Brick Links

Final Year Project

Session 2019-2023

A project submitted in partial fulfillment of the degree of

BS in Computer Science

Department of Computer Science

Faculty of Computer Science & Information Technology

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Type (Nature of project)	[✓] **D**evelopment [ ] **R**esearch [ ] **R&D**
Area of specialization	Web Development
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*The candidates confirm that the work submitted is their own and appropriate credit has beengiven where reference has been made to work of others

Plagiarism Free Certificate

This is to certify that, I Muhammad Mather Tahir S/D of Muhammad Tahir, group leader of FYP under registration no BCSM F19-231 at Computer Science Department, The Superior University, Lahore. I declarethat my FYP report is checked by my supervisor.

Date: Name of Group Leader: Muhammad Mather Tahir Signature: _____

Name of Supervisor: Mr. Talha Amjid
Designation: Lecturer

Signature:_____

Co-Supervisor: Mr. Hamayon Khan
Designation:

Signature: _____

HoD: Dr. Irfan-Ud-din
Signature: _____

Brick Links

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
Mahammad Mather Tahir	1.0			

APPROVAL

PROJECT SUPERVISOR

Comments: _____

_____

Name: _____

Date: _____ Signature: _____

PROJECT MANAGER

Comments: _____

_____

Date: _____ Signature: _____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date: _____ Signature: _____

Dedication

This project is dedicated to all the members of FYP-BCSM-F22-055 class 8B for their sacrifice and cooperation researching this paper. Our appreciation goes to ***Sir Talha Amjid*** *for their guidance in preparation of the final document and to our colleagues for their support.*

Acknowledgements

Firstly, I would like to give my great and lovely thanks to Allah Almighty for blessing me with strong and comfortable health as well as courage for the accomplishment of my project report. Special thanks go to my Project supervisor **Mr. Talha Amjid**, for his contribution on my project since I have started up to end for support, advice and knowledge in order to achieve and complete the project successfully.

Executive Summary

We provide a brinks digital platform. In this platform we connect all bricks companies in our country. Our aim to provide bricks in low rate and 100% quality ensure.

In the market, the rate of bricks is too much expensive so using our application we are offering the best prices as compare to retailer because retailer take commission, if the brick price 7 rupees so retailer sale 10 rupees so it's too much expensive but we just take 4% commission from company. so, we are offering the customer round about 8 rupees per brick.

There are many types of qualities of bricks so customer doesn't know about quality. We ensure that the quality must be good.

When consumer purchase bricks, the consumer or company take too much time of delivery so using our platform, we provide consumers order as soon as possible.

So many consumers would not know about the rate of bricks in which month is less then whole year. In our platform, we guide the consumers about rate of bricks. So, consumers save a large amount of money from bricks.

If you want to design to your building map, so architecture demands you 40k to 50k rupees of building map. But we are providing your building design or map in 10k rupees only.

As many construction workers (Mistry) who don't have any idea to calculate bricks and they usually order less bricks according to your building. So, when you again order of bricks it is possible to increase the price of bricks. Then it is expensive for consumers. So, we know consumers need. We also calculate brinks according to your building design or map, so that they save your money.

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Chapter 1

Introduction

Chapter 1: Introduction

This chapter is about our project Brick Links. We provide a digital platform for all the Bricks Companies. In this platform we connect all Bricks Companies in our country. Our aim to provide a platform for all the Bricks Companies for online sale and purchase to make it easy for customers of Bricks. We want to provide the Bricks at the low price to facilitate the customers of Bricks and provide the Bricks with the quality assure. In this chapter, we discuss about the background of project, market gap related to our project.

2.2. Background

The main idea of the project is to provide brinks digital platform in Pakistan. At this time Pakistan's construction industry productivity can be increased by using technology. Construction industry wants the app should provide access to all the various variety of a bricks.

Consumers are in trouble facing issues in finding quality bricks, low rate on bricks, and bricks calculation etc. Focusing on all of these needs for consumers in Pakistan.

We start by gathering information and brainstorming on providing a single platform that helps the consumers. Finally, we come up with the idea of web application. At this time, website is easily accessible to everyone. Our aim is to provide Bricks at a low rate.

2.2. Motivations and Challenges

When I was in my 1st semester. I had no consultation about what should be my major in university and the issue was the same when I completed my matriculation and I had to take admission in ICS. After 2nd semester I decided to enroll in a course but it was difficult for me to pay for it and the one which was free had no quality in it. At the same time when I wanted to implement something like a Web Application. I didn't have the examples to follow. Same issue was faced by my fellows too. The only thing that helped me was my ability to search. So, I decided to make web application where i will provide all the functionalities and it is also user friendly.

2.2. Goals and Objectives

Our goal is to connect all the Bricks Companies on a digital platform where each company directly connected with the Brick's customers. So, customer can easily order by digital platform and receive the order at their door step. We provide the facilitation for customer to provide the facilitation of bricks calculation and also provide the map for their required area so the customer can select map according to their choice and use it to build their homes, office etc.

2.2. Literature Review/Existing Solutions

Right now, when you decide to buy bricks then you visit brick companies and by reference. So, we decided to build up digital platform to manage bricks companies for online selling and purchasing of bricks. To facilitate the customers.

2.2. Gap Analysis

There is a huge market gap for online selling bricks so we decided to remove the gap and connect customer directly to the bricks companies so they can easily buy bricks from there and we build platform for seller to manage bricks company like records of sale and ledger management of bricks.

2.2. Proposed Solution

- **Low Rate:**

  We are offering the best prices as compare to retailer because retailer take commission, if the brick price 7 rupees so retailer sale 10 rupees so it's too much expensive but we just take 4% commission from company. so, we are offering the customer round about 8 rupees per brick.

- **Quality Assure:**

  We ensure that the quality must be good for customer so the customer satisfied.

- **Less Time Taking:**

  Digital platform to manage the orders for Bricks Companies so that the ordered delivered in a queue.

- **Order Easy:**

  It is hard task for customer to find the Brick Companies and visit every Brick Company so we provide digital platform to make it easy for customer and Bricks Companies.

2.2. Project Plan

Our plan to build a digital platform for Bricks Companies to buy and sale bricks. So the customer can buy bricks through digital platform and can order bricks at their fingertips.

2.1.1. Work Breakdown Structure

The purpose of roles & responsibility matrix is to identify who will do what.

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1	Proposal Plan	1	3/8/2022	2	Mather
2	Project Summary	2	6/8/2022	3	Mudassar
3	Data Collection	3	10/8/2022	4	Hamza
4	Feasibility Report	4	14/8/2022	5	Mather
5	Discussion	5	21/8/2022	1	Mudassar
6	Requirement Analysis	6	23/8/2022	2	Hamza
7	End User Detail	7	27/8/2022	4	Mather

2.1.2. Roles & Responsibility Matrix

RACI Matrix

Brick Links

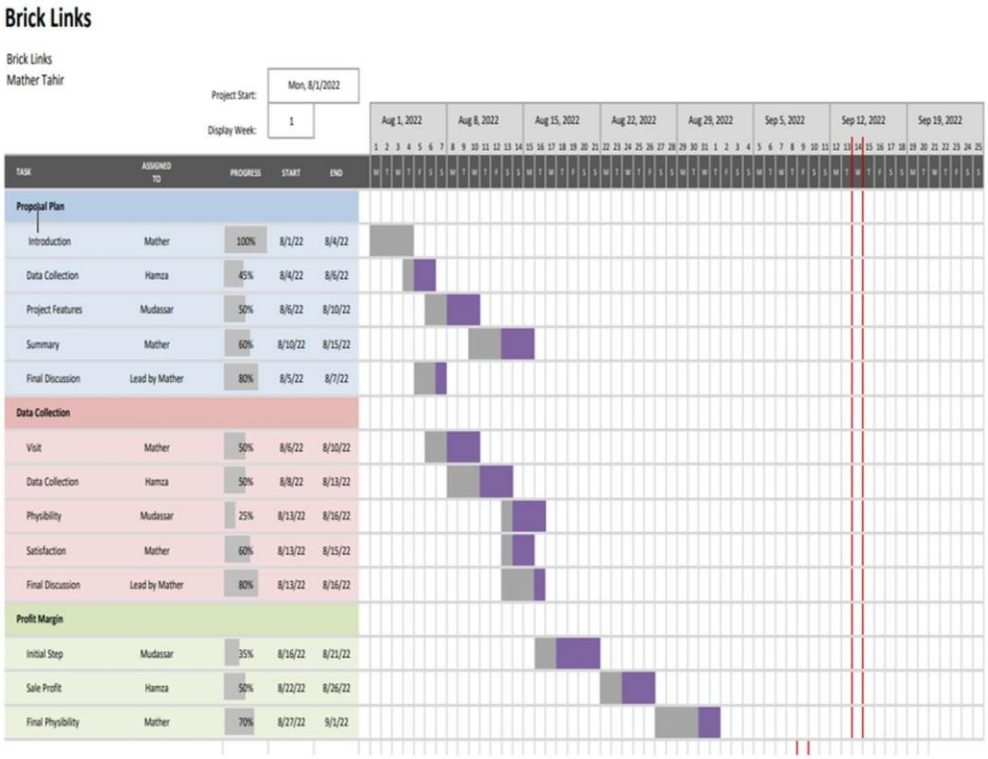
Roles and Responsibilities

Responsible, Accountable, Consulted, Informed

Deliverable or Task	Status	Sponsor	Muhammad Tahir	Muhammad Mather (BC-SM-F19-xxx)	Hamza Javed (BC-SM-F19-405)	Muhammad Mudassar (BC-SM-F19-xxx)	Muhammad Mather (BC-SM-F19-xxx)	Hamza Javed (BC-SM-F19-405)	Muhammad Mudassar (BC-SM-F19-xxx)			Talha Amjad	Muhammad Mather (BC-SM-F19-xxx)	Hamza Javed (BC-SM-F19-405)	Muhammad Mudassar (BC-SM-F19-xxx)	
		Sponsor / Leadership					Project Team					Other Resources				
Initiation Phase																
Proposal Study		A	R				I									
Proposlal Finalized		A		R			I									
Planning Phase																
Project Requirements		C	I				A	R								
Financial Study			I				A		R							
Execution Phase																
Design UI			I				A	I		R		C				
Demo			I				A	I	R			C				
Control Phase																
User Testing				I			A	R					C			
Testing Result				I			A		R							
Insert new rows above this one																

D	Driver	Assists those who are responsible for a task.
R	Responsible	Assigned to complete the task or deliverable.
A	Accountable	Has final decision-making authority and accountability for completion. Only 1 per task.
S	Support	Provides support during implementation.
C	Consulted	An adviser, stakeholder, or subject matter expert who is consulted before a decision or action.
I	Informed	Must be informed after a decision or action.

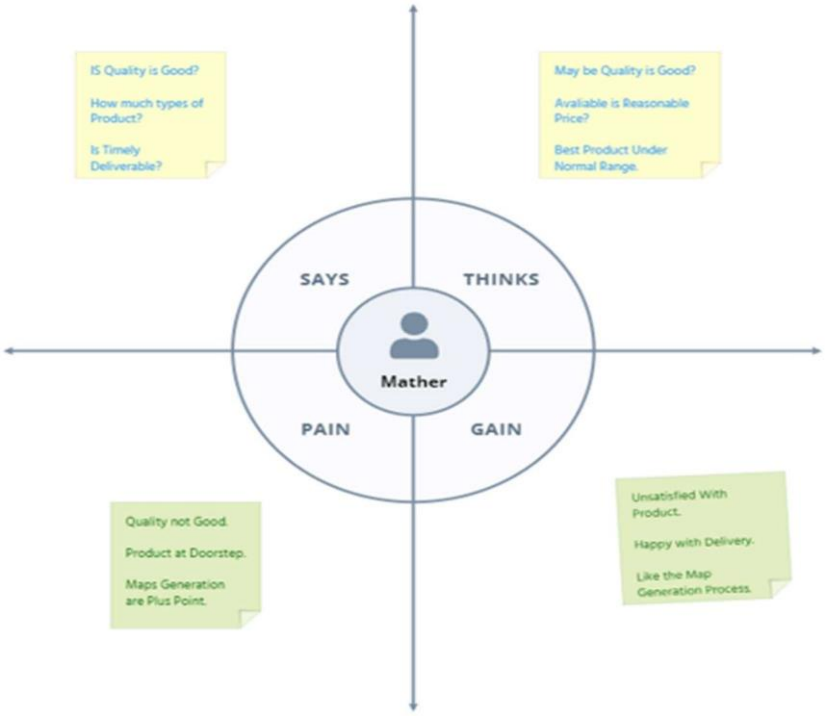
2.1.3. Gantt Chart



2.2. Report Outline

- This project is outlined in a sequential manner starting with chapter one which consists of the Introduction.
- Chapter two consists of Software Requirements Specifications
- Chapter three consists of use case analysis
- Chapter four consists of system design
- Chapter five consists of implementation
- Chapter six consists of snapshot

2.2. Empathy Map



Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.2. Introduction

2.1.1. Purpose

We provide a digital platform for all the Bricks Companies. In this platform we connect all bricks companies in our country. Our aim to provide a platform for all the Bricks Companies for online sale and purchase to make it easy for customers of Bricks. We want to provide the Bricks at the low price to facilitate the customers of Bricks and provide the Bricks with the quality assure.

2.1.2. Document Conventions

The following are the list of conventions and synonyms used in the document & project.

- **Administrator:** A log in id representing the user with user¬ administration privileges to software.
- **Frontend:** React JS (for Frontend)
- **Backend:** NODE JS (for Backend)
- **DFD:** Show the data flow between entities.
- **User interface:** Something through which user communicate with system.

2.1.3. Intended Audience and Reading Suggestions

This document is intended for developers and project managers of this software who wish to read about what the software can do. Rest of SRS contains work flow of the system, how the system works, flow of data at the system and other technical functionalities of the software.

- For developers there is a need to start from introduction and understand workflow diagrams.
- The project manager sequence of reading is from introduction to class diagram and use cases.

2.1.4. Product Scope

Scope of the Project:

- **Order at Door Step:**

  We deliver the order at door step by which customer can save their time and less time taking by ordering online order as compared to go and order the Bricks.

- **Bricks Calculation:**

  In that module we calculate the Bricks for the given map.

- **Map Provide:**

  We provide the customers possible maps for his requirement as he selected specific map then we calculate the Bricks according to that map.

- **Track your Order:**

  We generate the tracking system to track the customer order so customer can track his order and take the conformation about the order.

- **Connect with Bricks Companies:**

  We provide the customer a platform to connect with the bricks companies as customer registered on our application then it opens the door for thousands of Bricks Companies.

- **Low Rates:**

  We provide the Bricks in reasonable price and less rate from retailers so the customer can buy Bricks with low price and good quality.

2.1.5. References

- Article Title: Bricks Management System
- Website Title: *Google Blog*
- URL: https://www.blog.google/
- URL: https://www.studymode.com/
- URL: https://www.google.com/

2.2. Overall Description

2.2.1. Product Perspective

We choose this project to connect all Pakistan Bricks Companies to bricks customers to provide the facility for online sale and purchase of bricks that very easy to order at door step.

2.2.2. User Classes and Characteristics

There are various user classes for this project.

- Customer can online order.
- Customer can select the supplier of Bricks Companies.
- Customer can calculate Bricks.
- Customer can track the order.
- Seller can register their Bricks Company.
- Seller can manage their Bricks Company.
- Seller can sell online Bricks.
- Seller can receive order.

2.2.3. Operating Environment

- This project will be operating in windows environment. Also compatible with internet explorer.
- The only requirement for using this project is having machine.

2.2.4. Design and Implementation Constraints

- This project is developed using React JS, Node JS and database Mongo DB for save the records.
- The product is accomplished with the login facility for user.

2.2.5. Assumptions and Dependencies

This project will include a user manual. The user manual includes complete overview of the products, configuration of the tool used (Mongo DB or other), technical details, backup procedures and contact information which will include email address and Ph#.

2.3. External Interface Requirements

2.3.1. User Interfaces

- Front-end software: React JS
- Back-end software: Node JS

2.3.2. Hardware Interfaces

A user can access this software by using the following devices.

- Computer
- Laptop

2.3.3. Software Interfaces

Following are the software used for the Brick Links.

Software used	**Description**
Operating system	We have chosen windows operating system for its best support and user-friendliness.
Database	To save the records we use Mongo DB database.
MERN	To implement the project, we have chosen MERN Framework for its more interactive support.

2.3.4. Communications Interfaces

We use web browser for running our website for connecting bricks companies directly to the customer.

2.4. System Features

2.4.1. Order at Door Step

In that Feature, online sale and purchase of Bricks.

2.4.1.1. Description and Priority

For this Customer, First register at our website then order us.

2.4.1.2. Stimulus/Response Sequences

User need to order us through digital platform for purchasing bricks

2.4.1.3. Functional Requirements

- To register at our website.
- Select the category.
- Select the seller.
- Tell us about the quantity of bricks.
- Book the order of bricks.

2.4.2. Bricks Calculation

2.4.2.1. Description and Priority

This feature is for calculate bricks for required area.

2.4.2.2. Stimulus/Response Sequences

To calculate the quantity for bricks for given map or given area given by customers as it provides us about the quantity of bricks required.

2.4.2.3. Functional Requirements

- Register at our website.
- Provide us area.
- Calculation of Bricks.

2.4.3. Track your order

2.4.3.1. Description and Priority

This feature is for track the order at digital platform.

2.4.3.2. Stimulus/Response Sequences

To track about the order how much time remaining for delivery of order.

2.4.3.3. Functional Requirements

- Order dispatch by seller
- Provide bill receipt
- Calculation of Bricks

2.5. Nonfunctional Requirements

2.5.1. Performance Requirements

This Software required

- Web site or Mobile Application
- Register different Bricks Companies
- Connect to the customer.

2.5.2. Safety Requirements

Our safety depends on some factors, all of them are listed below with proper explanation.

- **Use of cookies** - The most important data that we need to manage because of this we'll get user analytics and behavioral data about the users.
- **Malware** - The main focus will be preventing malware from getting into our core files that can harm our indexes as well the usage of users. So, we'll use a third-party word fence to combat that and manage all our scanning.

2.5.3. Security Requirements

This project has following safety requirements.

- Authentication and password management.
- Authorization and role management.
- Data validation

- Data Security.

2.5.4. Usability Requirements

The usability requirements are mentioned below.

- Performance (User will be able to buy bricks through digital plat form).
- Accessible (Accessible for customers and seller of bricks companies).
- User Friendly (Interface is user friendly).
- User Engagement.

2.5.5. Reliability Requirements

These are following reliability requirements.

