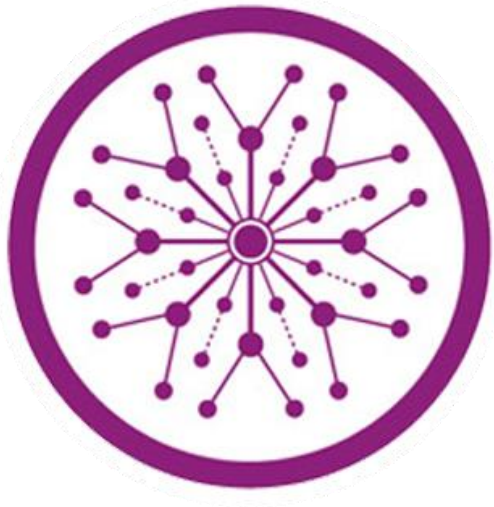
THE SUPERIOR University LAHORE



Faculty of Computer Science & IT

FINAL YEAR PROJECT
PROJECT PROPOSAL & PLAN

3D Packaging Boxes

Project ID: FYP-BCSM-F21-084

Project Team

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Ch. Ahmed Bilal
Senior Lecturer

Type (Nature of project)	[✓] **D**evelopment [ ] **R**esearch [ ] **R**&**D**
Area of specialization	Web Development
FYP ID	FYP-BCSM-F21-084

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*The candidates confirm that the work submitted is their own and appropriate credit has been given where reference has been made to work of others

Plagiarism Free Certificate

This is to certify that, I _____ S/D of Muhammad Siddique, group leader of FYP under registration no _____at Software Engineering Department, The Superior College, Lahore. I declare that my FYP report is checked by my supervisor.

Date: Name of Group Leader: _____ Signature: _____

Name of Supervisor: Ahmad Bilal Co-Supervisor: Mr. XYZ

Designation: Lecturer Designation: Associate Professor

Signature: _____ Signature: _____

HoD: Dr. Arfan Jaffar

Signature: _____

Project Report

[Field Management Console]

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
	1.0		<Original Draft>	

APPROVAL

PROJECT SUPERVISOR

Comments: _____

_____

Name:_____

Date:_____ Signature:_____

PROJECT MANAGER

Comments: _____

_____

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date:_____ Signature:_____

Dedication

This work is dedicated to my beloved parents, my teachers and my supervisor

Acknowledgements

I am really thankful to my supervisor Ch. Ahmed Bilal who made this work possible. I wish to express my sincere gratitude to my supervisor, for his enthusiasm, patience, insightful comments, helpful information, and practical advice that have helped us broadly at all times in my research and writing of this proposal.

Executive Summary

It is an E-commerce website which we are developing for our office, Our Company provides services of custom printing, and we take online orders and deliver them. It is a B2B Business. The problem in the consisting website and the competitor's website is that they are not providing the facility to customize their product. Those who are providing this facility are not user-friendly. It is very difficult for the users to use those websites and customize their products. We will make it user-friendly so that each customer can customize their product according to their own choice. We are going to make the website user–friendly, and every customer can customize their product. We will also put a payment integration method in it so that every user can place their order and pay easily on the website rather than contact us and ask for payment methods. It will also be a responsive web application so users can use it on whatever device they have.

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Chapter 1
Introduction

Project Proposal

Project Title: 3D Packaging Boxes

1. Introduction

It is an E-commerce website which we are developing for our office, Our Company provide services of custom printing and we take online orders and deliver it to them it is a B2B Business so we are updating the website and adding more facilities to make it futuristic.

1.1. Background

Currently the website is working on WordPress and it does not have modern features it is just a simple website where customer can see the product and order it, so, my company wants to upgrade it to something futuristic.

1.2. Motivations and Challenges

The competitor's websites have some amazing features users can design their product on their website without using any third-party app it is very easy and appealing for the user. We want to make it easier and user friendly for users.

1.3. Goals and Objectives

Goals is to make it user friendly and make it better than competitors so that we can get more attention from the users and get more orders eventually.

1.4. Literature Review/Existing Solutions

We can make the frontend using Java Script designing part with using and backend using PHP Laravel framework.

1.5. Gap Analysis

We are currently working on WordPress so we want to upgrade it to PHP custom built site so we can add functionalities according to our choice as using the website we can get more users to come and place their orders on our website.

1.6. Proposed Solution

The idea we have is going to make the website user–friendly and every customer can customize their product. We are also going to put payment integration method in it so that every user can pay place their order and pay easily on the website rather than to contact us and ask for payment methods. It is also going to be responsive web application so user can use it on whatever device he/she have.

1.7. Project Plan

First, we are going to design our front end and get approval from the company and then we will start working on backend using PHP.

