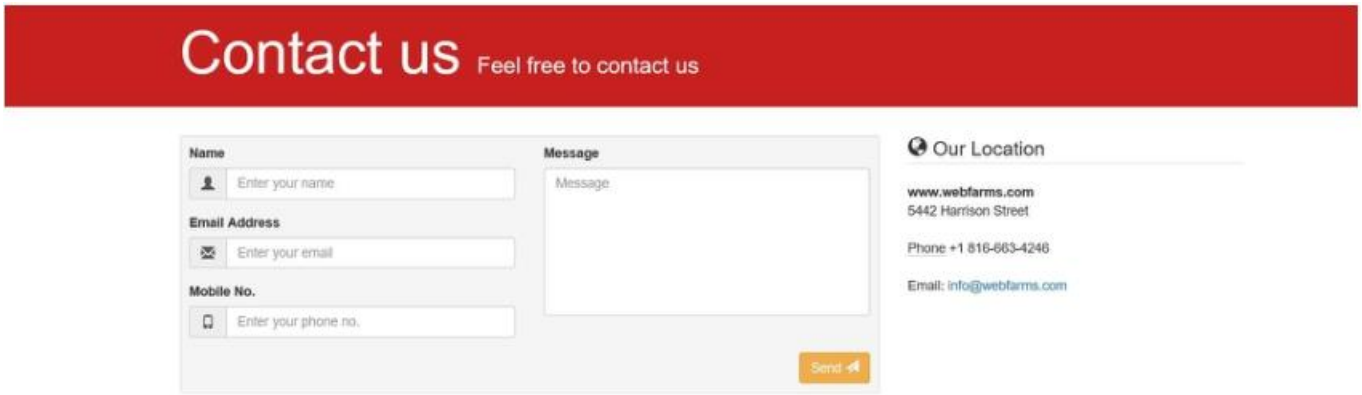
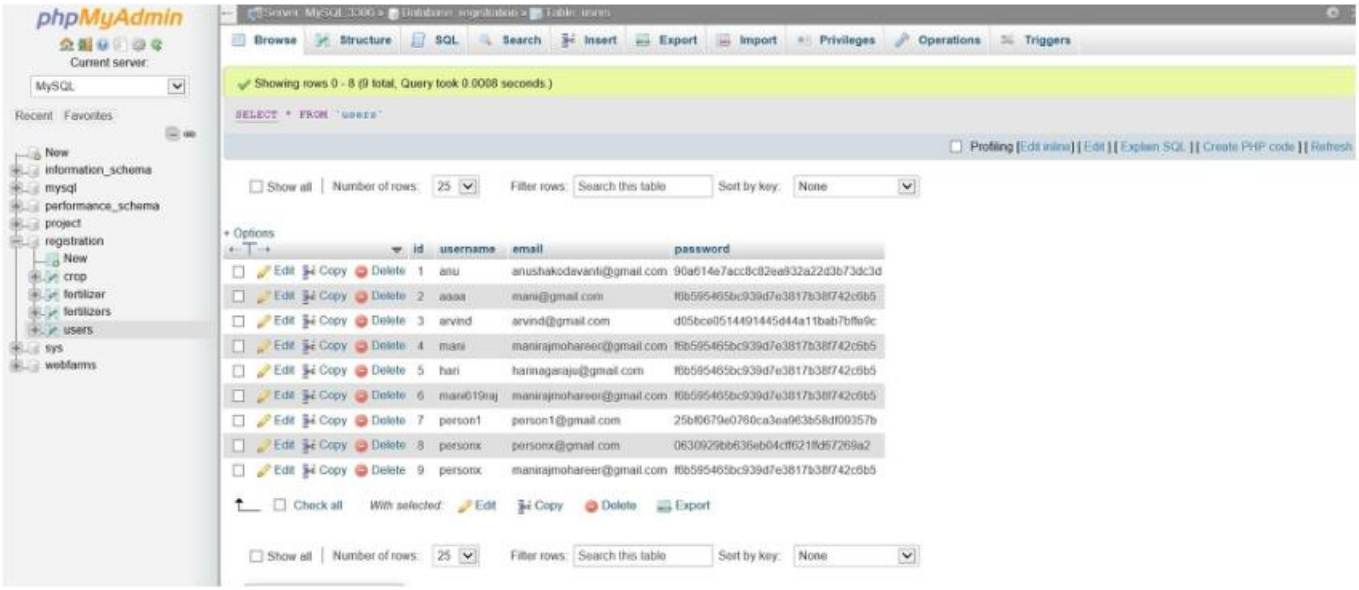
Password
Forgotten Password
Create a new account?
Login
Please register before login..!