- Registration of seller for provide Bricks for customers.
- User friendly interface.

2.5.6. Maintainability/Supportability Requirements

The maintain ability requirements are given below.

- Update the software.
- Add new feature.
- Meet the customer requirement.

2.5.7. Efficiency Requirements

The efficiency requirement is used by this software.

- How much time customer get output.
- How much system fast.
- Feature to work system efficiently.

2.6. Domain Requirements

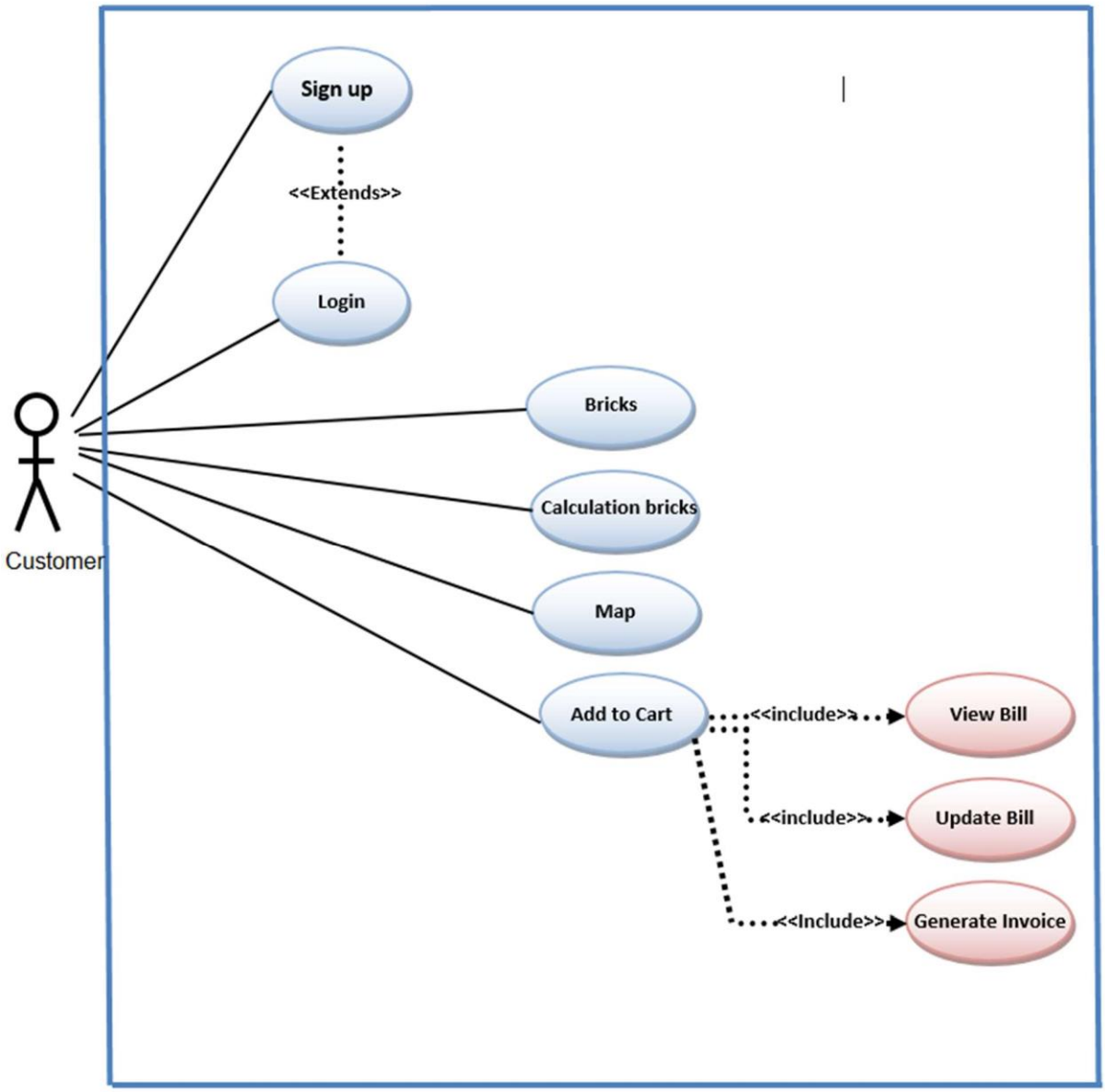
- The technology that is follow will be latest version of this technology.
- Database server must have latest security updates.
- Code for application must be clean and easy read for other developers and seniors.

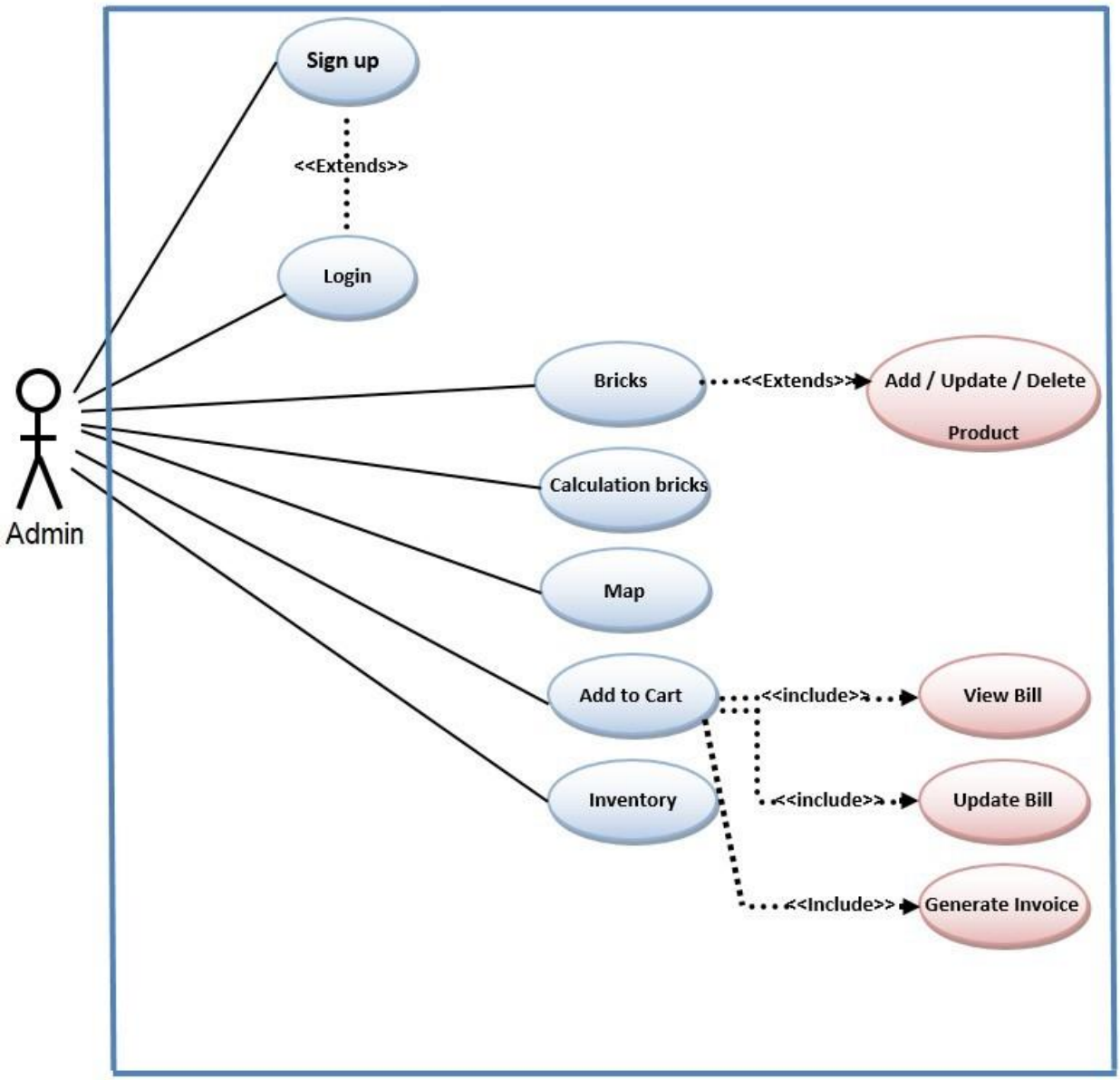
Chapter 3
Use Case Analysis

Chapter 3: Use Case Analysis

This chapter is all about the roles and functionalities of the system and its actors in the use case form. All the primary and secondary actors with respect to their responsibilities. We have made a use case diagram in which we've properly defined each and every functional and nonfunctional requirement according to the respected id or levels. In the use case given below explains the relation between actors and their functionalities.

3.1. Use Case Model




Sign up
<<Extends>>
Login
Admin
Bricks
<<Extends>>
Add / Update / Delete Product
Calculation bricks
Map
Add to Cart
<<include>>
View Bill
Inventory
<<include>>
Update Bill
<<Include>>
Generate Invoice

3.2. Use Cases Description

Use Case ID:	UC-1
Use Case Name	Sign up
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	When customer & admin (both) open the website and display a page of sign up.
Trigger	Both entry username and password and click on signup button.
Pre conditions	Both should have signup and visit the website.
Post conditions	Post-Condition 1: Customer visit the website entry username and password. Post-Condition 2: Admin visit the website entry username and password.
Normal Flow	• Open the website • Open the signup page of website

Use Case ID:	UC-2
Use Case Name	Sign in
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	When Customer & Admin (both) open the website and display a page of Sign in.
Trigger	Both entry username and password and click on sign in button.
Pre conditions	Both should have sign in and visit the website.
Post conditions	Post-Condition 1: Customer visit the website entry username and password. Post-Condition 2: Admin visit the website entry username and password.
Normal Flow	• Open the website • Open the sign in page of website

Use Case ID:	UC-3
Use Case Name	Bricks
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	When Customer & Admin (both) open the website and asked the menu for bricks. When a customer clicks on bricks it shows the variety and information of bricks that are used in construction.
Trigger	Both want to open the bricks menu.
Pre conditions	Both should have login and visit the website.
Post conditions	Post-Condition 1: Customer visit the bricks menu and check price of different category of bricks. Post-Condition 2: Admin can add, delete and update bricks.
Normal Flow	• Open the website • Open the menu of bricks
Alternative Flow	• List of bricks are shown • Select the category and city desired city • Back to normal flow

Use Case ID:	UC-4
Use Case Name	Calculation bricks
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	Customer open the website and asked the menu of calculation bricks. When a customer clicks on it. It asks you to enter the width and length of the wall so it calculates the bricks that require for the wall.
Trigger	Customer want to open the calculation bricks menu.
Pre conditions	Customer should have login and visit the website.
Post conditions	Customer visit the menu and calculate bricks.

Normal Flow	• Open the website • Open the menu of calculation bricks
Alternative Flow	• Enter the width and length of wall • Back to normal flow

Use Case ID:	UC-5
Use Case Name	Add to Cart
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	When Customer open the website and asked the menu of add to Cart. When customer clicks on it. It shows all products in add to Cart menu.
Trigger	Customer want to open the add to Cart menu.
Pre conditions	Customer should have login and visit the website.
Post conditions	Customer visit the add to Cart menu and check all products.
Normal Flow	• Open the website • Open the menu of add to Cart
Alternative Flow	• It shows all products. • Back to normal flow

Use Case ID:	UC-6
Use Case Name	Map
Actors	Primary Actor: Customer & Admin Secondary Actor: Brick Links website
Description:	When Customer open the website and asked the menu of Map. When customer clicks on it. It shows different type of building maps.
Trigger	Customer want to open the map menu.
Pre conditions	Customer should have login and visit the website.
Post conditions	Customer visit the map menu and check all building maps.

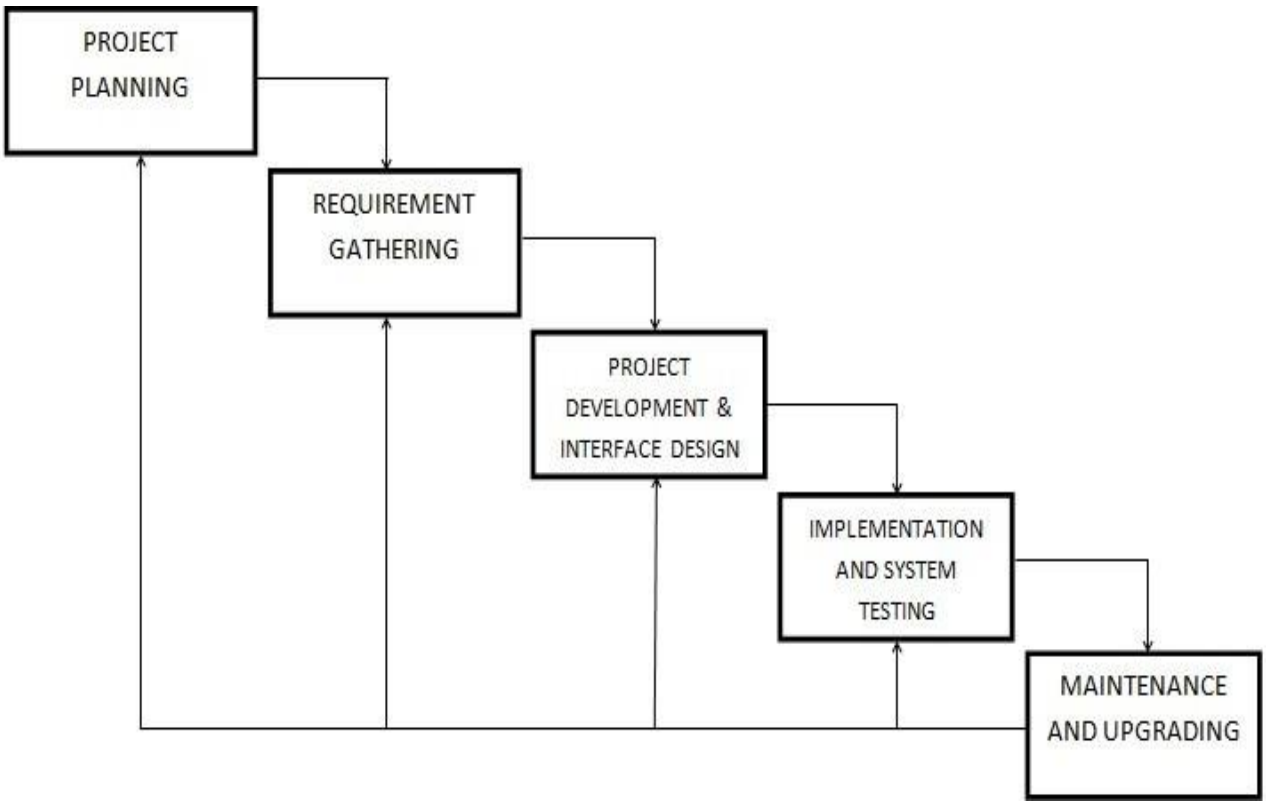
Normal Flow	• Open the website • Open the menu of map
Alternative Flow	• It shows all products.
	• Back to normal flow

Use Case ID:	UC-7
Use Case Name	Inventory
Actors	Primary Actor: Admin Secondary Actor: Brick Links website
Description:	When Admin open the website and asked the menu of Inventory. Admin clicks on it. It gives information of all inventory.
Trigger	Admin want to open the inventory menu.
Pre conditions	Admin should have login and visit the website.
Post conditions	Admin visit the inventory menu and check all inventory.
Normal Flow	• Open the website • Open the menu of inventory
Alternative Flow	• It helps the supplier. • Back to normal flow