1.7.1. Work Breakdown Structure

Project Management:

- Work Breakdown Structure (WBS)
- Roles & Responsibility Matrix
- Change Control System

Reports / Documentation:

- Final Documentation Introduction
- Literature / Markey Survey
- Requirements Analysis
- System Design
- Implementation
- Testing & Performance Evaluation

- Conclusion & Outlook
- End User Documentation
- Application Administration Documentation
- System Administrator Documentation

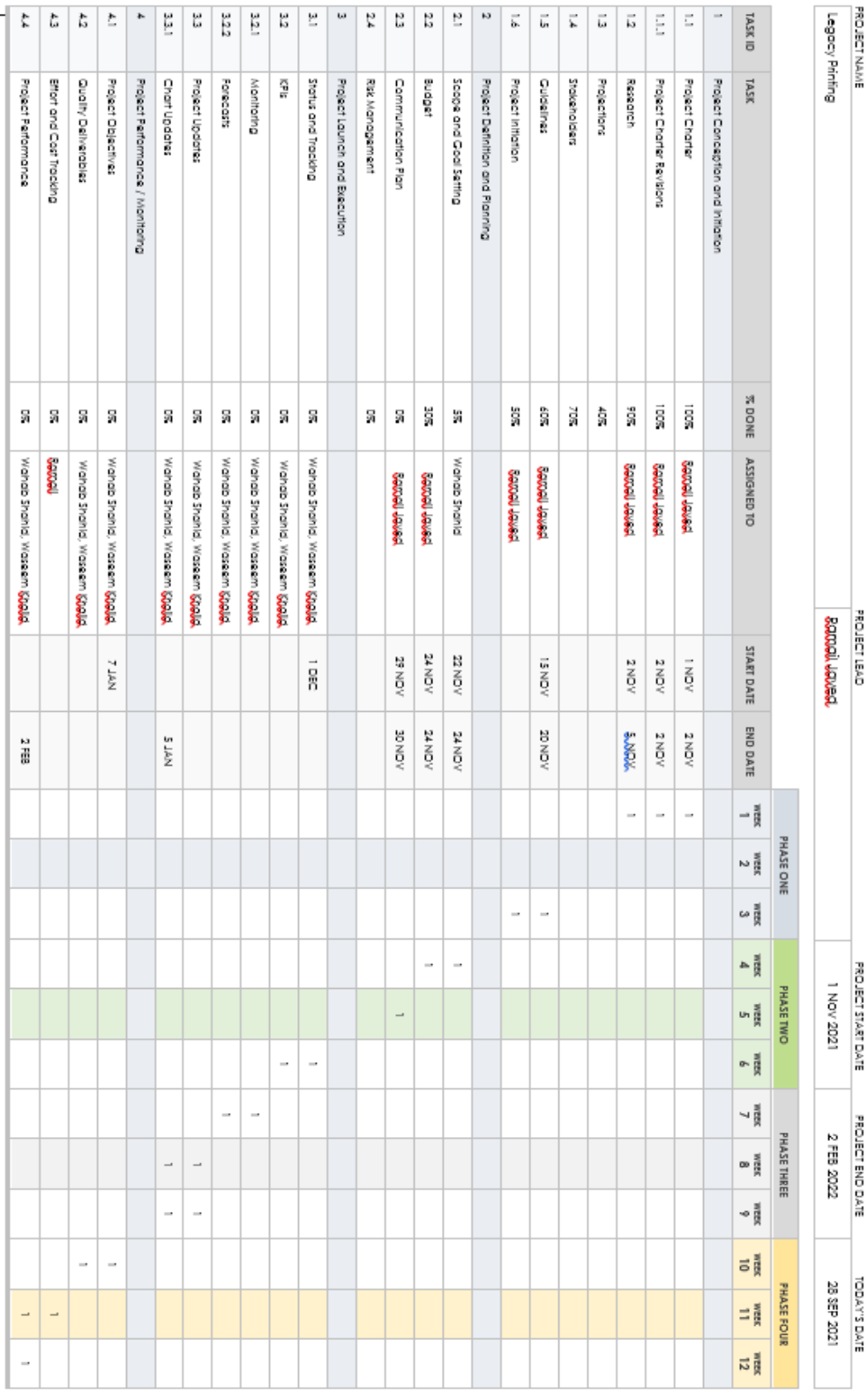
System:

- Development Environment
- VS Code and Atom
- PHP 8.0.1
- MAMP
- MY SQL
- Presentation Layer
- Front End
- Back End
- Business Logic Layer
- Deliverable 1
- Deliverable 2
- Data Management Layer
- Deliverable 1
- Deliverable 2
- Physical Layer
- Deliverable 1
- Deliverable 2

1.7.2. Roles & Responsibility Matrix.

WBS	WBS Deliverable	Activity	Activity to complete the Deliverable	Duration For NO. of days	Responsible Team Members
1	Front End	1	React Front End	15	Waseem
2	Back End	2	Laravel Backend	15	Wahab
3	Business and Logic Layer	3		5	Ramail
4	Data Management Layer	4		5	Ramail

1.7.3. Gantt Chart



PROJECT NAME	PROJECT LEAD	PROJECT START DATE	PROJECT END DATE	TODAY'S DATE
Legacy Printing	Ramsha Javaid	1 NOV 2021	2 FEB 2022	28 SEP 2021