9.About

10.Contact



11. WAMP User Data



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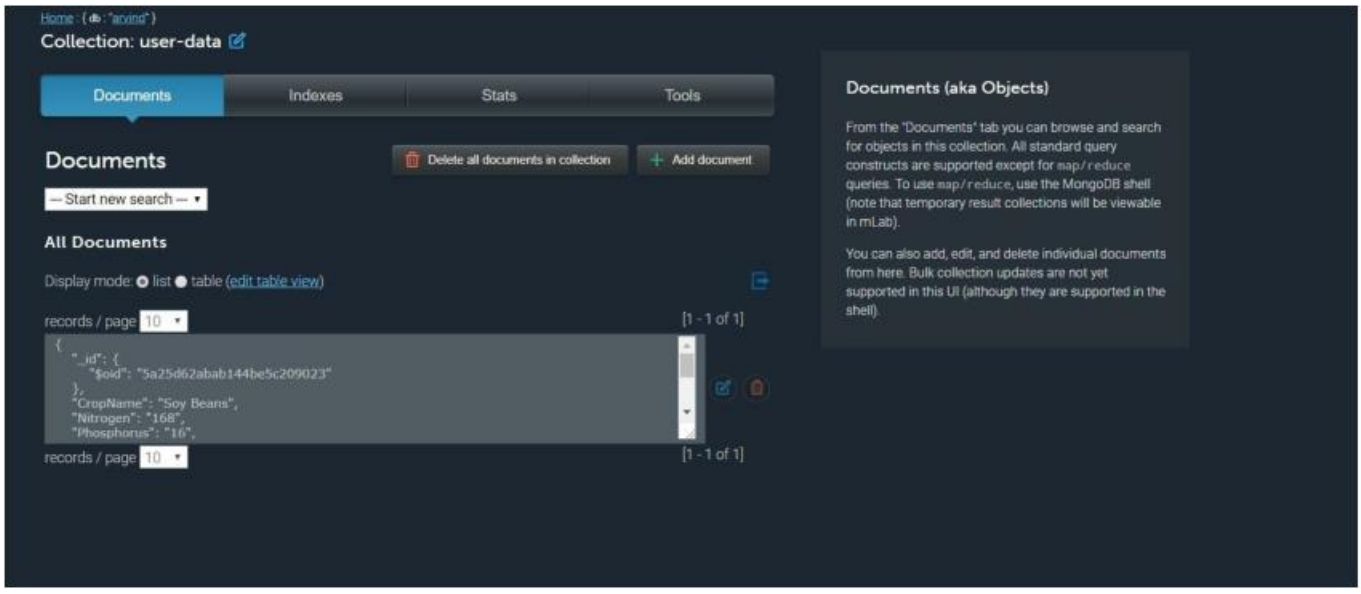