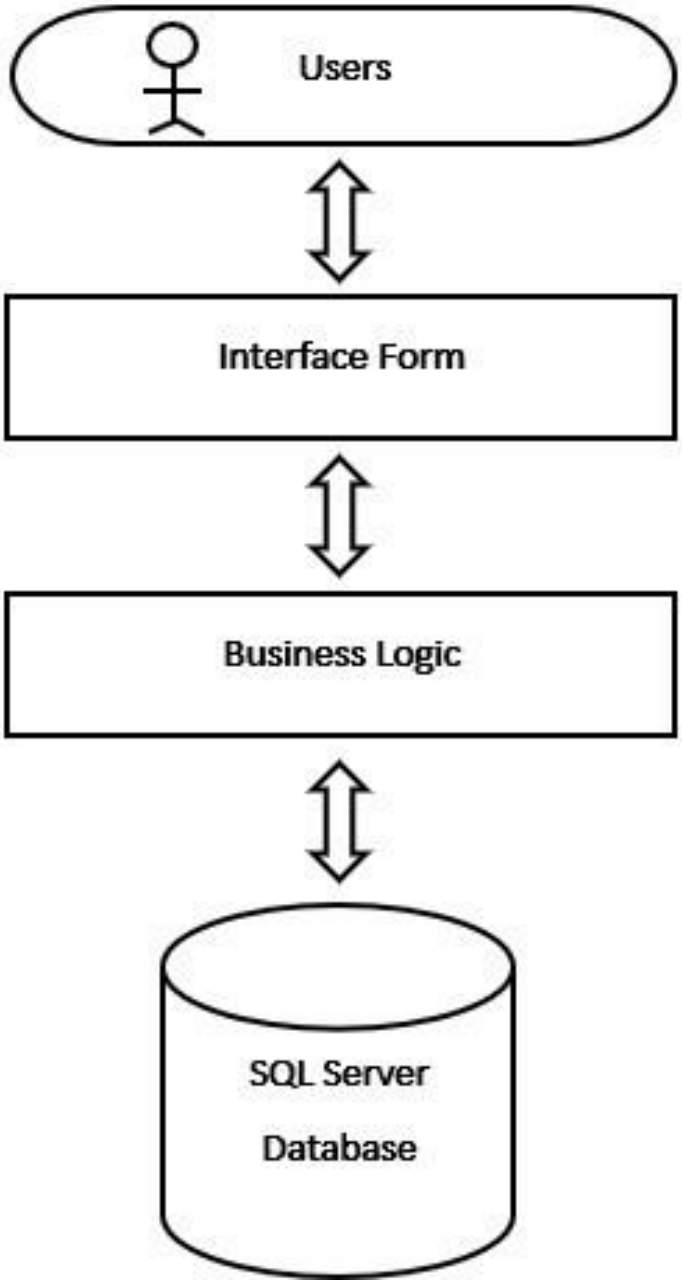
Chapter 4
System Design

Chapter 4: System Design

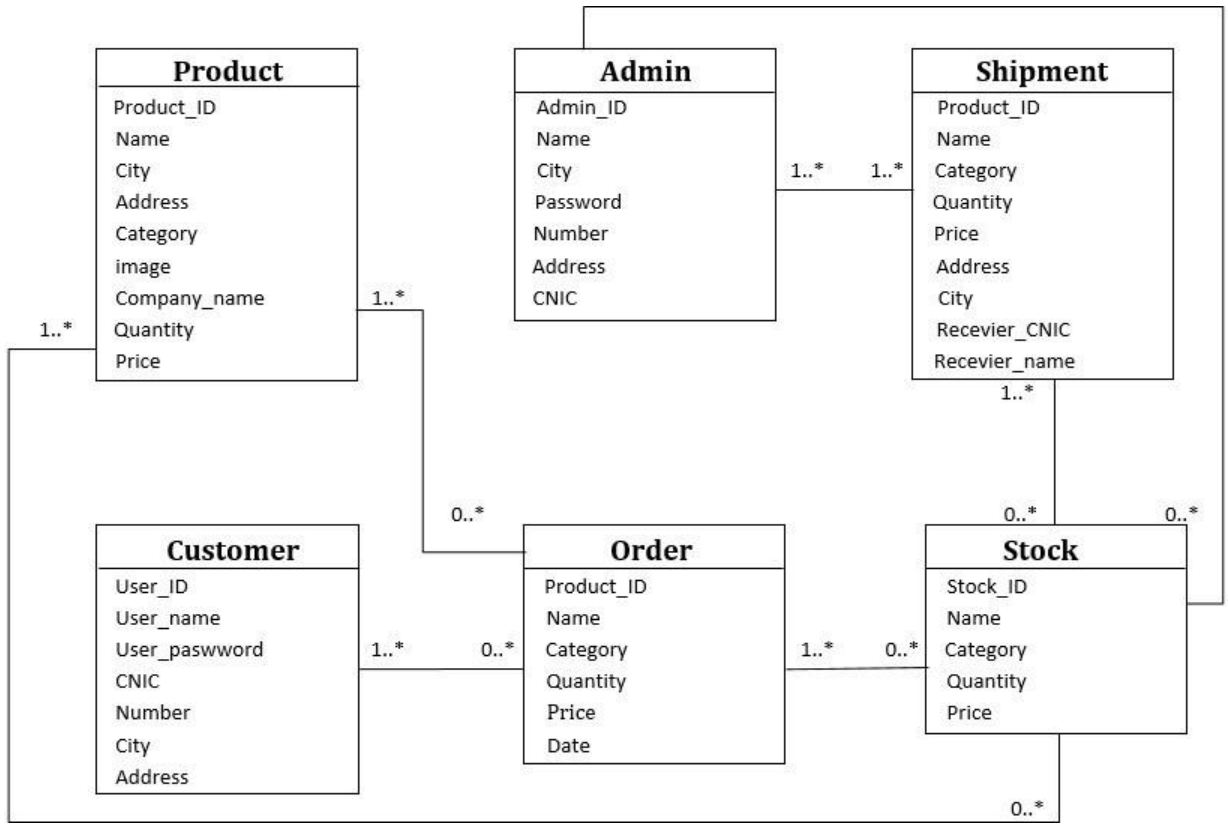
System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements through system modeling. One could see it as the application of system theory to produce development. The design of this system will be user friendly. It shall be designed in such a way that employees will be able to navigate easily through the information supplied on the system.