TASK ID	TASK	% DONE	ASSIGNED TO	START DATE	END DATE	PHASE ONE				PHASE TWO				PHASE THREE				PHASE FOUR			
						WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
1	Project Conception and Initiation	100%	Ramsha Javaid	1 NOV	2 NOV	1											
1.1	Project Charter	100%	Ramsha Javaid	1 NOV	2 NOV	1											
1.1.1	Project Charter Revisions	100%	Ramsha Javaid	2 NOV	2 NOV	1											
1.2	Research	90%	Ramsha Javaid	2 NOV	5 NOV	1											
1.3	Projections	40%															
1.4	Stakeholders	70%															
1.5	Guidelines	60%	Ramsha Javaid		15 NOV			1									
1.6	Project Initiation	50%	Ramsha Javaid		20 NOV			1									
2	Project Definition and Planning																
2.1	Scope and Goal Setting	0%	Wahab Shamid	22 NOV	24 NOV				1								
2.2	Budget	30%	Ramsha Javaid	24 NOV	24 NOV				1								
2.3	Communication Plan	0%	Ramsha Javaid	29 NOV	30 NOV					1							
2.4	Risk Management	0%															
3	Project Launch and Execution																
3.1	Status and Tracking	0%	Wahab Shamid, Waseem Khalid	1 DEC						1	1						
3.2	KPIs	0%	Wahab Shamid, Waseem Khalid								1						
3.2.1	Monitoring	0%	Wahab Shamid, Waseem Khalid								1						
3.2.2	Forecasts	0%	Wahab Shamid, Waseem Khalid								1						
3.3	Project Updates	0%	Wahab Shamid, Waseem Khalid									1	1	1			
3.3.1	Chart Updates	0%	Wahab Shamid, Waseem Khalid		5 JAN							1	1	1			
4	Project Performance / Monitoring																
4.1	Project Objectives	0%	Wahab Shamid, Waseem Khalid	7 JAN											1		
4.2	Quality Deliverables	0%	Wahab Shamid, Waseem Khalid											1		1	
4.3	Effort and Cost Tracking	0%	Ramsha												1		
4.4	Project Performance	0%	Wahab Shamid, Waseem Khalid		2 FEB											1	1

Chapter 2
Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1. Introduction

2.1.1. Purpose

We are designing web application 3d packaging boxes where people can design them Own products and order them for there.

2.1.2. Document Conventions

<Describe any standards or typographical conventions that were followed when writing this SRS, such as fonts or highlighting that have special significance. For example, state whether priorities for higher-level requirements are assumed to be inherited by detailed requirements, or whether every requirement statement is to have its own priority.>

2.1.3. Intended Audience and Reading Suggestions

<Describe the different types of reader that the document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. Describe what the rest of this SRS contains and how it is organized. Suggest a sequence for reading the document, beginning with the overview sections and proceeding through the sections that are most pertinent to each reader type.>

2.1.4. Product Scope

Customization:

The main feature is going to be of customization user can come on the website and customize their product rather than to go into photoshop, Illustrator or CorelDraw as they require professionalism and practice so we are going to provide that facility in user-friendly way on the website so the customer without any knowledge about graphic designing can design their product according to their choice.

Payment Integration Method:

We are going to add the payment integration method on the website so user can easily place order and pay on the website rather than to waste time in contacting us and asking about the contact details.

Web-application:

It is going to be a Web-application so that user can use it on every kind of device without any problem with the same view. It is going to be responsive on each kind of devices.

2.1.5. References

We are making a website like the following:

- Packlane
- Packhelp
- Soopack

2.2. Overall Description

2.2.1. Product Perspective

<Describe the context and origin of the product being specified in this SRS. For example, state whether this product is a follow-on member of a product family, a replacement for certain existing systems, or a new, self-contained product. If the SRS defines a component of a larger system, relate the requirements of the larger system to the functionality of this software and identify interfaces between the two. A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be helpful.>

2.2.2. Product Functions

Major function of our product or a user can perform is

- Choose the dimensions of the box
- Select material of box
- Select color (a user can upload his own design)
- Live/Chat Support

2.2.3. User Classes and Characteristics

Following are the user classes:

Project manager:

Project manager is a person that controls all the construction projects and the worker that work on multiple sites. Project manager assign the worker to a specific project or site the history of all the workers are managed by the project manager.

2.2.4. Operating Environment

It is going to be a website and it will run smoothly on any laptop or mobile device it will be a responsive web app so it will work perfectly on all kind of devices.

2.2.5. Design and Implementation Constraints

The only problem would be to add payment integration method as it an US based company so the bank has some issues regarding it.

2.2.6. User Documentation

We will make a tutorial of how to design your own product on our website, which will help users to do it easily.