6. Clarifai API : Model Tester

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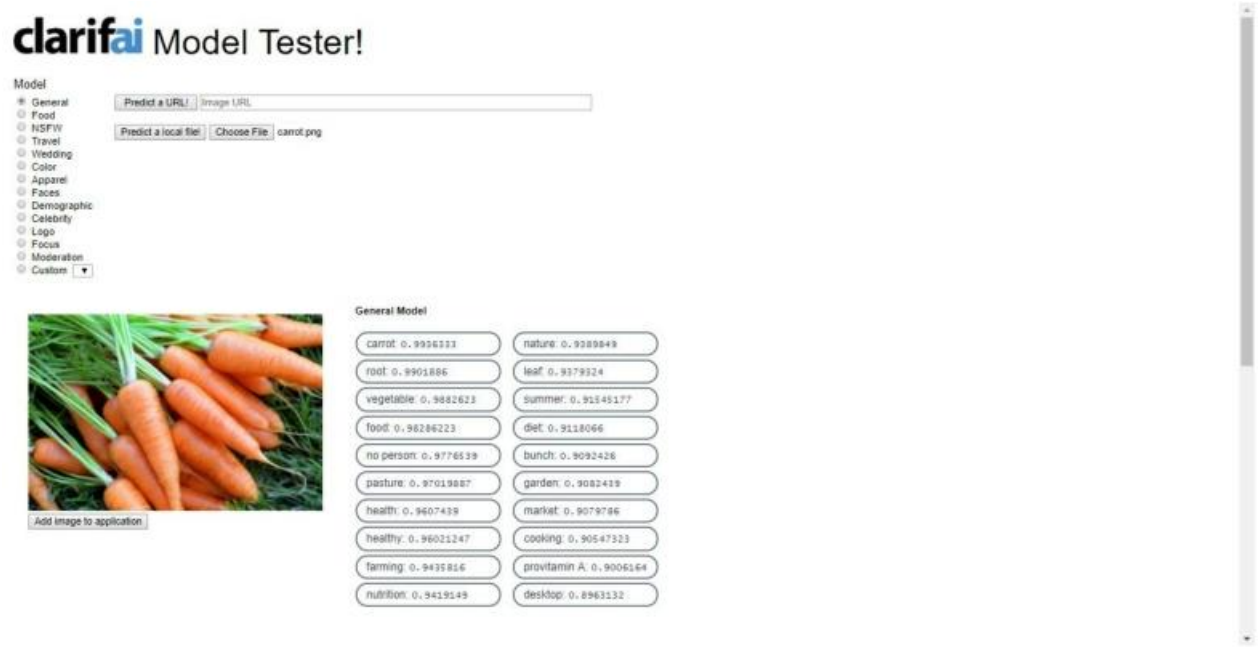
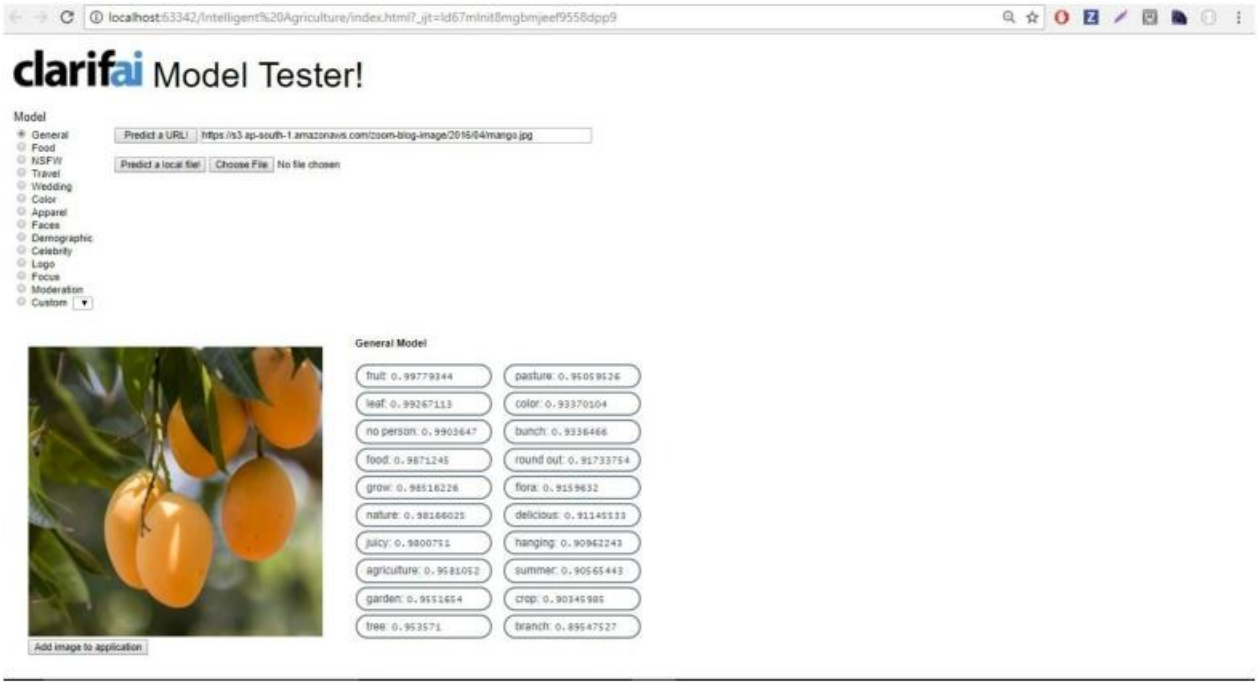
7. Clarifai API Test: Uploading an Image from Local Storage