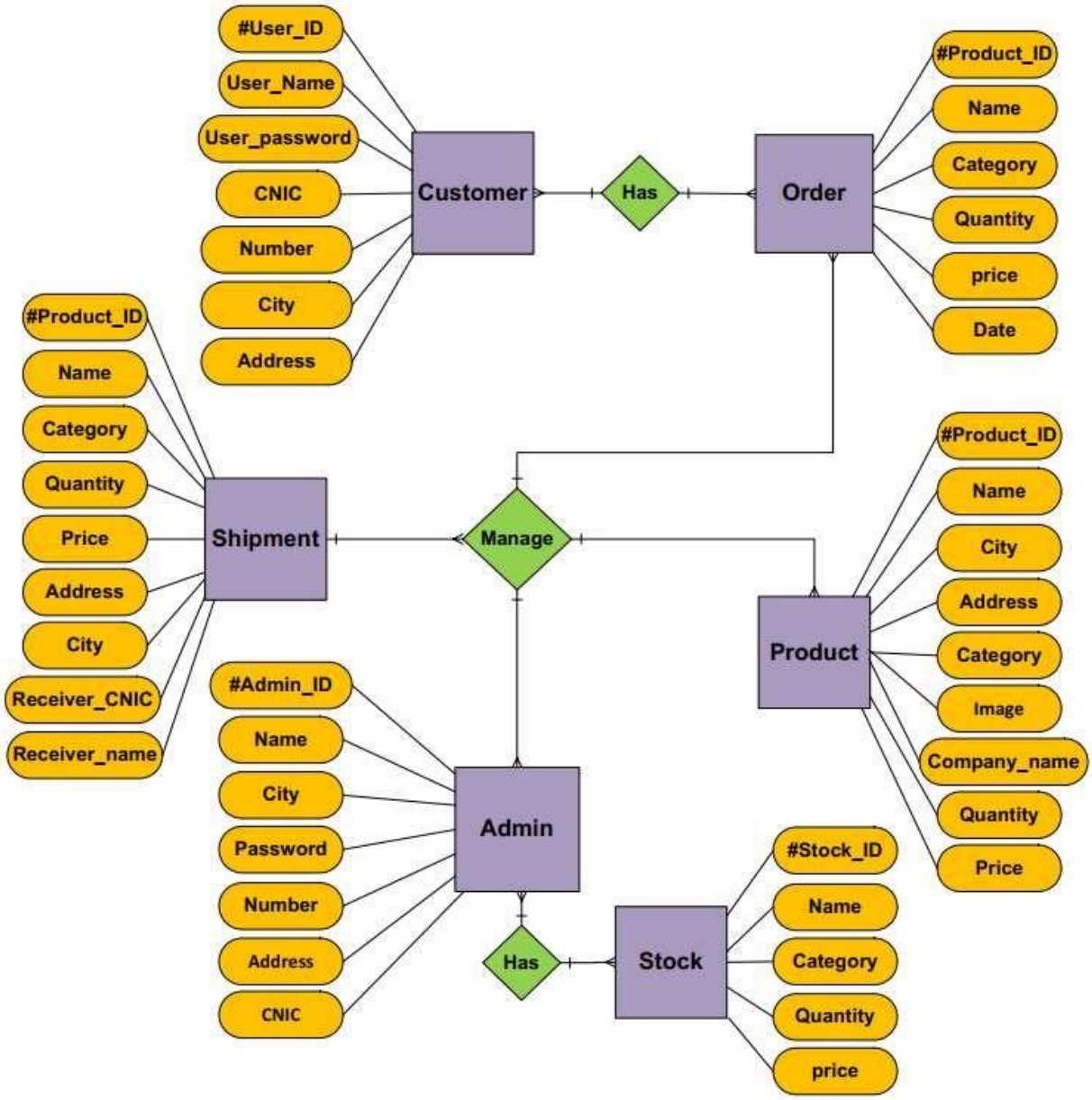
4.1. Architecture Diagram



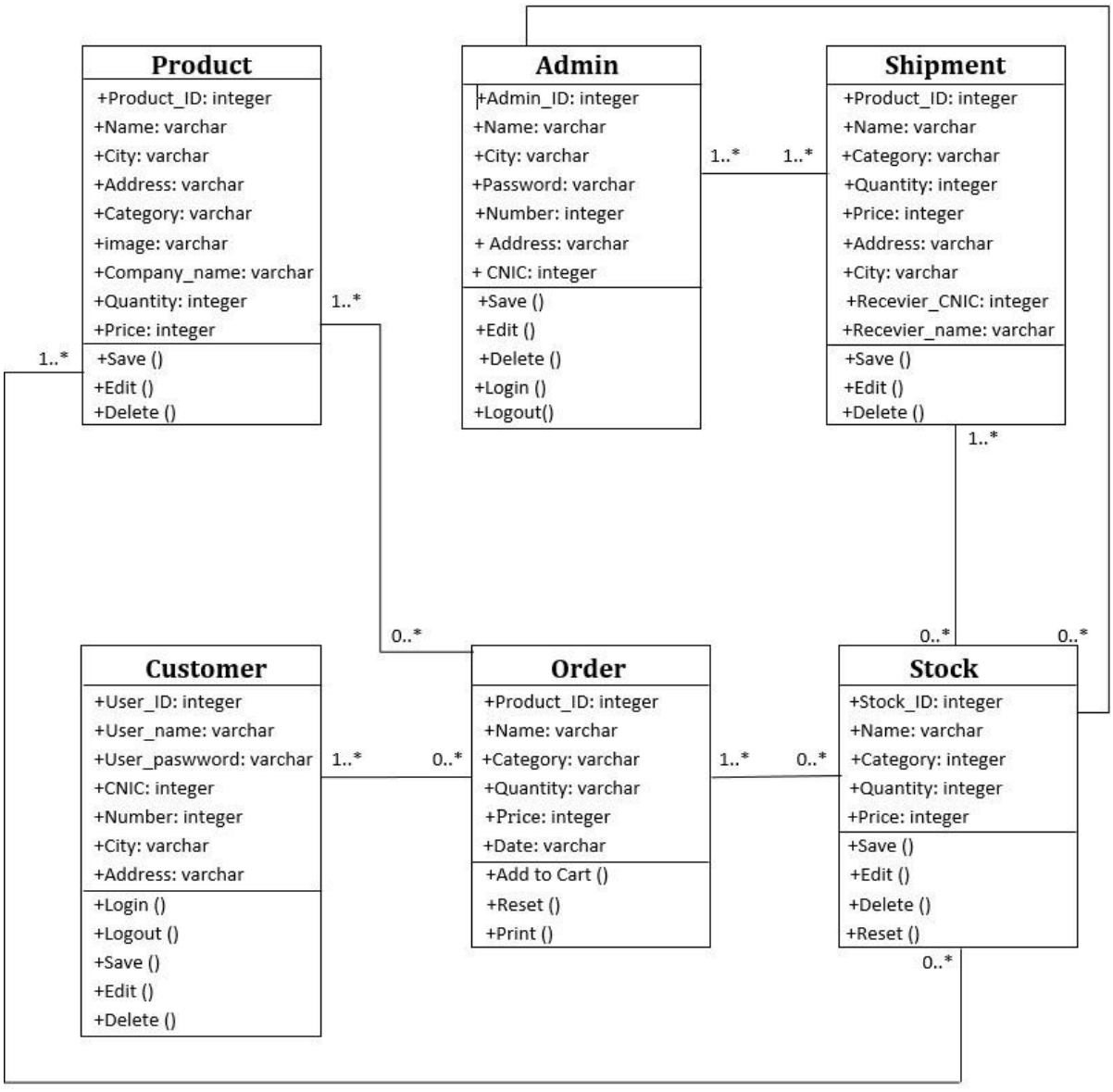
4.2. Domain Model



4.3. Entity Relationship Diagram with data dictionary

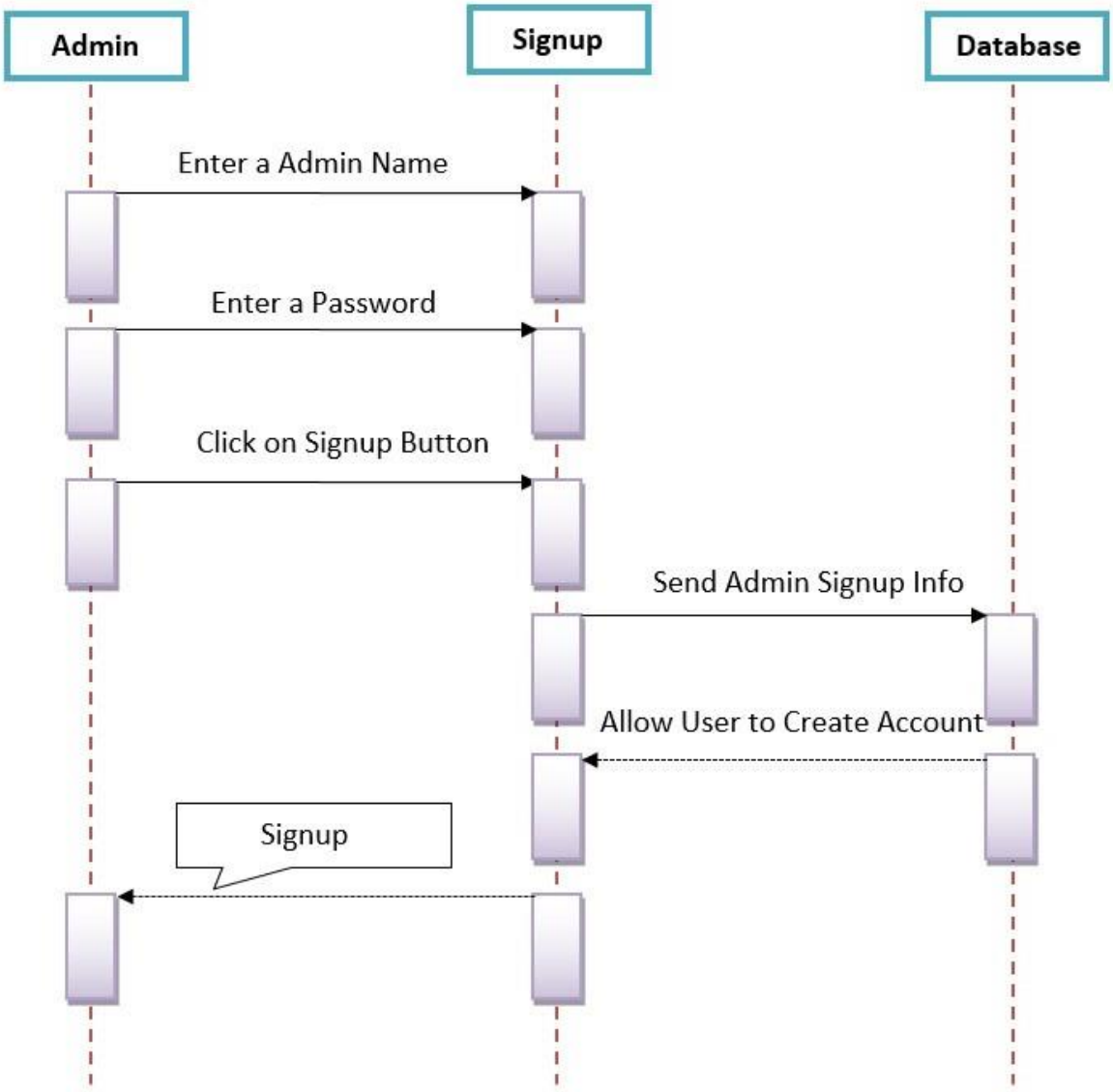


4.4. Class Diagram

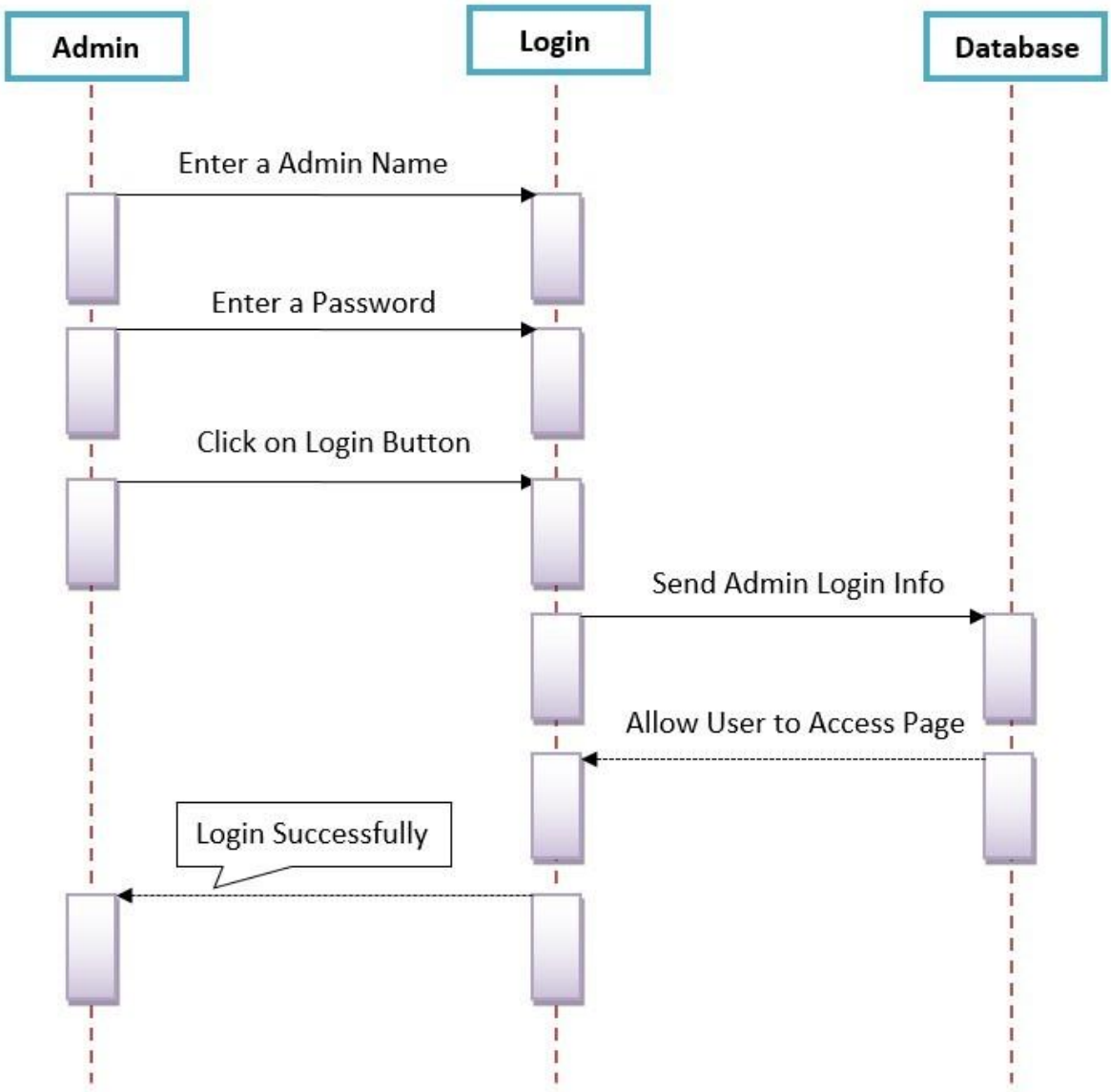


4.5. Sequence / Collaboration Diagram

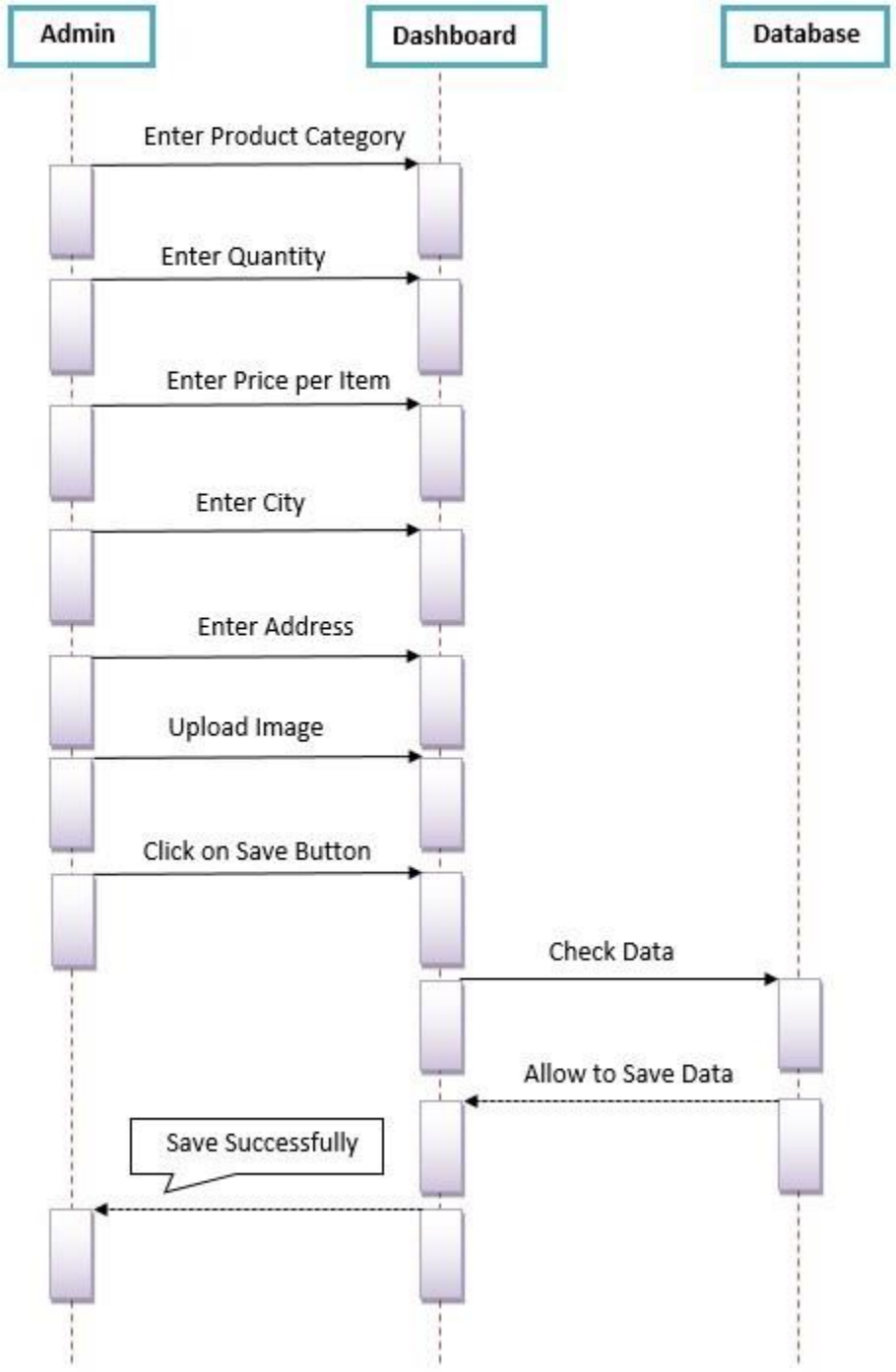
Sign up:



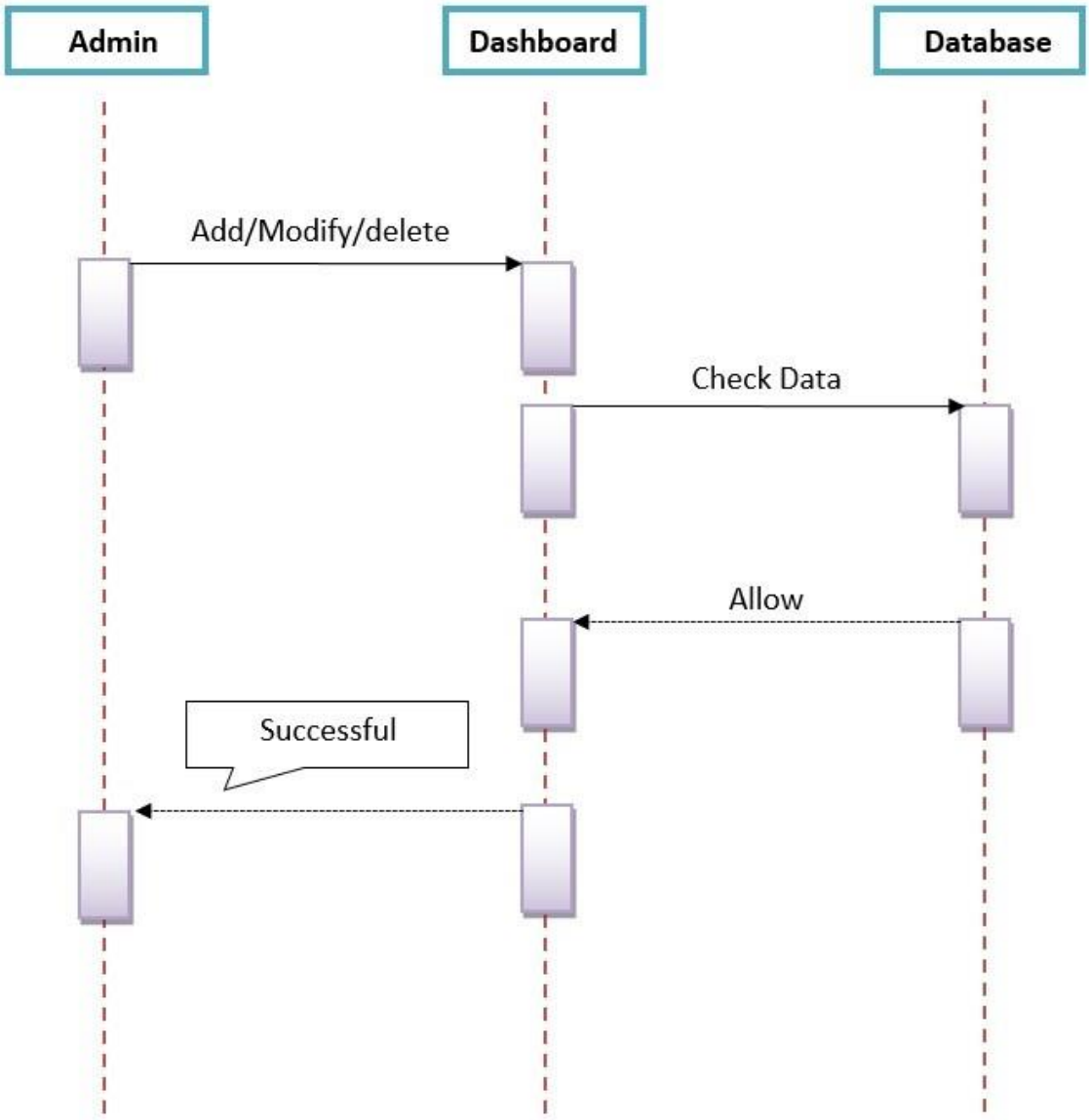
Login:


Admin
Login
Database
Enter a Admin Name
Enter a Password
Click on Login Button
Send Admin Login Info
Allow User to Access Page
Login Successfully

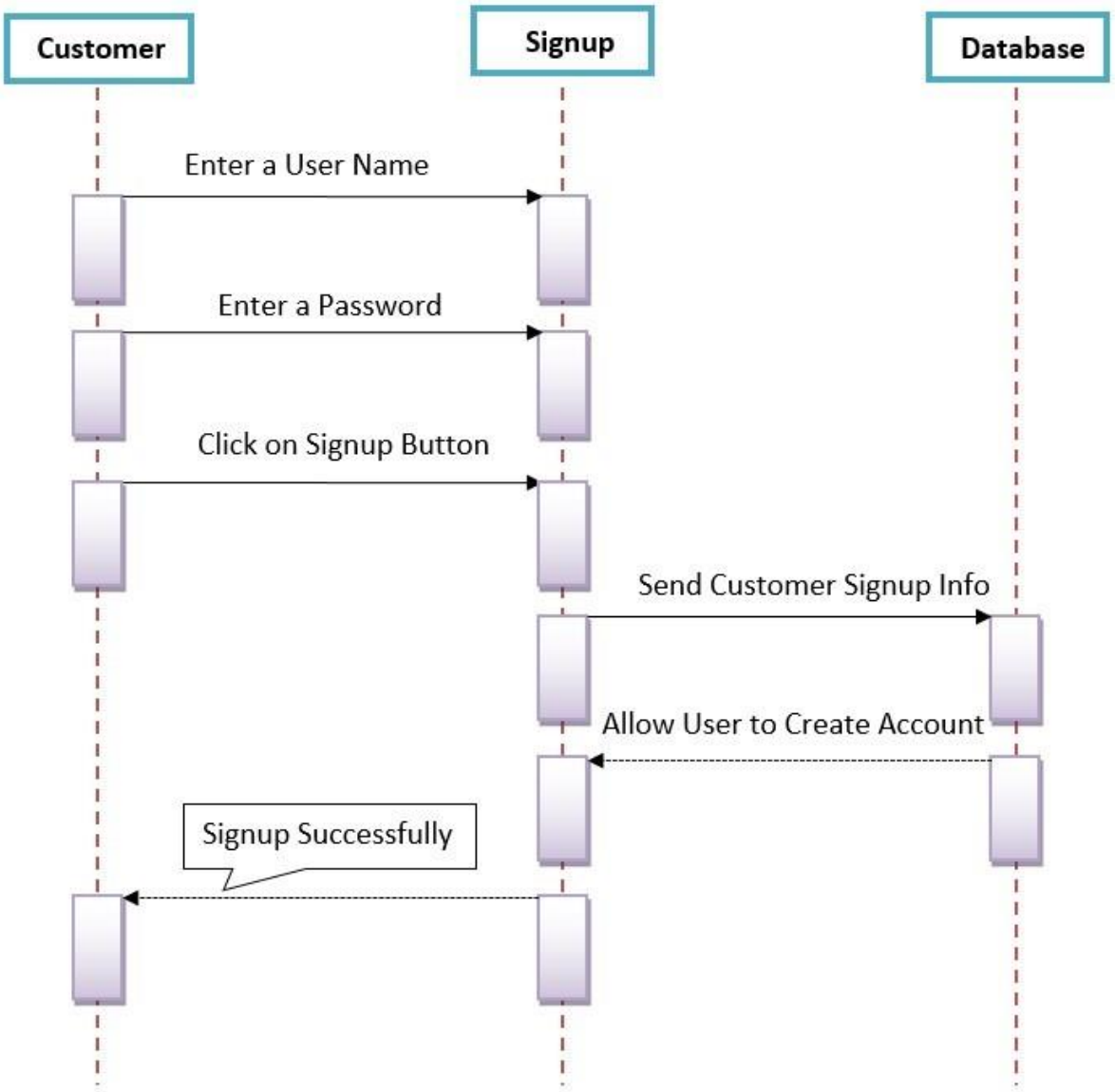
Product:


Admin
Dashboard
Database
Enter Product Category
Enter Quantity
Enter Price per Item
Enter City
Enter Address
Upload Image
Click on Save Button
Check Data
Allow to Save Data
Save Successfully

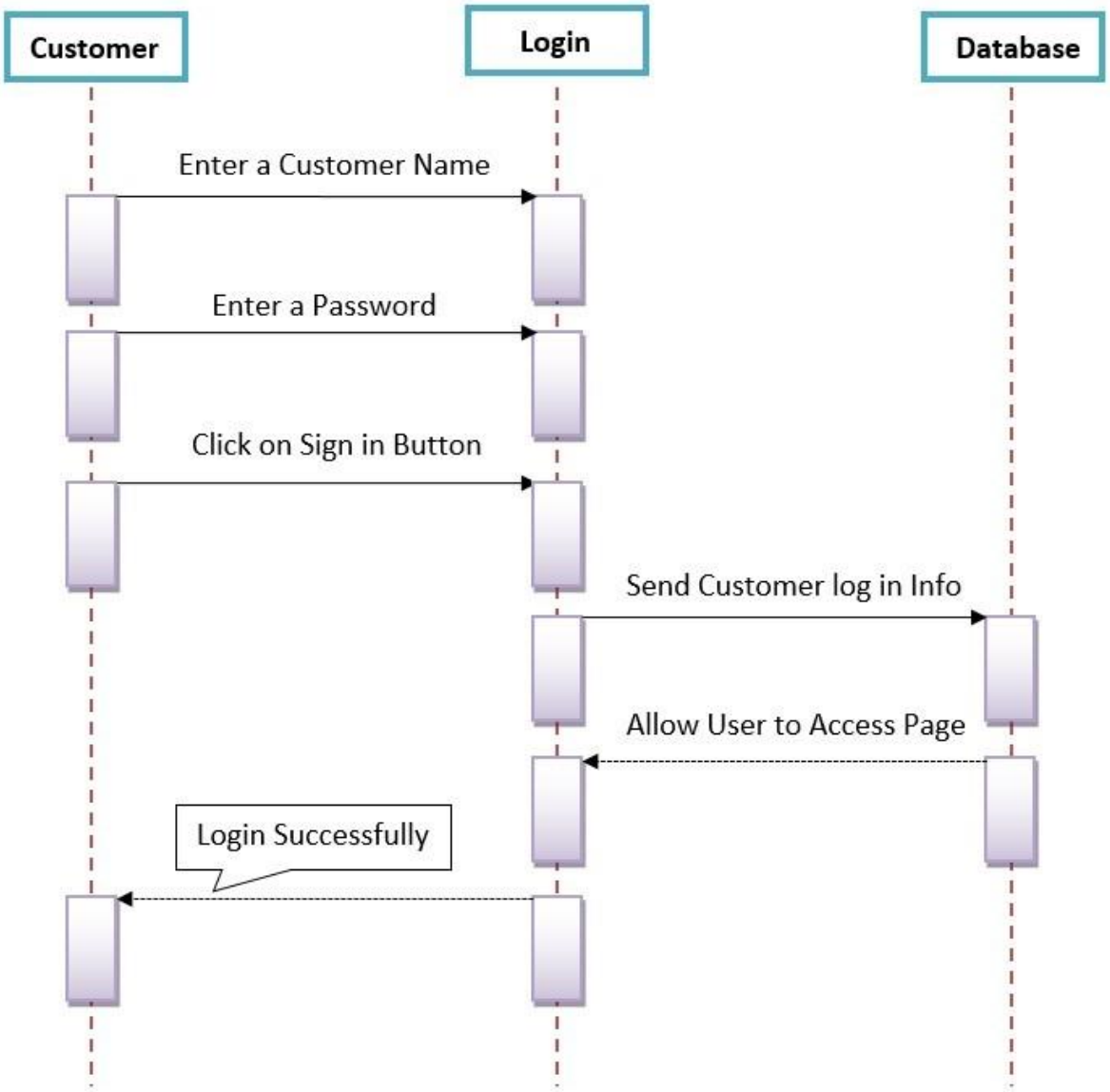
Product:


Admin
Dashboard
Database
Add/Modify/delete
Check Data
Allow
Successful

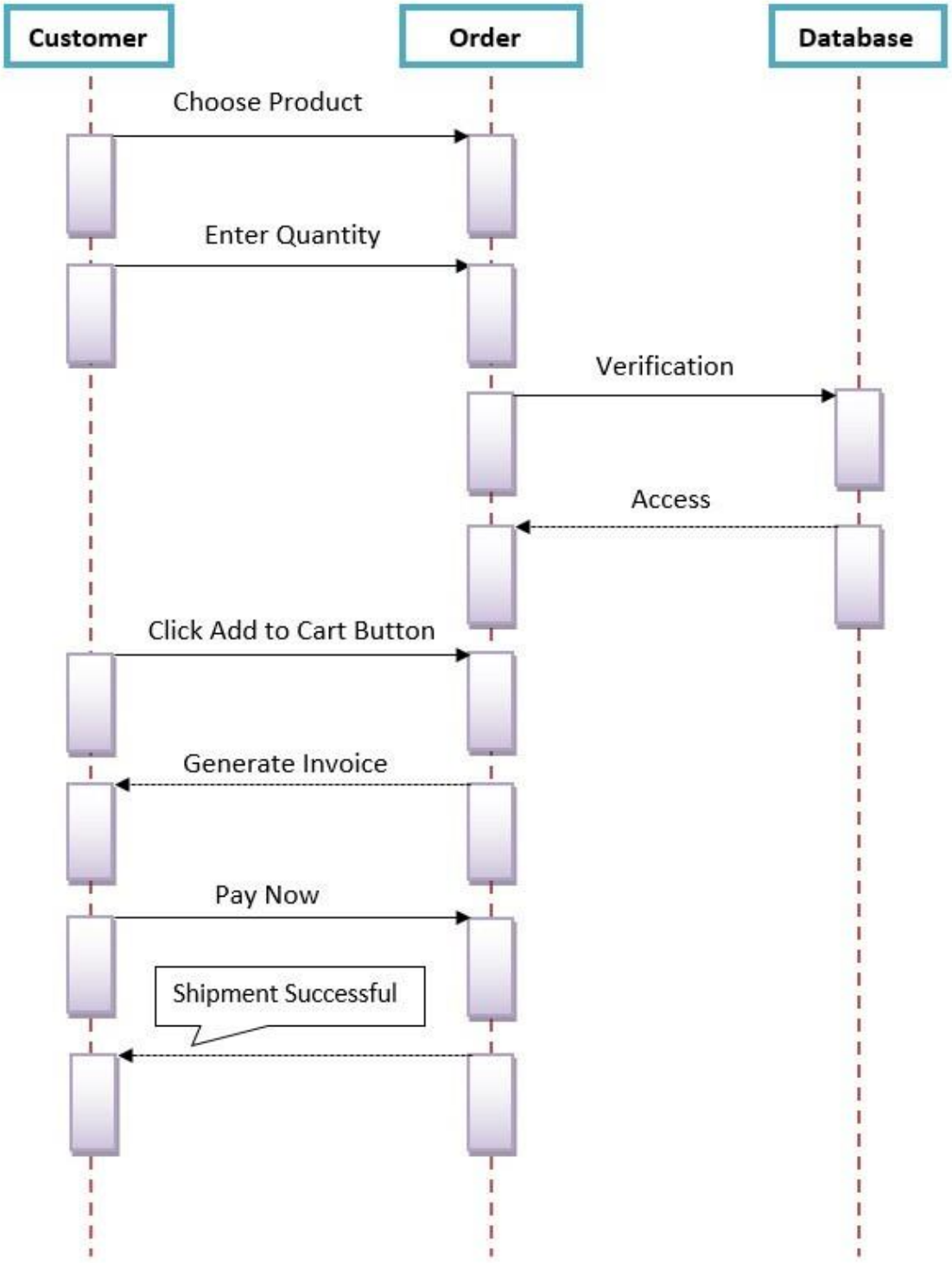
Sign up:


Customer
Signup
Database
Enter a User Name
Enter a Password
Click on Signup Button
Send Customer Signup Info
Allow User to Create Account
Signup Successfully

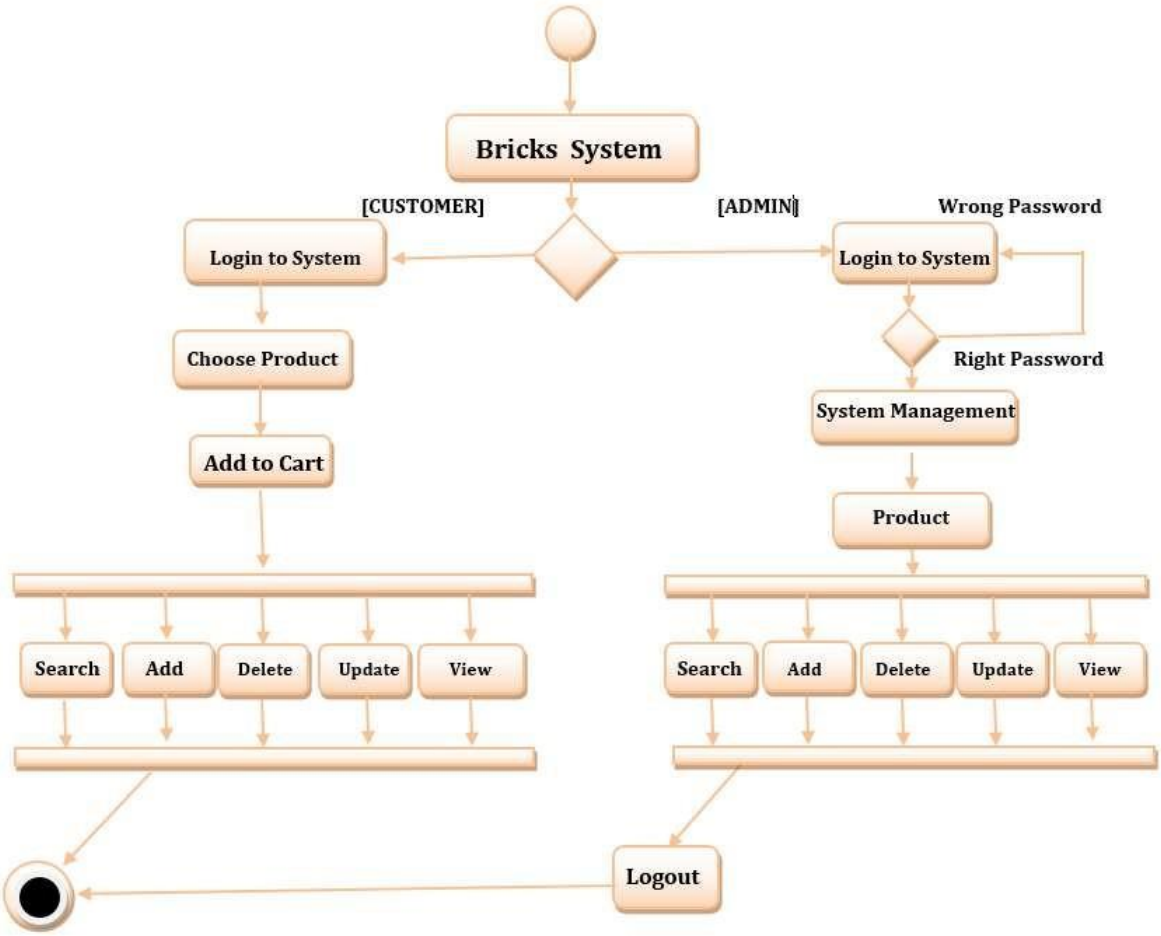
Login:


Customer
Login
Database
Enter a Customer Name
Enter a Password
Click on Sign in Button
Send Customer log in Info
Allow User to Access Page
Login Successfully

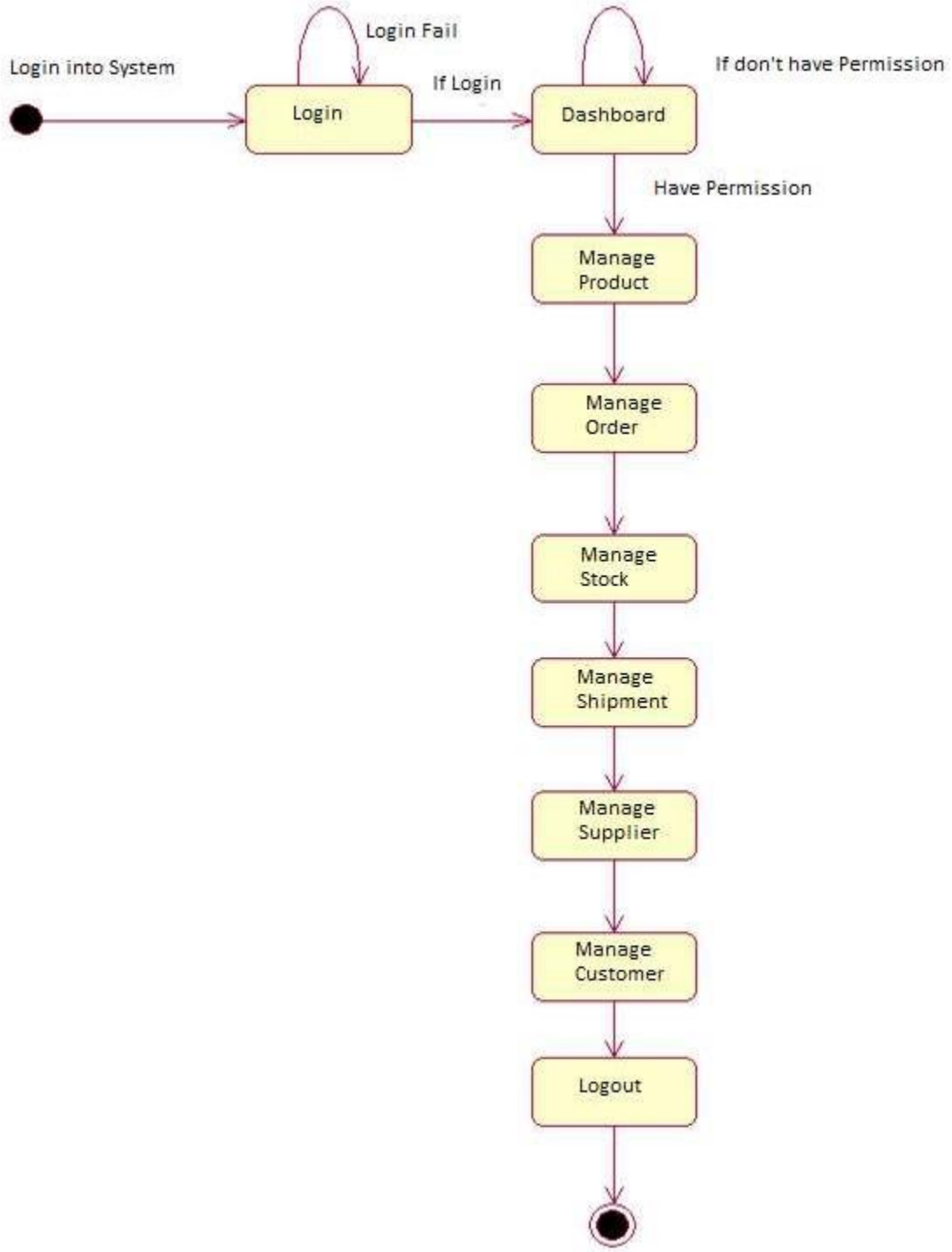
Order:


Customer
Order
Database
Choose Product
Enter Quantity
Verification
Access
Click Add to Cart Button
Generate Invoice
Pay Now
Shipment Successful

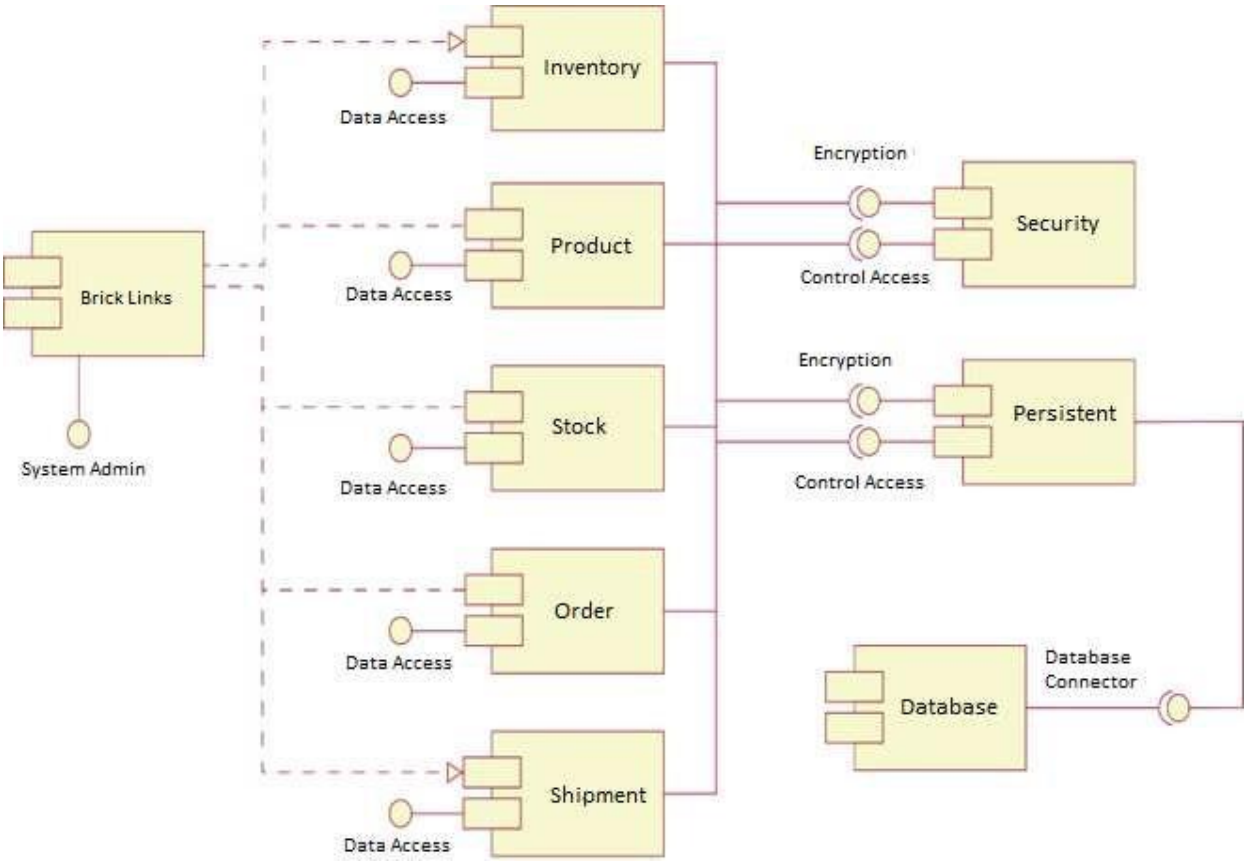
4.6. Activity Diagram



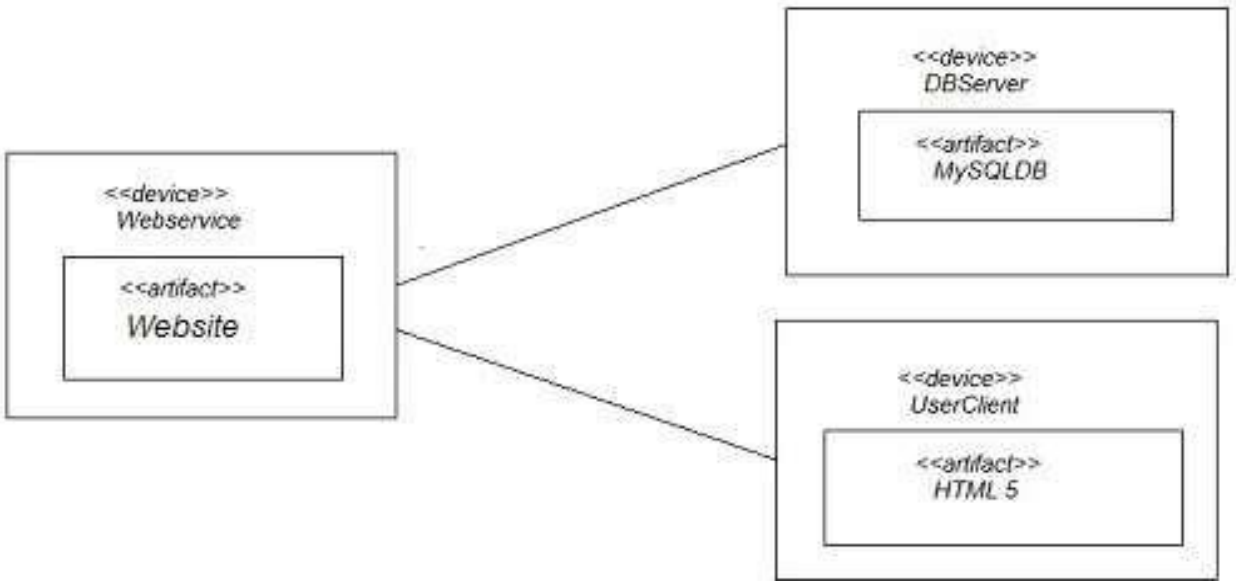
4.7. State Transition Diagram



4.8. Component Diagram

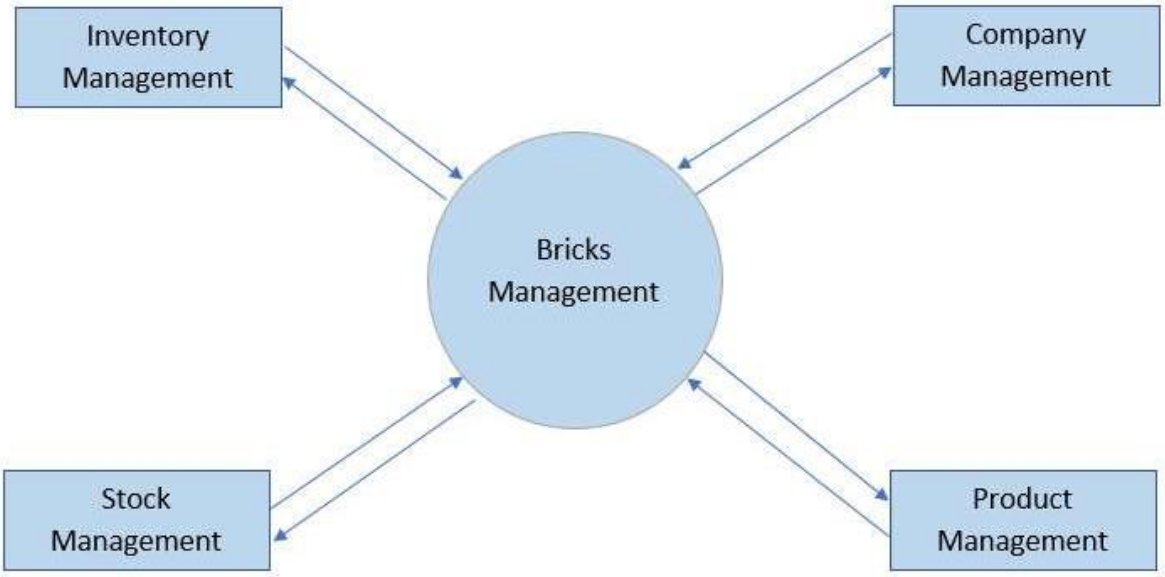


4.9. Deployment Diagram



4.10. Data Flow diagram

Level 0:



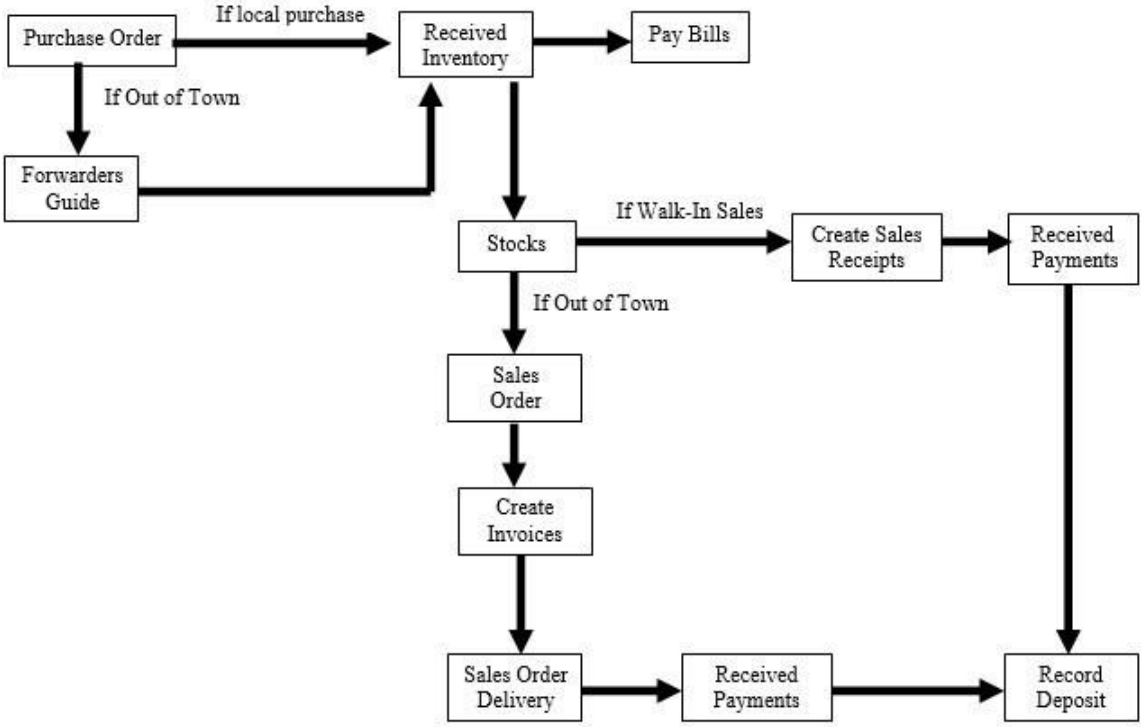
Chapter 5
Implementation

Chapter 5: Implementation

The project takes shape during the implementation phase. This phase involves the construction of the actual project result. Programmers are occupied with encoding, designers are involved in developing graphic material, contractors are building, the actual reorganization takes place. It is during this phase that the project becomes visible to outsiders, to whom it may appear that the project has just begun. The implementation phase is the doing phase, and it is important to maintain the momentum.