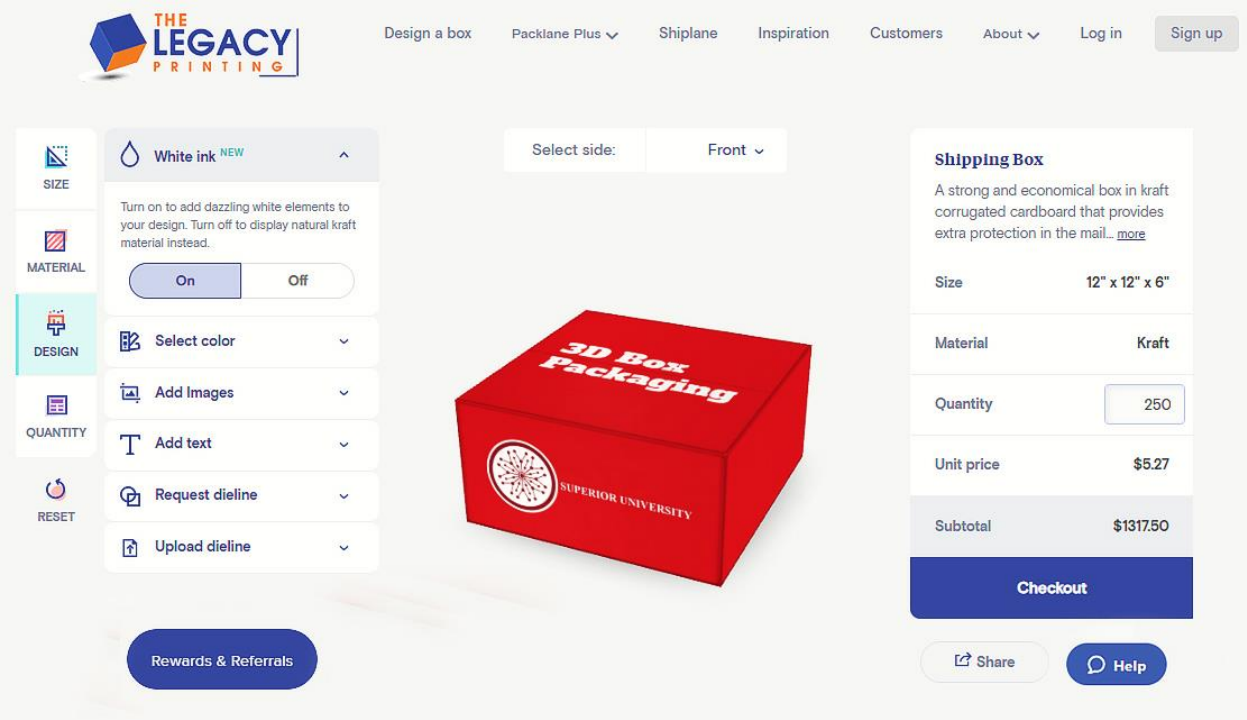
2.2.7. Assumptions and Dependencies

Nothing

2.3. External Interface Requirements

2.3.1. User Interfaces

Sample screen images:



Components:

Navbar:

- Design a box
- Customer
- Login
- Sign in
- About

Side Bar:

- Size
- Design
- Material
- Quantity
- Reset

3D Design Animation:

In this first select stock size and change image size according to the stock size which you selected.

Mailer box:

Mailer box show stock info such as

- Size
- Quantity
- Material
- Unite price
- Subtotal

2.3.2. Hardware Interfaces

To run this application, we need a computer system and an internet connection. The computer system must be connected with the internet.

2.3.3. Software Interfaces

As we are using react for front end and laravel for back end we create all the functionality in laravel and create apis and then connect these apis with react and the database is connected with laravel which is mysql. It will run on Windows and Mac.

2.3.4. Communications Interfaces

We will need following communication interfaces:

- Web browser: it is website so we need browser to access it.
- Email: for customer service or any queries
- Electronic forms: so that people can get a quote (price) from us of their required product.
- Live chat: so, whenever they need any help they can reach us directly.
- HTTP will be used
- Security: SSL will be used for security purposes.

2.4. System Features

2.4.1. System Feature 1

2.4.1.1. Description and Priority

The registration of a user and store it data in database and Login a user and store or keep their data separately.

2.4.1.2. Stimulus/Response Sequences

- A user will open the application.
- Application will show the registration page.
- If the user is new, he will fill out the registration form.
- The existing user will switch to the login page the application will authenticate the login details and allow the user to proceed to the home page if the login is successful otherwise it will show unsuccessful login dialog box.

2.4.1.3. Functional Requirements

REQ-SF1-1: The integration of data must be contained

REQ-SF1-2: Application must login or register a manager before showing a page

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

Speed of the internet connection from the remote computer and speed of connection to the server will affect the performance. Efficiency of the software code will have effect on how quickly commands to the system are given. The internet speed is important for authentication and searching data from firebase database.

2.5.2. Safety Requirements

Terms and conditions should be defined. User should accept that and then use the application to avoid any inconvenience later.

2.5.3. Security Requirements

No Such Security Requirements are needed.