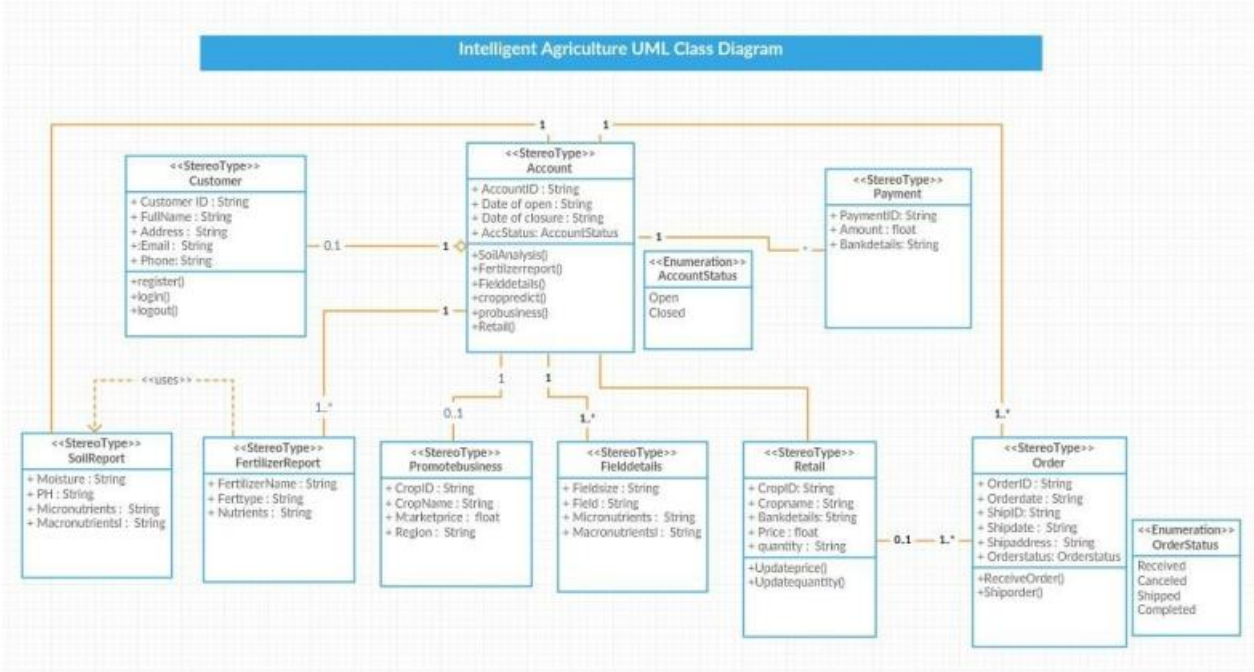
8. Clarifai API Test: Image from a URL



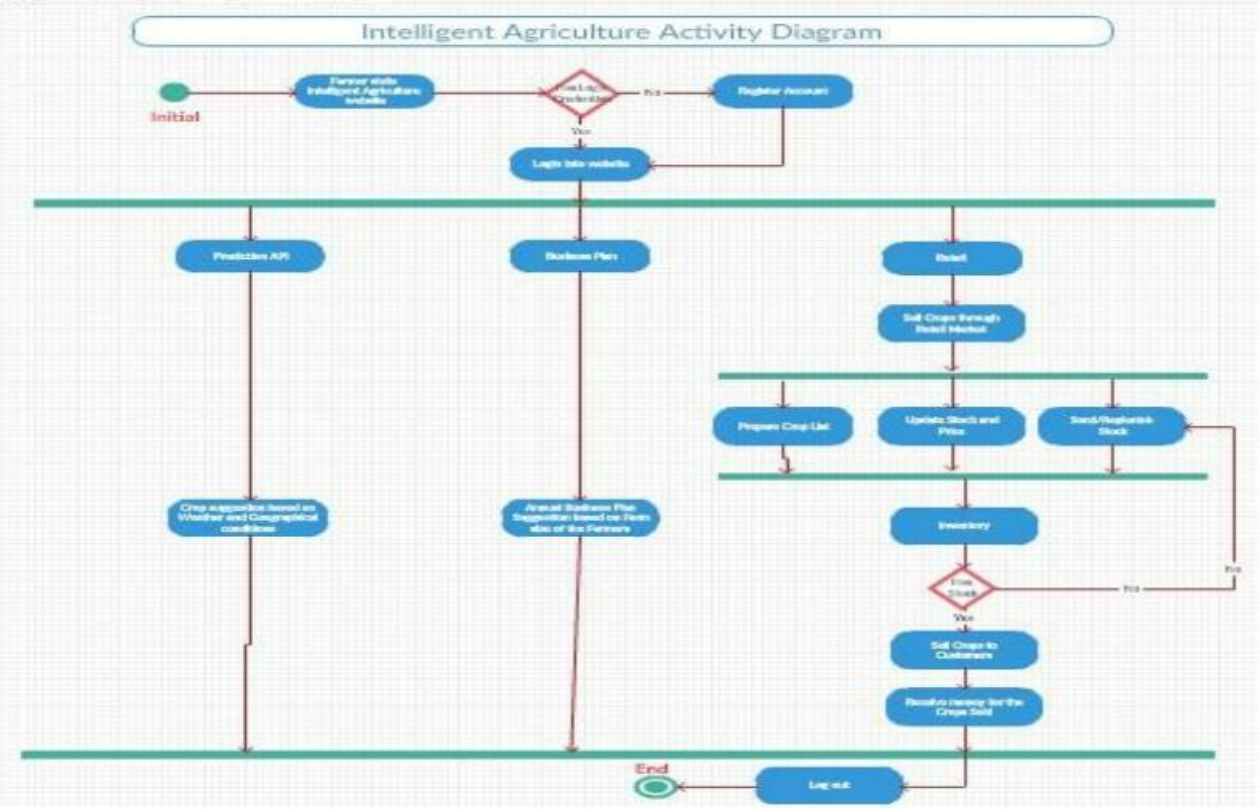
9. Weather API Working State

8. UML Diagrams

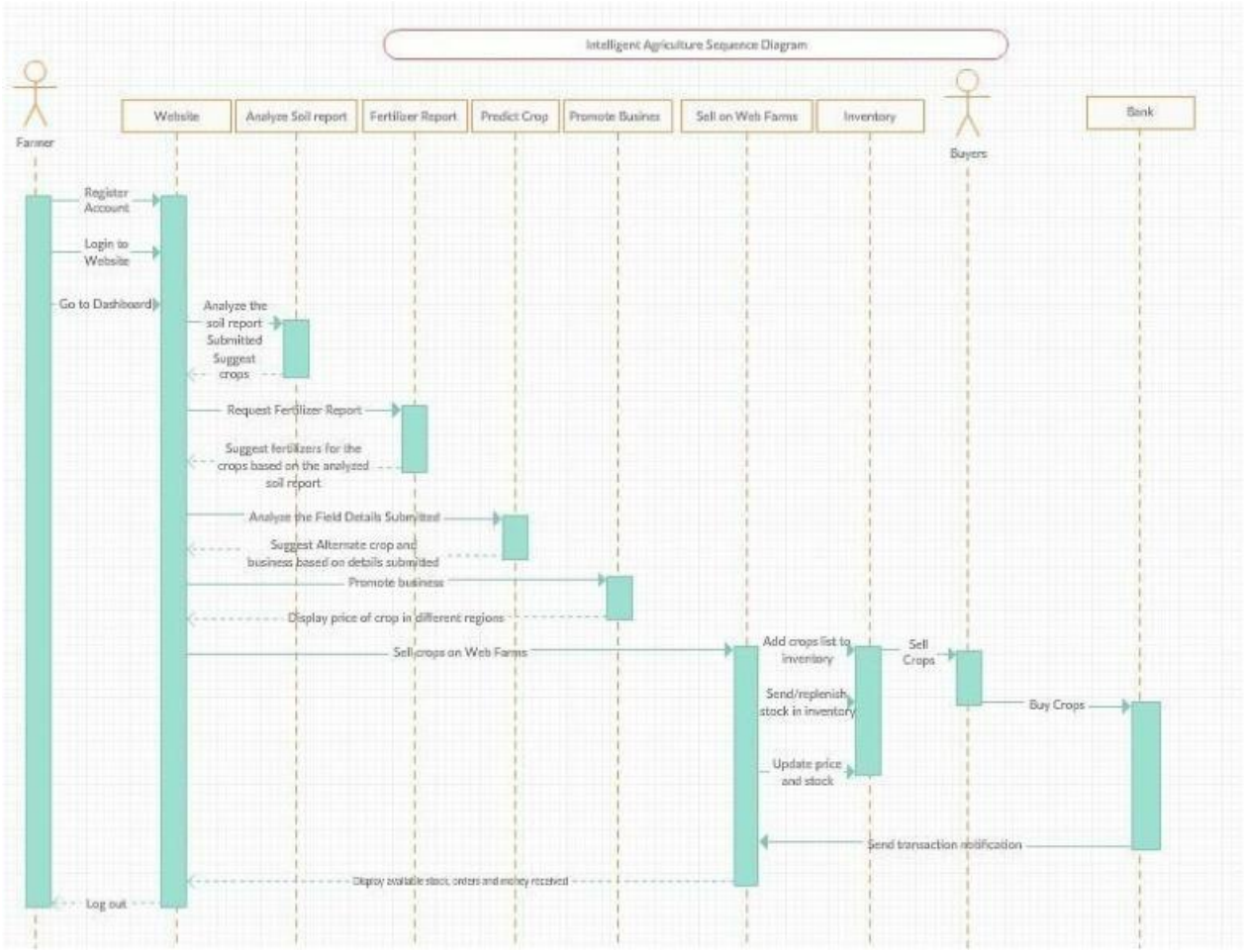
Class Diagram



Activity Diagram



Sequence diagram



9. Unit Testing

Serial Number	Test Case	Outcome	Result
1	Buttons	Navigating between the pages	Success
2	Local Storage Implementation	Successfully stored data	Success
3	OAuth using Gmail	Able to login w/o a flaw	Success
4	OAuth using Facebook	Able to login	Success
5	Interactive Dashboard	Flexible & Versatile Interface	Success
6	Integrating Clarifai API to Web App.	Able to detect the crop	Success
7	Integrating Wunder Ground Weather API to Web App.	Could pull the weather info. Of a City in JSON Format	Success
8	Building E Commerce	Farmers can add their crop details to the website and customers can purchase crops and pay using Paypal on the website.	Success
9	Database Storage Implementation	Successfully Stored Data	Success

10. Technologies Used

i) **Widgets**

- Buttons, Text Fields, Images, Carousel, Navigation header, Sidebar, Divisions, Containers.

ii)**API**

- Wonder Ground Weather Prediction API
- Clarify API
- Authentication using Google Account
- Authentication using Facebook Account
- Mlab DB API

iii) **Tools Used:**

- Web Storm
- Creately
- Zen Hub
- Visual Studio Code
- WAMP Server
- Mlab

iv) **Technologies Used:**

- HTML
- CSS
- Boot Strap
- AJAX/Java Script
- Apache Server
- MySQL Database
- PHP

11. Pre-proposal Report:

Brain Storming:
We have brain stormed about the project, its design, features and implementation.