2.2. Important Flow Control/Pseudo codes

Pseudo codes mean how over project will work its complete flow we have described it in diagrams like UML diagram sequence diagrams etc. Pseudo code is simple. You just write out the steps to be taken to perform any task.



2.2. Components, Libraries, Web Services and stubs

- Text.
- Images.
- Button
- Input field.
- Mongo DB.
- Express server.

2.2. Deployment Environment

We deployed this project in windows 10 and we've connected an Open-Source dashboard for setting up our software and we've provided a solution that is web application.

2.2. Tools and Techniques

The tools that are required are listed below:

Frontend Technologies:

- React JS.

Backend Technologies:

- Node JS.

Tools:

- VS Code IDE.

2.2. Best Practices / Coding Standards

- Software development life cycle
- Stable requirements and scope

- Defined organization and systems
- Quality assurance
- Planned commitments
- Scope and mission
- Structure data setup

2.2. Version Control

We have this complete documentation that completely represents all the factors that are related to our project. In addition, we've used frames in our software and we've links to each other. That will consist of all the privacy policies about us software. The name of our document that we are currently writing is **Project Report Documentation.**

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

In this chapter we will briefly describe all the phases of system testing and in the end we will evaluate the developed system according to the result obtained from the testing that will determine how much the system is useable and what are the faults and bugs that needs to be fixing before the deployment of the system.

6.1. Use Case Testing

Test Case Name:	User can Sign up	**Use Case Reference:**	UC-1
Test Case ID:	TC-1	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	User can Sign up		
Environment	Website chrome browser		
Assumptions	User have stable internet and user will enter valid details		
Pre-requisites	User should connect to Internet		
S. #	**Execution Description**	**Expected Output**	**Procedure Result**
1.	User start the application	System will display the Sign up screen	Displayed
2.	User enter valid details and press enter	System will validate the details and Sign In the account.	Account Signed up
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	User can Sign in	**Use Case Reference:**	UC-2
Test Case ID:	TC-2	**QA Test Engineer**	Hamza Javed

Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	User can Sign in		
Environment	Website chrome browser		
Assumptions	User have stable internet and user will enter valid details		
Pre-requisites	User should connect to Internet		
S. #	**Execution Description**	**Expected Output**	**Procedure Result**
1.	User start the application	System will display the Sign in screen	Displayed
2.	User enter valid details and press enter	System will validate the details and Sign In the account.	Account Signed in
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	Admin can add, delete and update Products	**Use Case Reference:**	UC-3
Test Case ID:	TC-3	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	Admin can add, delete and update Products		
Environment	Website Chrome Browser		
Assumptions	Admin have stable internet		
Pre-requisites	Admin should connect to Internet Admin should login the System		

S. #	Execution Description	Expected Output	Procedure Result
1.	Admin will click on product button.	System will display available products list.	Displayed
2.	Admin will click on product button.	System will add, delete or update product.	System updated
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	User can calculate bricks	**Use Case Reference:**	UC-4
Test Case ID:	TC-4	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	User can calculate bricks.		
Environment	Website Chrome Browser		
Assumptions	User have stable internet		
Pre-requisites	User should connect to Internet User should login the System		

S. #	Execution Description	Expected Output	Procedure Result
1.	User will fill all field and click on calculate button.	System will display available products list.	Displayed
2.	User will click on calculate button.	System will show bricks calculation.	System updated
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	User can add to cart Products	**Use Case Reference:**	UC-5
Test Case ID:	TC-5	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	User can add to cart Products.		
Environment	Website Chrome Browser		
Assumptions	User have stable internet		
Pre-requisites	User should connect to Internet User should login the System		

S. #	**Execution Description**	**Expected Output**	**Procedure Result**
1.	User will click on add to cart button.	System will display available products list.	Displayed
2.	User will click on add to cart button.	System will add to cart products.	System updated
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	Admin can add and delete Maps	**Use Case Reference:**	UC-6
Test Case ID:	TC-6	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	Admin can add and delete Maps.		
Environment	Website Chrome Browser		

Assumptions	Admin have stable internet		
Pre-requisites	Admin should connect to Internet Admin should login the System		
S. #	**Execution Description**	**Expected Output**	**Procedure Result**
1.	Admin will click on Map button.	System will display available map list.	Displayed
2.	Admin will click on Map button.	System will display searched map.	System updated
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

Test Case Name:	Admin can view inventory	**Use Case Reference:**	UC-7
Test Case ID:	TC-7	**QA Test Engineer**	Hamza Javed
Version	1.0	**Code Developer**	M. Mathar
Test Date	03 April 2023	**Reviewed By**	M. Mudassar
Revision History	None		
Objective	Admin can view inventory.		
Environment	Website Chrome Browser		
Assumptions	Admin have stable internet		
Pre-requisites	Admin should connect to Internet Admin should login the System		
S. #	**Execution Description**	**Expected Output**	**Procedure Result**
1.	Admin will click on view inventory button	System will display the inventory.	Displayed
2.	Admin will click on view inventory button	System will display the inventory.	System updated
Comments:			
Status	✓ **Pass** o **Fail** o **Not Executed**		

6.2. Equivalence partitioning

Equivalence partitioning is a technique used in the testing process of the Brick Links website, an online platform for selling and purchasing bricks. It involves dividing the input data into groups or partitions that are expected to exhibit similar behavior. By selecting representative values from each partition, test cases can be designed to cover the entire range of possible inputs. This approach helps ensure thorough testing while minimizing redundancy and effort. Equivalence partitioning enables the identification of potential issues and ensures the website functions reliably for users engaging in brick transactions.

6.3. Boundary value analysis

Boundary value analysis (BVA) is based on testing the boundary values of valid and invalid partitions. The Behavior at the edge of each equivalence partition is more likely to be incorrect than the behavior within the partition, so boundaries are an area where testing is likely to yield defects. Every partition has its maximum and minimum values, and these maximum and minimum values are the boundary values of a partition. A boundary value for a valid partition is a valid boundary value. Similarly, a boundary value for an invalid partition is an invalid boundary value. Tests can be designed to cover both valid and invalid boundary values. When designing test cases, a test for each boundary value is chosen.

For user Sign-In

Attributes	Invalid partition	Valid partition	Invalid partition
E-mail	no @gmail.com	Must in @gmail.com	no @gmail.com
Password	Below 8 chars	Between 8 to 50 chars	Above 50 chars

For Group creation

Attributes	Invalid partition	Valid partition	Invalid partition
Group name	Below 8 chars	Between 8 to 50 chars	Above 20 chars
permission	Not exist	exist	Not exist

For user creation

Attributes	Invalid partition	Valid partition	Invalid partition
Group	Put other than given	Must choose out of them	Put other than given
Username	Below 8 chars	Between 8 to 50 chars	Above 50 chars
Phone number	Below 10 chars	10	Above 10 chars
password	Below 8 chars	Between 8 to 50 chars	Above 50 chars

6.4. Data flow testing

Modules no:	Module's description	Expected result	Actual result	Status
01	User Sign in	Validate data from server	Data validate	Pass
02	User Sign up	Validate data from server	Data validate	Pass
03	Add categories	Data must be stored in data base	Data stored	Pass

04	Add Product	Data must be stored in data base	Data stored	Pass
05	Manage Product	Data fetch from the server	Data Fetched	Pass
05	View inventory	Data must be stored in data base	Data stored	Pass
06	Manage Inventory	Data fetch from the server	Data Fetched	Pass
07	Add Map	Data must be stored in data base	Data stored	Pass
08	Manage Map	Data fetch from the server	Data Fetched	Pass
09	Bricks Calculation	Data must be stored in data base	Data stored	Pass
10	Add to cart	Data fetch from the server	Data Fetched	Pass
13	Add user	Data must be stored in data base	Data stored	Pass
14	Manage User	Data fetch from the server	Data Fetched	Pass

6.5. Unit testing

Test Case	Step Details	Test Data	Expected Result	Actual Result	Pass/ F ail
Sign up	• Open website. • Enter usernam e and passwor d	Username: bhamza367@gmail.co m Password: 123456	User will be sign up successfully	User logged up	Pass
Sign In	• Open website. • Enter usernam e and passwor d	Username: bhamza367@gmail.co m Password: 123456	User will be logged in successfully	User logged in	Pass
Admin can view users.	• Open website. • Login as Admin. • Click on view user's button. • Click on specific user to view their details.	User Displayed= "Hamza"	User's Data will be displayed Successfully.	User's Data Displayed.	Pass
Admin can add users.	• Open website. • Login as Admin. • Click on view user's button. • Click on add user button.	User Added = "Mathar"	User's Data will be added Successfully.	User's Data Added.	Pass

Admin can delete users.	• Open website. • Login as Admin. • Click on view user's button. • Click on particular user To view. Click on delete user button.	User Deleted = "Mudassar"	User will be deleted Successfully.	User Deleted.	Pass
Admin can update user.	• Open website. • Login as Admin. • Click on view user's button. • Click on particular user To view. Click on update user button.	User Updated = "Ali"	User will be updated successfully.	User Updated.	Pass
User can View Map.	• Open website. • Login as user. • Click on map button.	Displayed = "Building Maps"	All map will be displayed.	Map Displayed	Pass

User can Add to cart.	• Open website. • Login as user. • Click on add to cart button.	Form Generated = “New Invoice Form”	Invoices Form will be generated successfully.	Invoice form generated .	Pass
Admin can add new product.	• Open website. • Login as admin. • Click on Button. • Click on add product.	Product Added = “Roof Title”	Product will be Added Success fully.	Product added.	Pass
Admin can delete product.	• Open website. • Login as admin. • Click on Button. • Click on particular product. • Click on delete product.	Product Deleted = “Roof Title”	Product will be deleted Successfully.	Product deleted.	Pass
Admin can update product.	• Open website. • Login as admin. • Click on Button. • Click on particular product. Click on update product.	Product Updated = “Level 1 Title”	Product will be updated successfully.	Product Updated.	Pass

User can calculate bricks.	• Open website. • Login. • Click on bricks calculation Button. • Fill all text fields. • Press Enter.	Total Bricks = “15000”	Check your requirements and displayed	Bricks calculation displayed.	Pass
Admin can delete inventory.	• Open website. • Login as admin. • Click on Button.	Inventory Deleted = “Level 2 Title”	Inventory will be deleted successfully.	Inventory Deleted.	Pass
	• Click on particular inventory. • Click on delete inventory button.				

6.6. Integration testing

Integration testing for Brick Links, the online platform for selling and purchasing bricks, involves testing the seamless integration of various components and functionalities within the website. It focuses on verifying the smooth interaction between different modules, such as user registration, product listing, shopping cart, and payment processing. The goal is to ensure that all the integrated components work together as expected, providing a seamless and reliable user experience. By conducting integration testing, Brick Links can identify and resolve any issues that may arise from the integration of these components, ensuring the website's functionality and usability.

6.7. Performance testing

- Maximum Response time is less 10 sec.
- Average response time 5 sec.
- Peak number of requests 10000.

Constraints	Response Time
Website Startup	Less than 5 seconds (Sometimes depend on internet Speed)
Data fetching	Less than 2 seconds (Sometimes depend on internet Speed)
Application state update	Less than 1 sec
Transition in application	0.5 sec
Redirecting between inner pages of app	Less than 3 sec

6.8. Stress Testing

Stress testing for Brick Links, the online platform for buying and selling bricks, is a vital process to ensure its reliability and performance under high-demand situations. This rigorous testing involves subjecting the website to intense simulated loads to assess its ability to handle heavy user traffic and transaction volumes. By pushing the system to its limits, stress testing identifies potential weaknesses, bottlenecks, and vulnerabilities, allowing for necessary optimizations and improvements. It provides valuable insights into the platform's scalability, response time, and stability, ultimately ensuring a seamless and satisfactory experience for users engaging in brick-related transactions on Brick Links.

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

We provide a brinks digital platform. In this platform we connect all bricks companies in our country. Our aim to provide bricks in low rate and 100% quality ensure.

In the market, the rate of bricks is too much expensive so using our application we are offering the best prices as compare to retailer because retailer take commission, if the brick price 7 rupees so retailer sale 10 rupees so it's too much expensive but we just take 4% commission from company. so, we are offering the customer round about 8 rupees per brick.

There are many types of qualities of bricks so customer doesn't know about quality. We ensure that the quality must be good.

When consumer purchase bricks, the consumer or company take too much time of delivery so using our platform, we provide consumers order as soon as possible.

So many consumers would not know about the rate of bricks in which month is less then whole year. In our platform, we guide the consumers about rate of bricks. So, consumers save a large amount of money from bricks.

If you want to design to your building map, so architecture demands you 40k to 50k rupees of building map. But we are providing your building design or map in 10k rupees only.

As many construction workers (Mistry) who don't have any idea to calculate bricks and they usually order less bricks according to your building. So, when you again order of bricks it is possible to increase the price of bricks. Then it is expensive for consumers. So, we know consumers need. We also calculate brinks according to your building design or map, so that they save your money.

7.2. Achievements and Improvements

We have achieved our goal that is to provide ease in business administration. We also achieve the experience of practical work by bringing this project to the industry. Improvements in this project would be by adding more enhanced modules in this project according to the increasing demand with the passage of time.

7.3. Critical Review

In this project, we manage data transition according to the authorities/role of the user by using Node.js language. To secure our user's data we have used SSL certificate and secure database connections in our code. We designed our user interfaces according to the standard of our users so you can say it is user-friendly.

7.4. Lessons Learnt

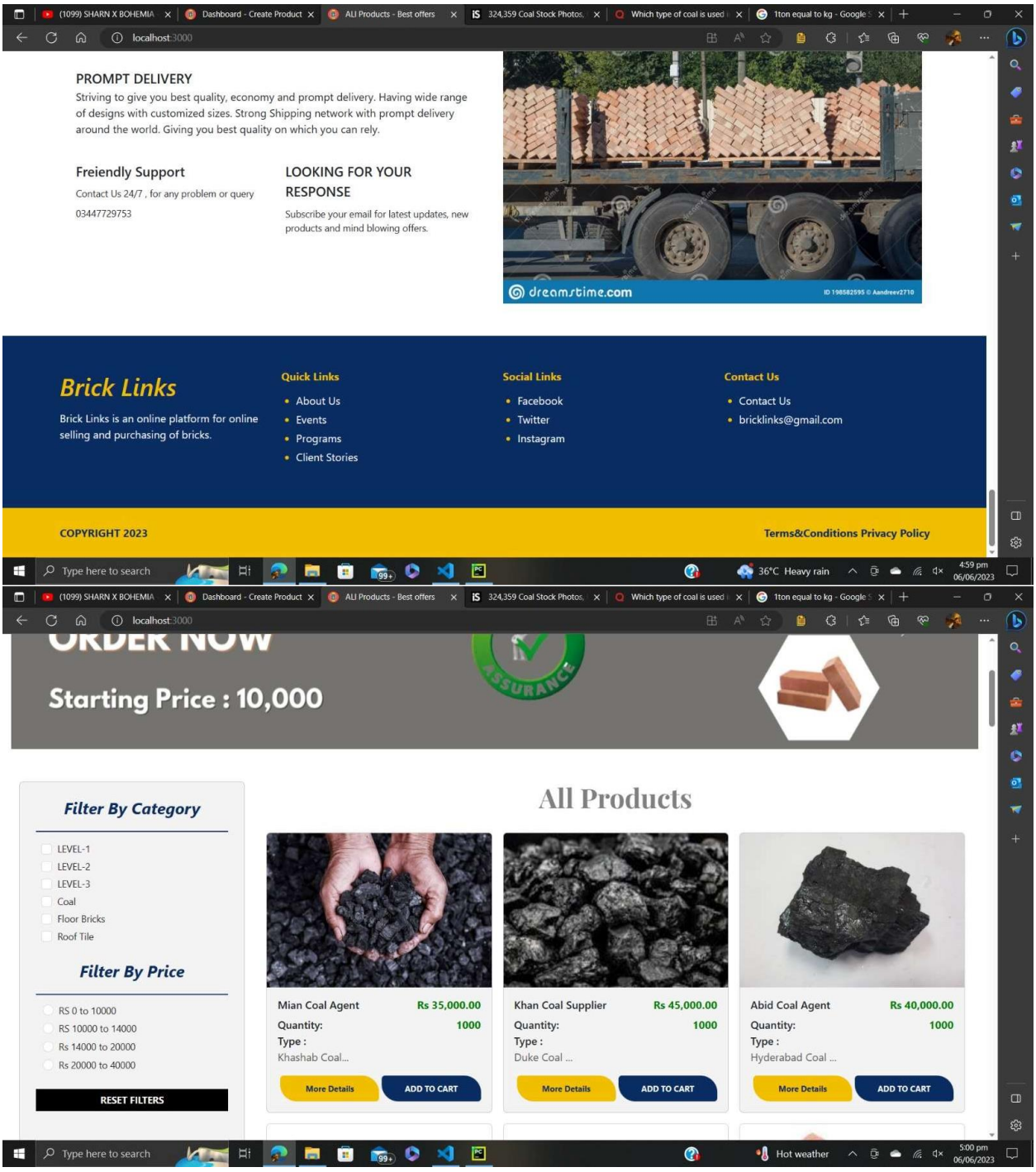
The project has been a very good learning opportunity for all of us. We have gained experience on how to work on real time projects under the supervision of industry.

We have learned the complexity of an inventory system with respect to new trend in market. We have completed Financial Accounts, Purchase Management, Sales Management and Sales Management. The overall learning experience was good as we collaborated with each other. Overall, all learning curve was easy, and we are used to with tools and technology.

7.5. Future Enhancements/Recommendations

In future, more advanced and modified modules would be added to this portal. For future we have a customer relation manager (CRM) module in the queue. Which will be done on these after completing the modules mentioned in the project's scope.