2.5.4. Software Quality Attributes

There are the Following software quality attributes:

- Availability
- User friendly
- Reliability
- Maintainability
- Correctness
- Easy to use

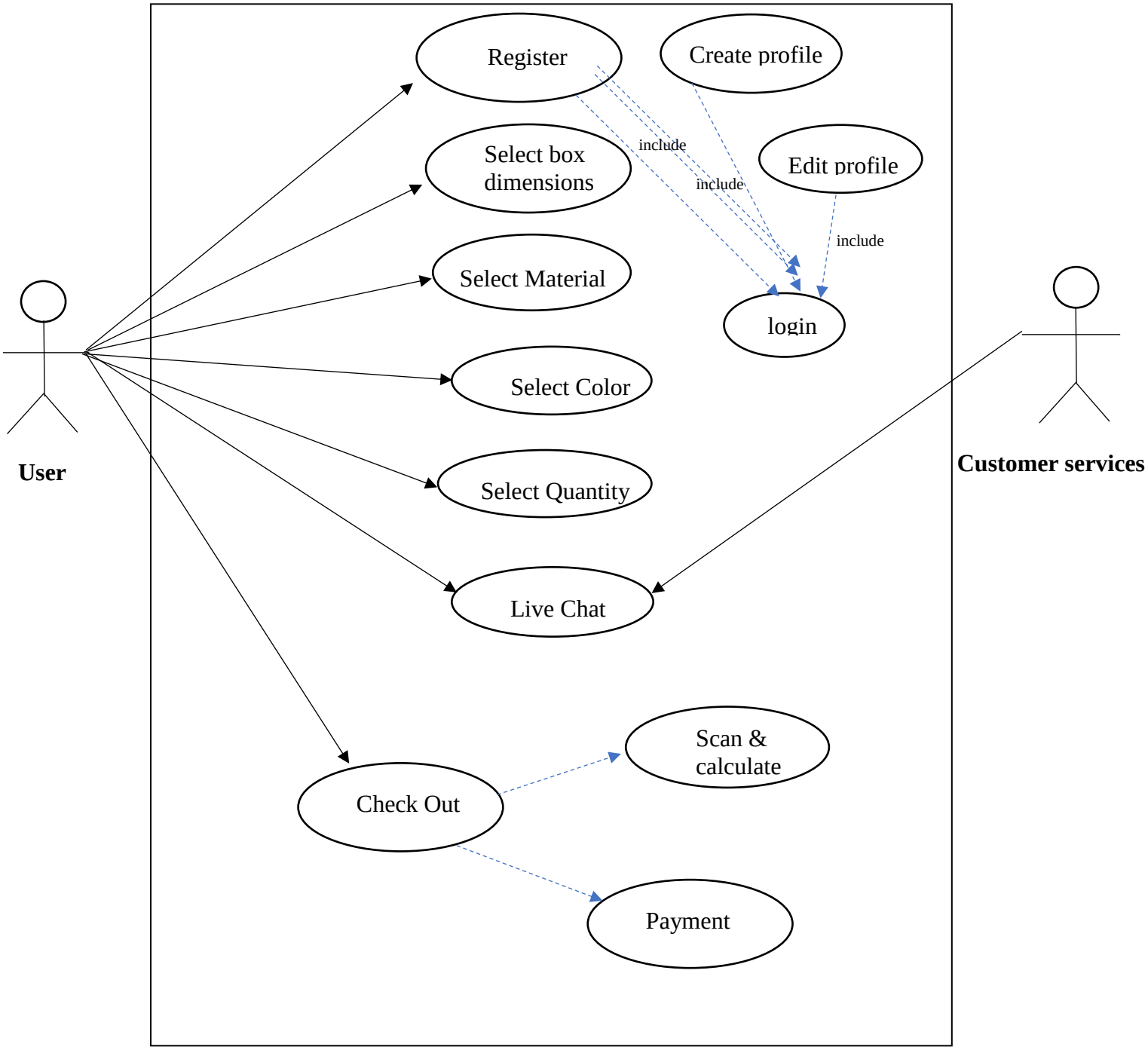
2.5.5. Business Rules

Manager authentication is required. Manager can add, delete, view or update a project. Manager only can check the complete list of workers and Assign different worker to a project or site.