Assigned Tasks:
We have discussed the main goal and objectives of the project and assigned the tasks for the project to each individual member.

Features Disclosed:
The main features like the nutrients required, crop health prediction, fertilizer report, sell on webfarms (ecommerce) Have been discussed.

12. First Increment Report:

Login and Register pages:
We have created the login and register pages for the WebFarms page and the Ecommerce page. We have also added Google and Facebook OAuth for the login pages. We have also included the local storage for the pages.

Project Outline:
We have concluded the project outline and started working on the project as per the outline.

Agile Implementation using Zenhub:
Agile implementation of the project has been done using Zenhub, burndown charts were created.

13. Second Increment Report:

Integrating APIs to Web Application:
We have integrated the Clarifai API to the web application to predict crop health.

E-Commerce Design:
We have updated the design of the E commerce website.

Dash board:
An interactive dash board has been added which serves as a central hub for all the web pages in the project.

14. Third Increment Report:

Database Design:
Database has been designed for the web pages in the project.

E-Commerce Database Connection:
Database connection has been established to the Ecommerce website.

Database Integration:
We have also integrated the database with the webpages in the project.

15. Fourth Increment Report:

Fat Secret API:
We have added the Fat Secret API to the project for analyzing the nutrients of the crops.

Deployment and Testing:
The project has been deployed and tested in this final increment.

Ecommerce Implementation:
The Paypal payment method has been added to the Ecommerce page and implemented.

16. Project Management:

The project is completed in four increments by a team of 4. The project responsibilities and individual members contribution can be observed below:

Project Responsibilities:
Arvind Tota (40): Database management and integration, Mlab, SQL database, Ecommerce website.

Maniraj Mohareer (24): Database management and integration, Mlab, SQL database, Ecommerce website.

Sunil Kumar Madikanti (21): Documentation, Clarifai API, Fat Secret API, UI design and Dashboard.

Hari Naga Raju Velivela (44): Documentation, Clarifai API, Fat Secret API, UI design and Dashboard.

Project Contribution:
Arvind Tota (40): 25%

Maniraj Mohareer (24): 25%

Sunil Kumar Madikanti (21): 25%

Hari Naga Raju Velivela (44): 25%

17. Bibliography

[1] Analysis Of Soil Test Report: https://www.uaex.edu/publications/PDF/FSA-2118.pdf

[2] Bootstrap Styling: https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js

[3] Fertilizers Required: https://www.gardeners.com/how-to/fertilizer-ratios/5161.html [4] Missouri Staple Crops: http://crops.missouri.edu/covercrops/

[4] MongoDB Insert: https://docs.mongodb.com/manual/reference/method/db.collection.insert/

[5] MongoDB update: https://docs.mongodb.com/manual/reference/method/db.collection.update/

[6] MongoDB delete: https://docs.mongodb.com/manual/tutorial/remove-documents/

[7] MongoDB query document: https://docs.mongodb.com/manual/tutorial/query-documents/

[8] Soil fertility guide: https://extension.umd.edu/sites/extension.umd.edu/files/_images/programs/anmp/PF-1.pdf

[9] Micro nutrient fertilizer details: http://aes.missouri.edu/pfcs/research/prop115.pdf

18. Project Links

Youtube:

https://www.youtube.com/watch?v=TQwHxkUm6pY

Github:

https://github.com/Githubhari9966/ASE-PROJECT

PROJECT PPT:

https://drive.google.com/drive/folders/1HS8p6f0yD-hawa6f3LlP_XSZTPwQOQDN

19. Acknowledgements

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