Chapter 8
SNAPSHOTS


PROMPT DELIVERY
Striving to give you best quality, economy and prompt delivery. Having wide range of designs with customized sizes. Strong Shipping network with prompt delivery around the world. Giving you best quality on which you can rely.
Freiendly Support
Contact Us 24/7 , for any problem or query
03447729753
LOOKING FOR YOUR RESPONSE
Subscribe your email for latest updates, new products and mind blowing offers.
dreamstime.com
Brick Links
Brick Links is an online platform for online selling and purchasing of bricks.
Quick Links
About Us
Events
Programs
Client Stories
Social Links
Facebook
Twitter
Instagram
Contact Us
Contact Us
bricklinks@gmail.com
COPYRIGHT 2023
Terms&Conditions Privacy Policy
Starting Price : 10,000
Filter By Category
LEVEL-1
LEVEL-2
LEVEL-3
Coal
Floor Bricks
Roof Tile
Filter By Price
RS 0 to 10000
RS 10000 to 14000
Rs 14000 to 20000
Rs 20000 to 40000
RESET FILTERS
All Products
Mian Coal Agent
Rs 35,000.00
Quantity:
1000
Type :
Khashab Coal...
More Details
ADD TO CART
Khan Coal Supplier
Rs 45,000.00
Quantity:
1000
Type :
Duke Coal ...
More Details
ADD TO CART
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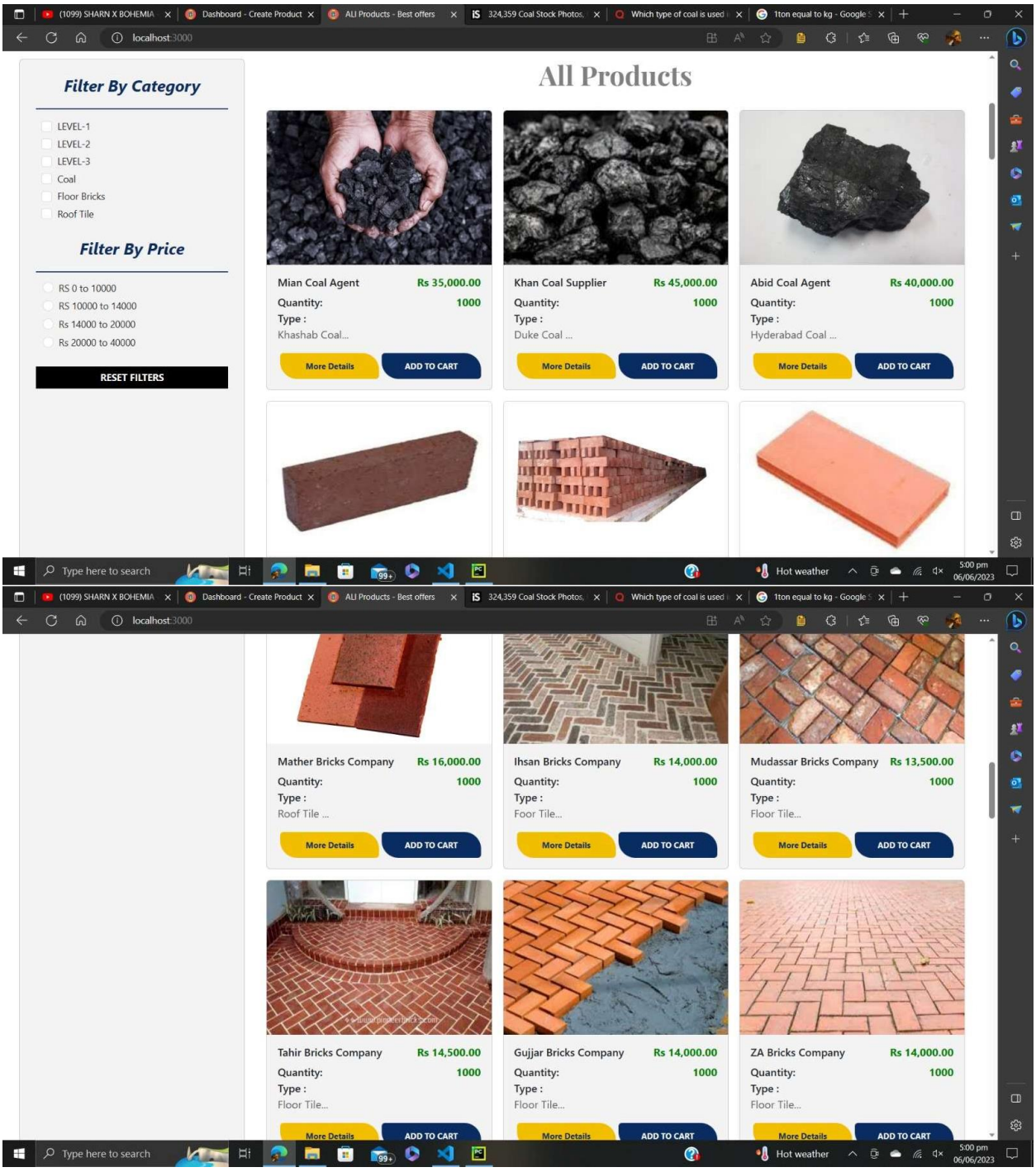
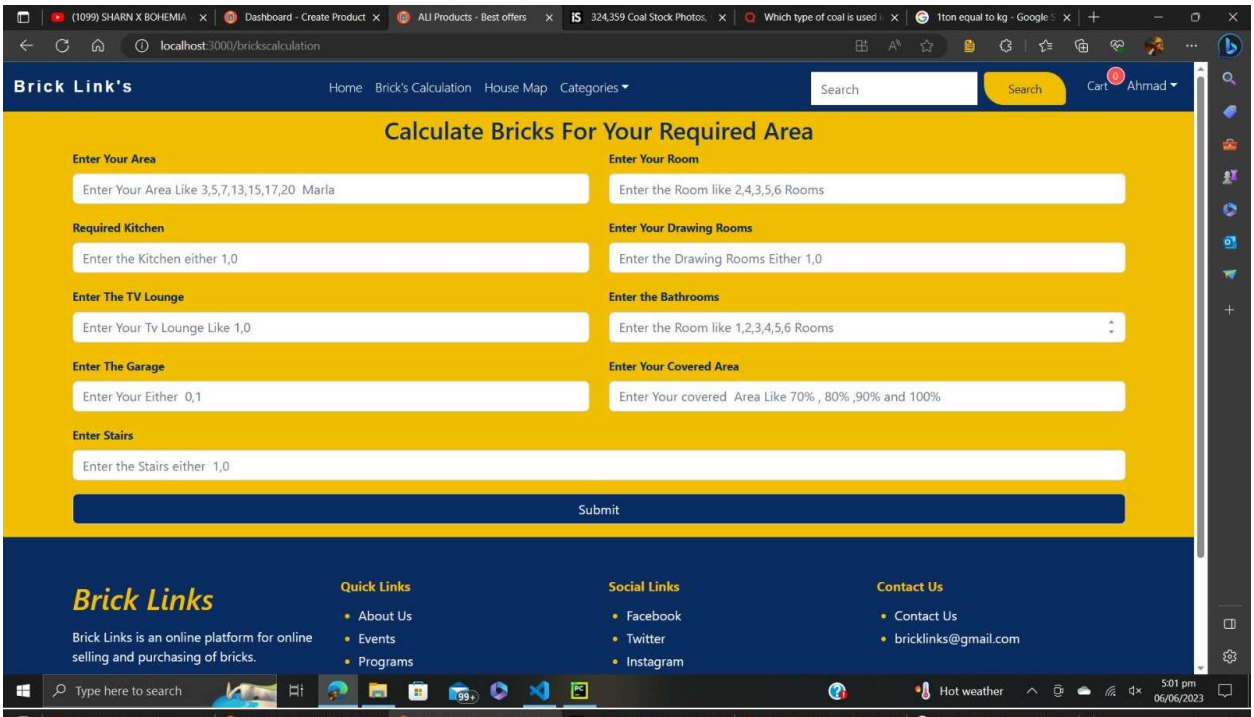
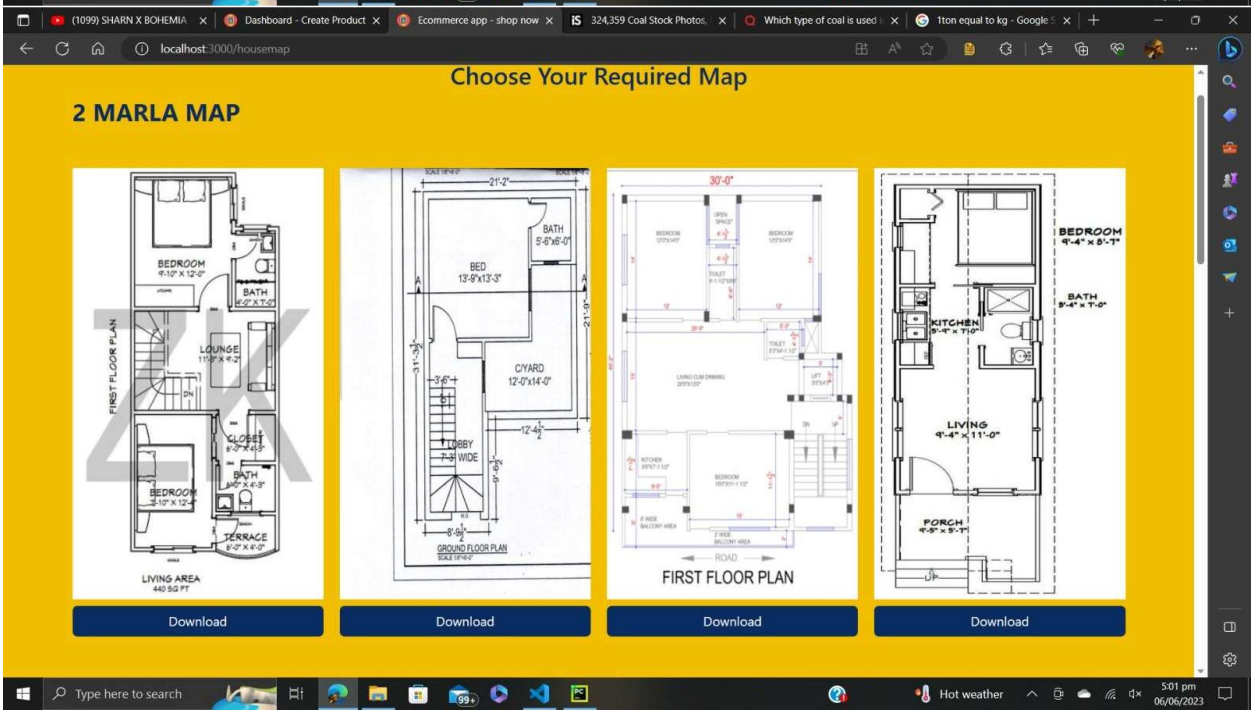
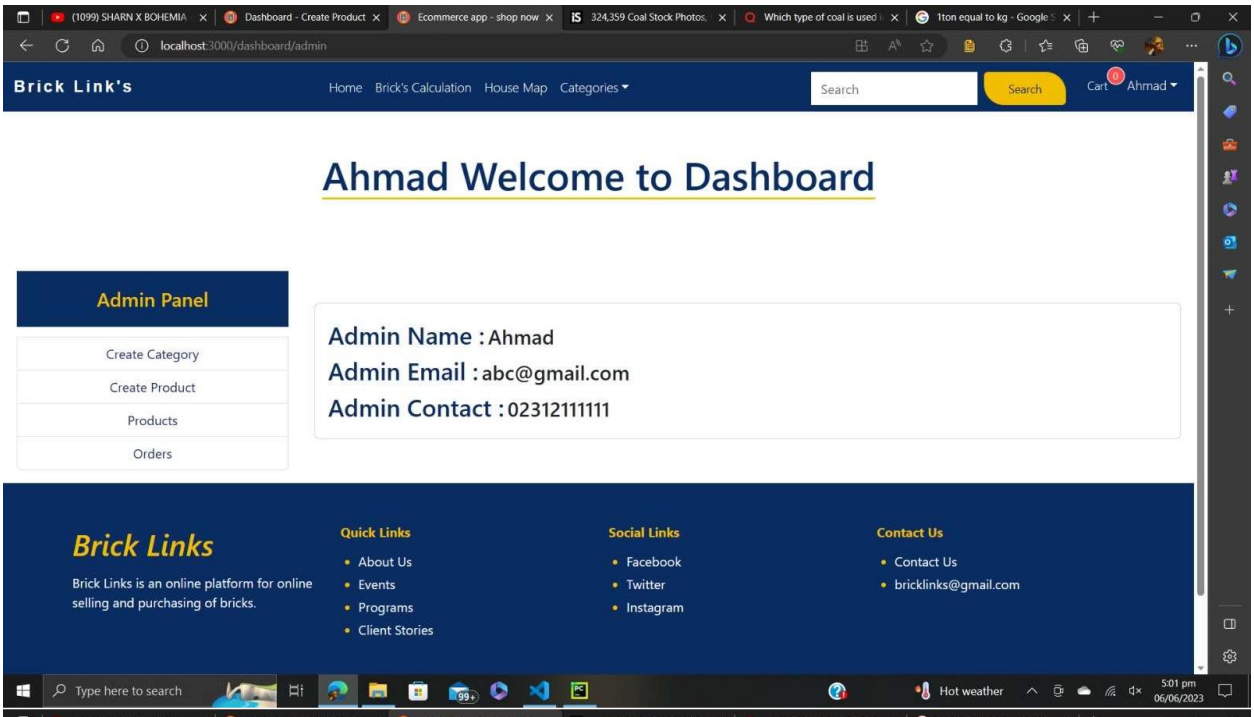
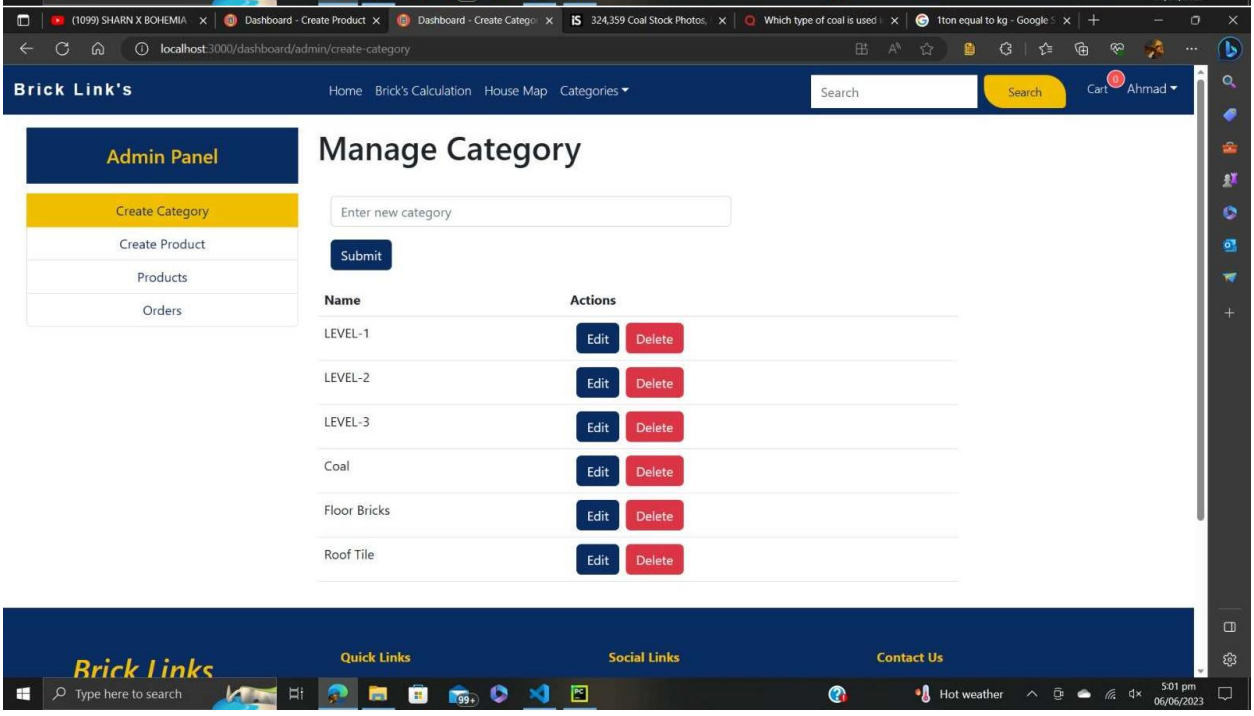
1000
Type :
Hyderabad Coal ...
More Details
ADD TO CART