Chapter 3
Use Case Analysis

Chapter 3: System Analysis

3.1. Use Case Model



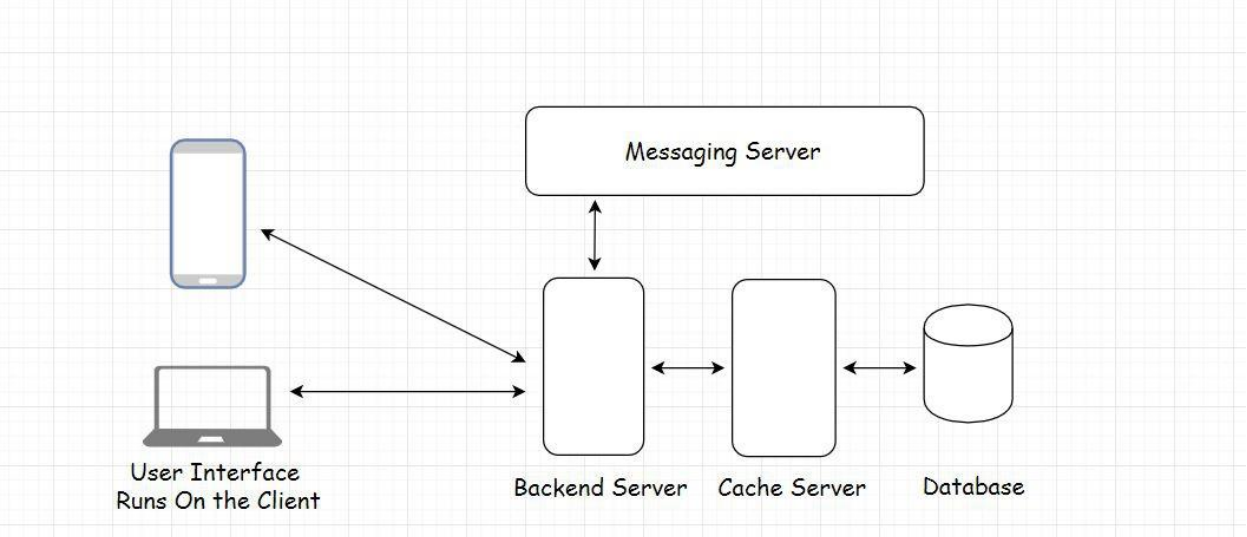
3.2. Use Case Descriptions

- User can register himself if he wants to buy something otherwise if he wants to just view the site there is no need to registration.
- User can select the box type.
- User can select the dimension of the box as per choice given.
- User can select color of box even he can select color for each side of box differently, or user can upload his own design.
- There is a live chat in our site if the user goes for it our customer support team will engage and response the user.
- When user go for check out it scan the item calculate amount and then go for make payment.

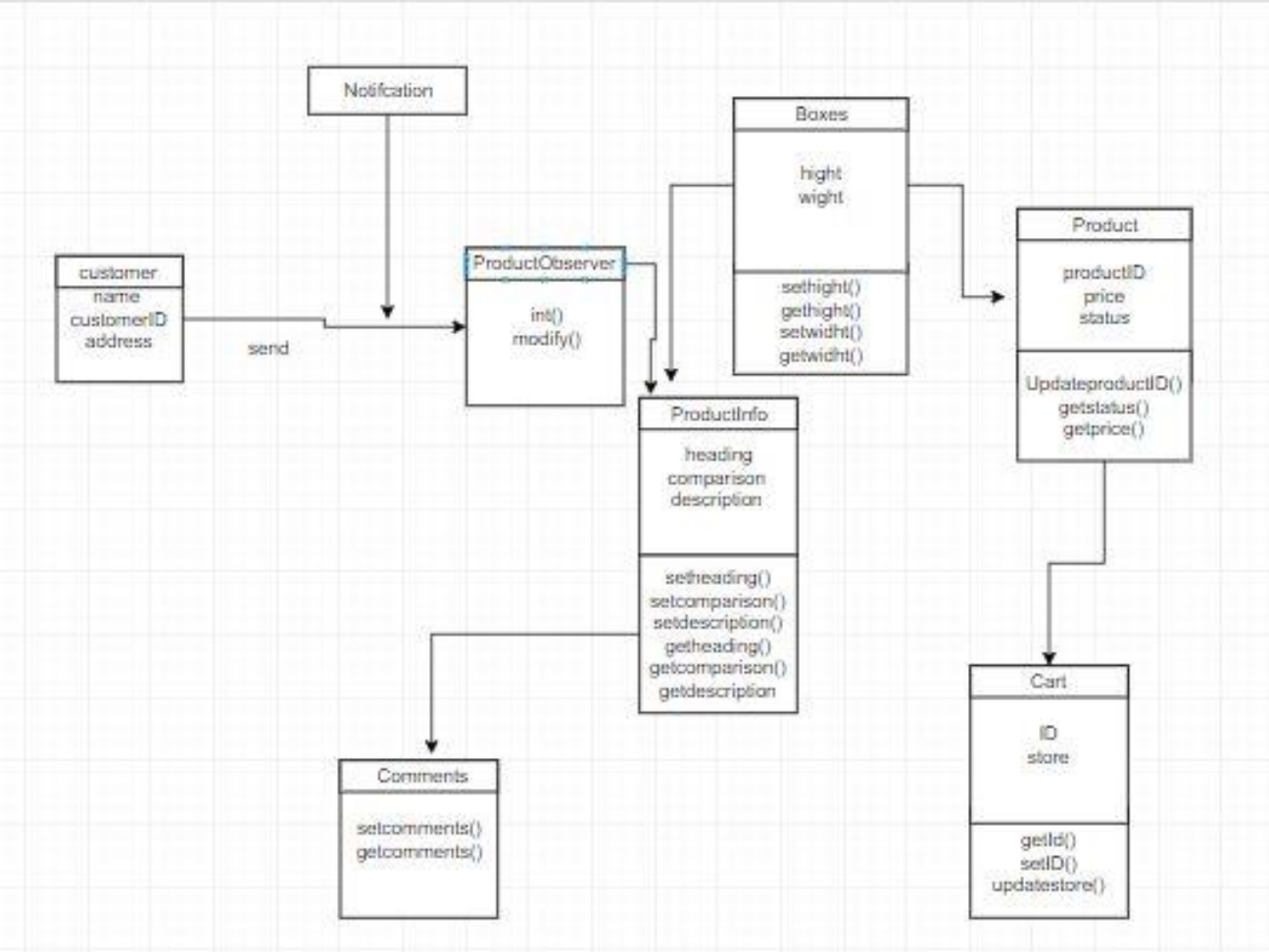
Chapter 4
System Design

Chapter 4: System Design

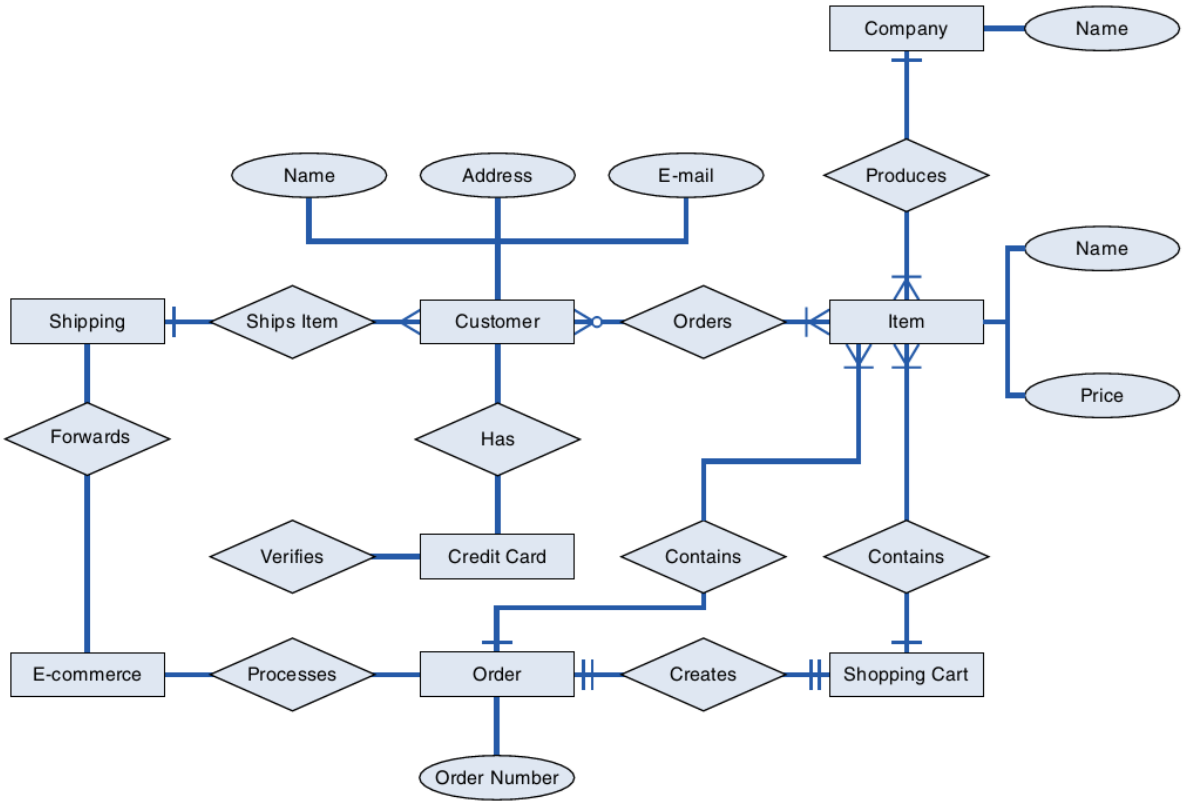
4.1. Architecture Diagram