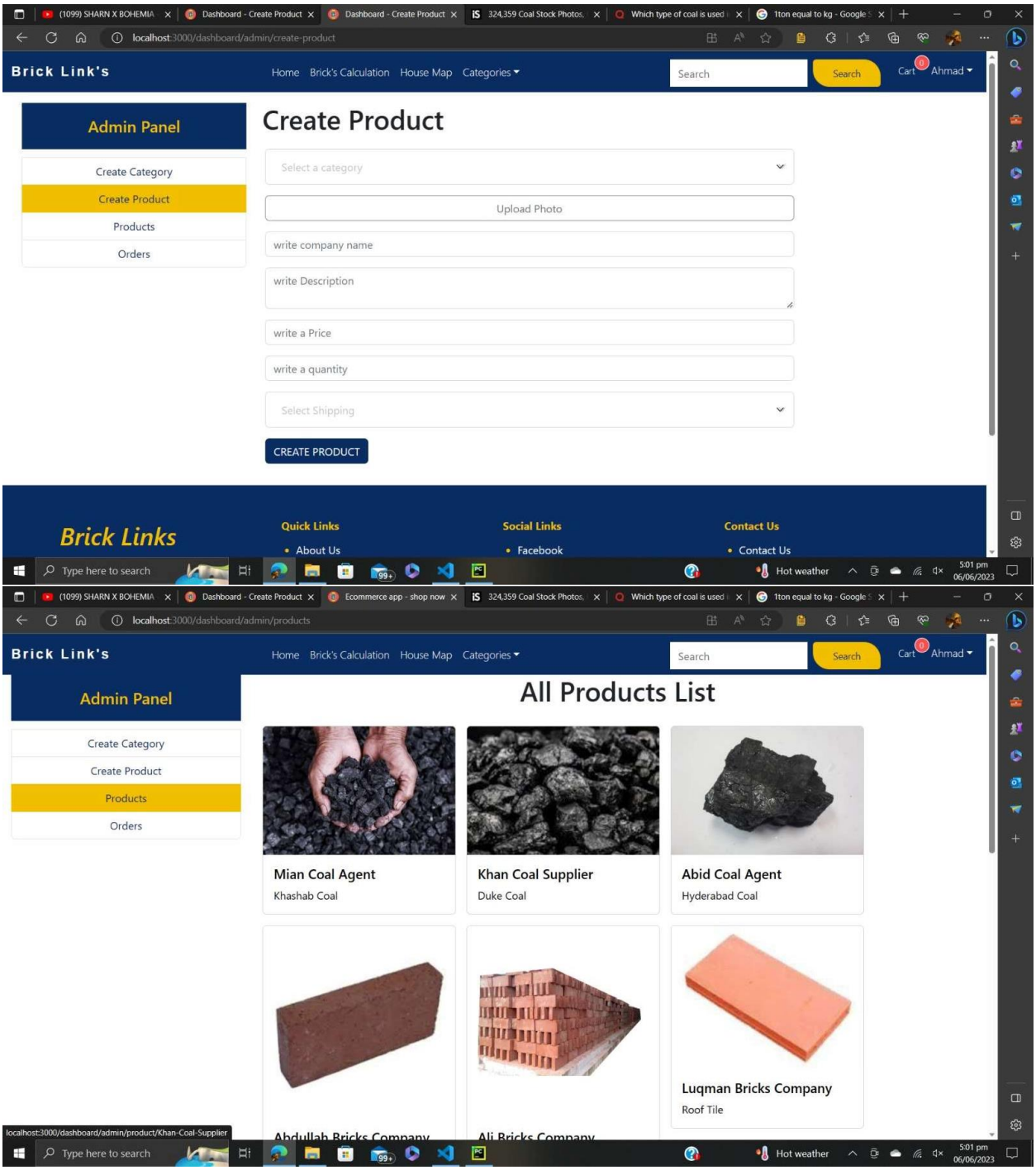

localhost:3000
Filter By Category
LEVEL-1
LEVEL-2
LEVEL-3
Coal
Floor Bricks
Roof Tile
Filter By Price
RS 0 to 10000
RS 10000 to 14000
Rs 14000 to 20000
Rs 20000 to 40000
RESET FILTERS
All Products
Mian Coal Agent Rs 35,000.00
Quantity: 1000
Type :
Khashab Coal...
More Details
ADD TO CART
Khan Coal Supplier Rs 45,000.00
Quantity: 1000
Type :
Duke Coal ...
More Details
ADD TO CART
Abid Coal Agent Rs 40,000.00
Quantity: 1000
Type :
Hyderabad Coal ...
More Details
ADD TO CART
Mather Bricks Company Rs 16,000.00
Quantity: 1000
Type :
Roof Tile ...
More Details
ADD TO CART
Ihsan Bricks Company Rs 14,000.00
Quantity: 1000
Type :
Foor Tile...
More Details
ADD TO CART
Mudassar Bricks Company Rs 13,500.00
Quantity: 1000
Type :
Floor Tile...
More Details
ADD TO CART
Tahir Bricks Company Rs 14,500.00
Quantity: 1000
Type :
Floor Tile...
More Details
ADD TO CART
Gujjar Bricks Company Rs 14,000.00
Quantity: 1000
Type :
Floor Tile...
More Details
ADD TO CART
ZA Bricks Company Rs 14,000.00
Quantity: 1000
Type :
Floor Tile...
More Details
ADD TO CART
Type here to search
Hot weather
5:00 pm
06/06/2023

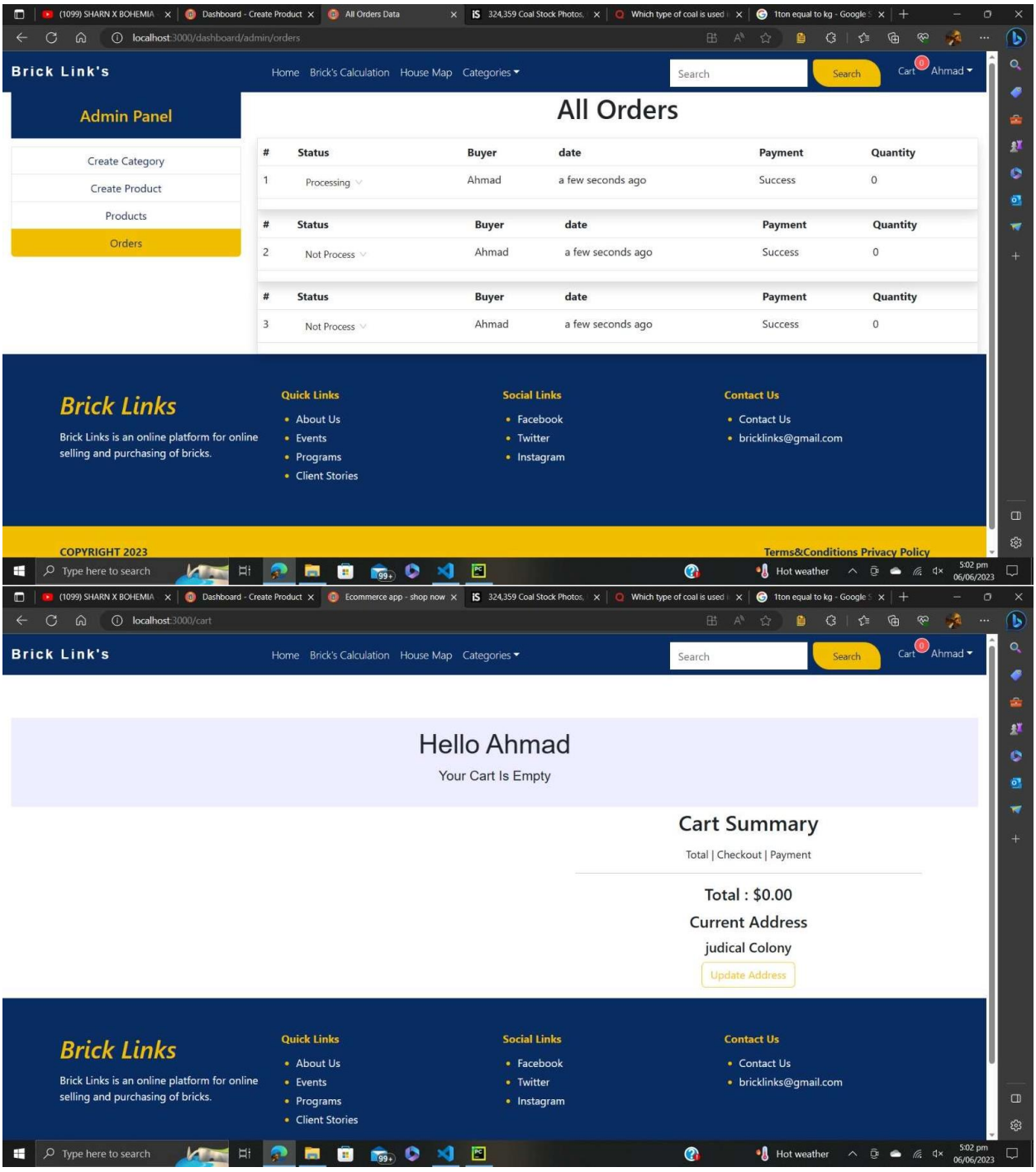

Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Calculate Bricks For Your Required Area
Enter Your Area
Enter Your Area Like 3,5,7,13,15,17,20 Marla
Enter Your Room
Enter the Room like 2,4,3,5,6 Rooms
Required Kitchen
Enter the Kitchen either 1,0
Enter Your Drawing Rooms
Enter the Drawing Rooms Either 1,0
Enter The TV Lounge
Enter Your Tv Lounge Like 1,0
Enter the Bathrooms
Enter the Room like 1,2,3,4,5,6 Rooms
Enter The Garage
Enter Your Either 0,1
Enter Your Covered Area
Enter Your covered Area Like 70% , 80% ,90% and 100%
Enter Stairs
Enter the Stairs either 1,0
Submit
Brick Links
Brick Links is an online platform for online selling and purchasing of bricks.
Quick Links
About Us
Events
Programs
Social Links
Facebook
Twitter
Instagram
Contact Us
Contact Us
bricklinks@gmail.com
Type here to search
Hot weather
5:01 pm
06/06/2023

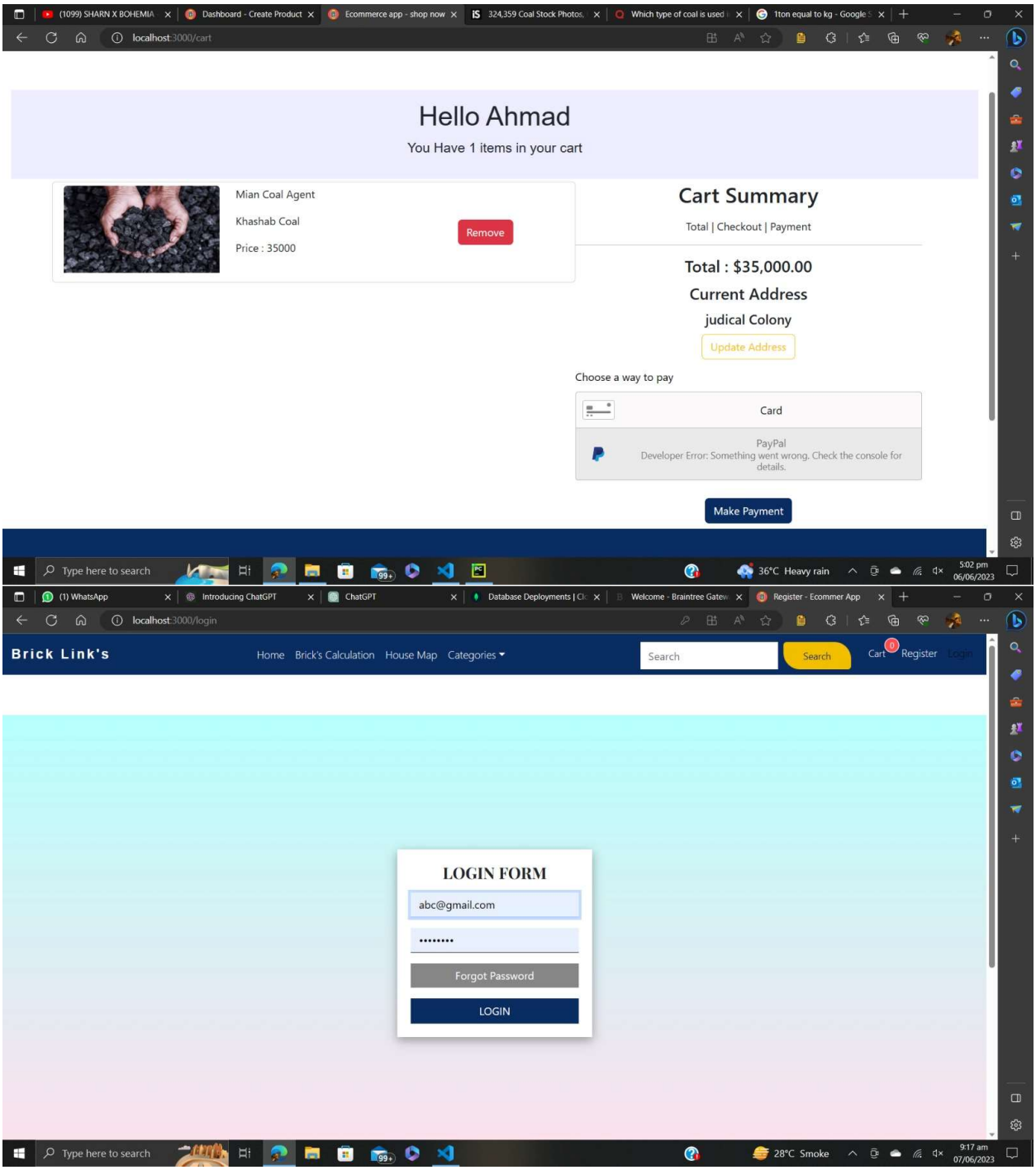

localhost:3000/housemap
Choose Your Required Map
2 MARLA MAP
FIRST FLOOR PLAN
LIVING AREA
GROUND FLOOR PLAN
FIRST FLOOR PLAN
Download
Download
Download
Download
Type here to search
Hot weather
5:01 pm
06/06/2023

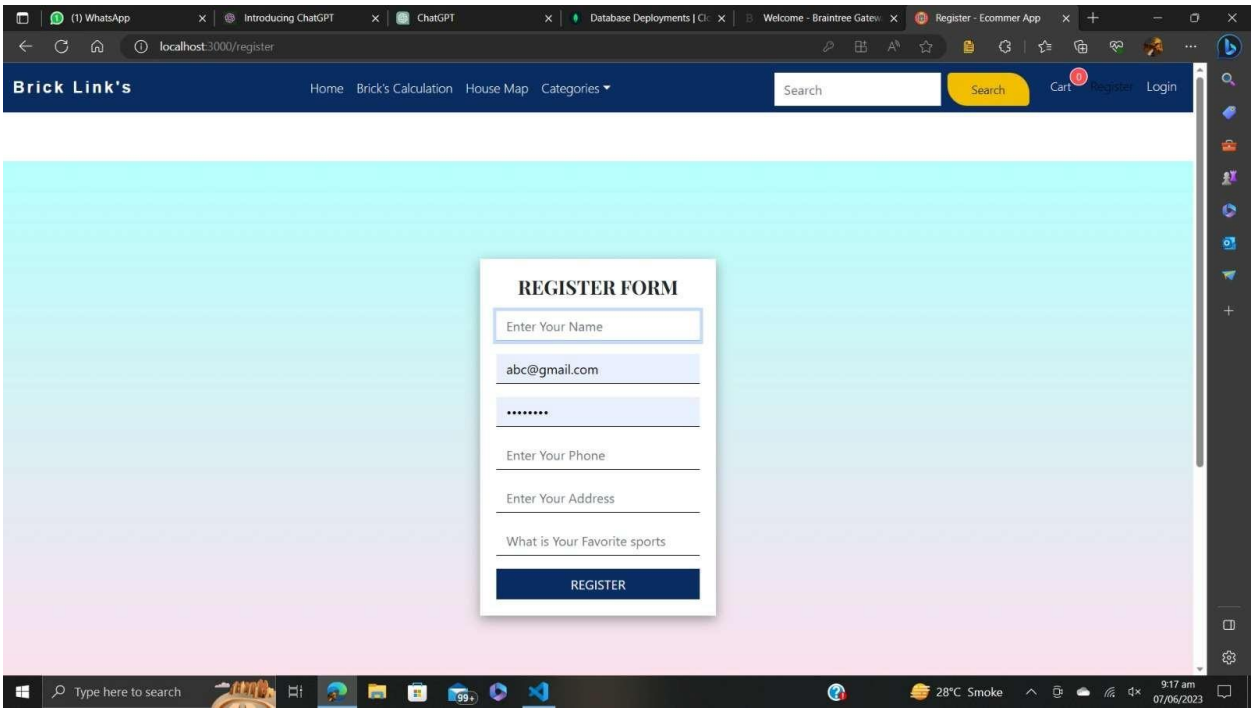

Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Ahmad Welcome to Dashboard
Admin Panel
Create Category
Create Product
Products
Orders
Admin Name : Ahmad
Admin Email : abc@gmail.com
Admin Contact : 02312111111
Brick Links
Brick Links is an online platform for online selling and purchasing of bricks.
Quick Links
About Us
Events
Programs
Client Stories
Social Links
Facebook
Twitter
Instagram
Contact Us
Contact Us
bricklinks@gmail.com
Type here to search
Hot weather
5:01 pm
06/06/2023


Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Admin Panel
Create Category
Create Product
Products
Orders
Manage Category
Enter new category
Submit
Name
Actions
LEVEL-1
LEVEL-2
LEVEL-3
Coal
Floor Bricks
Roof Tile
Edit
Delete
Brick Links
Quick Links
Social Links
Contact Us
Type here to search
Hot weather
5:01 pm
06/06/2023


Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Admin Panel
Create Category
Create Product
Products
Orders
Create Product
Select a category
Upload Photo
write company name
write Description
write a Price
write a quantity
Select Shipping
CREATE PRODUCT
Brick Links
Quick Links
About Us
Social Links
Facebook
Contact Us
Contact Us
Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Admin Panel
Create Category
Create Product
Products
Orders
All Products List
Mian Coal Agent
Khashab Coal
Khan Coal Supplier
Duke Coal
Abid Coal Agent
Hyderabad Coal
Luqman Bricks Company
Roof Tile


Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Ahmad
Admin Panel
Create Category
Create Product
Products
Orders
All Orders
Status Buyer date Payment Quantity
1 Processing Ahmad a few seconds ago Success 0
2 Not Process Ahmad a few seconds ago Success 0
3 Not Process Ahmad a few seconds ago Success 0
Brick Links
Brick Links is an online platform for online selling and purchasing of bricks.
Quick Links
About Us
Events
Programs
Client Stories
Social Links
Facebook
Twitter
Instagram
Contact Us
Contact Us
bricklinks@gmail.com
COPYRIGHT 2023
Terms&Conditions Privacy Policy
Hello Ahmad
Your Cart Is Empty
Cart Summary
Total | Checkout | Payment
Total : $0.00
Current Address
judical Colony
Update Address


localhost:3000/cart
Hello Ahmad
You Have 1 items in your cart
Mian Coal Agent
Khashab Coal
Price : 35000
Remove
Cart Summary
Total | Checkout | Payment
Total : $35,000.00
Current Address
judical Colony
Update Address
Choose a way to pay
Card
PayPal
Developer Error: Something went wrong. Check the console for details.
Make Payment
Type here to search
36°C Heavy rain
5:02 pm
06/06/2023
localhost:3000/login
Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Register
Login
LOGIN FORM
abc@gmail.com
Forgot Password
LOGIN
Type here to search
28°C Smoke
9:17 am
07/06/2023


Brick Link's
Home
Brick's Calculation
House Map
Categories
Search
Search
Cart
Register
Login
REGISTER FORM
Enter Your Name
abc@gmail.com
Enter Your Phone
Enter Your Address
What is Your Favorite sports
REGISTER
Type here to search
28°C Smoke
9:17 am
07/06/2023

Appendices

Appendix A: Information / Promotional Material

Advertising helps your business compete. There are only so many consumers in the market that are willing to buy your product at any given time**.** You need to announce it to the world that they need your product or services. Advertisement also helps to persuade by promoting products, services and ideas and to help achieve commercial/business goals. Businesses create awareness about their brand and to make their new products known. Advertisement is an investment

A.1. Broacher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0316-7160216

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A.3. Banner

Reference and Bibliography

Reference and Bibliography

– Google

– Wikipedia

– www.codeproject.com