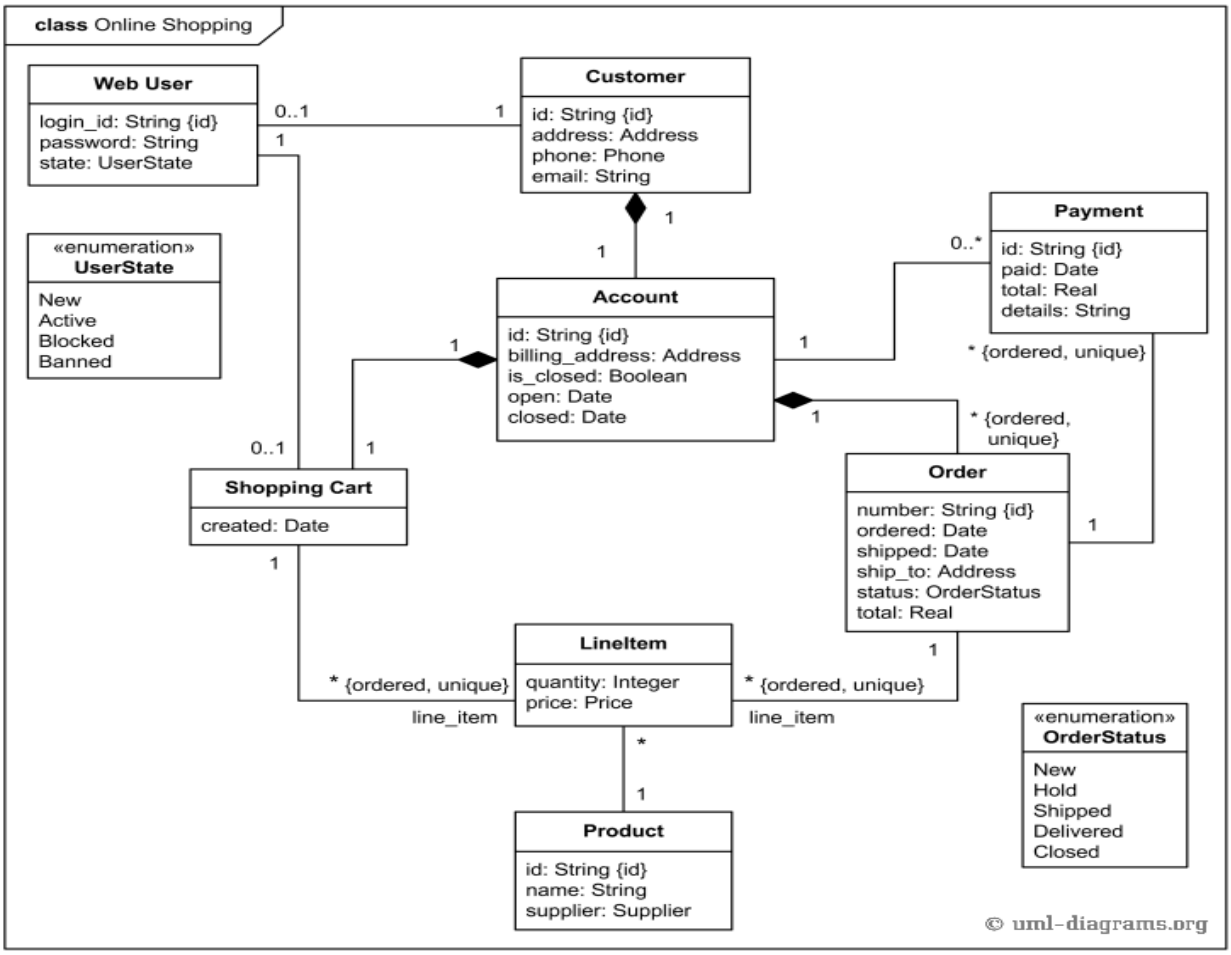
4.2. Domain Model



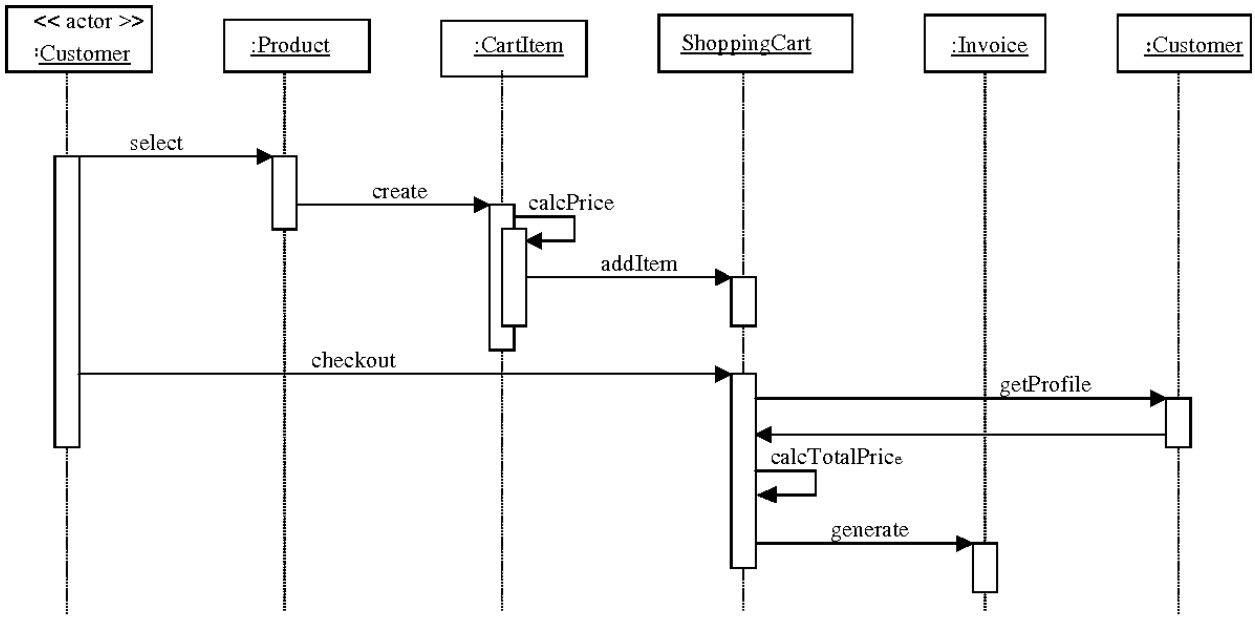
4.3. Entity Relationship Diagram



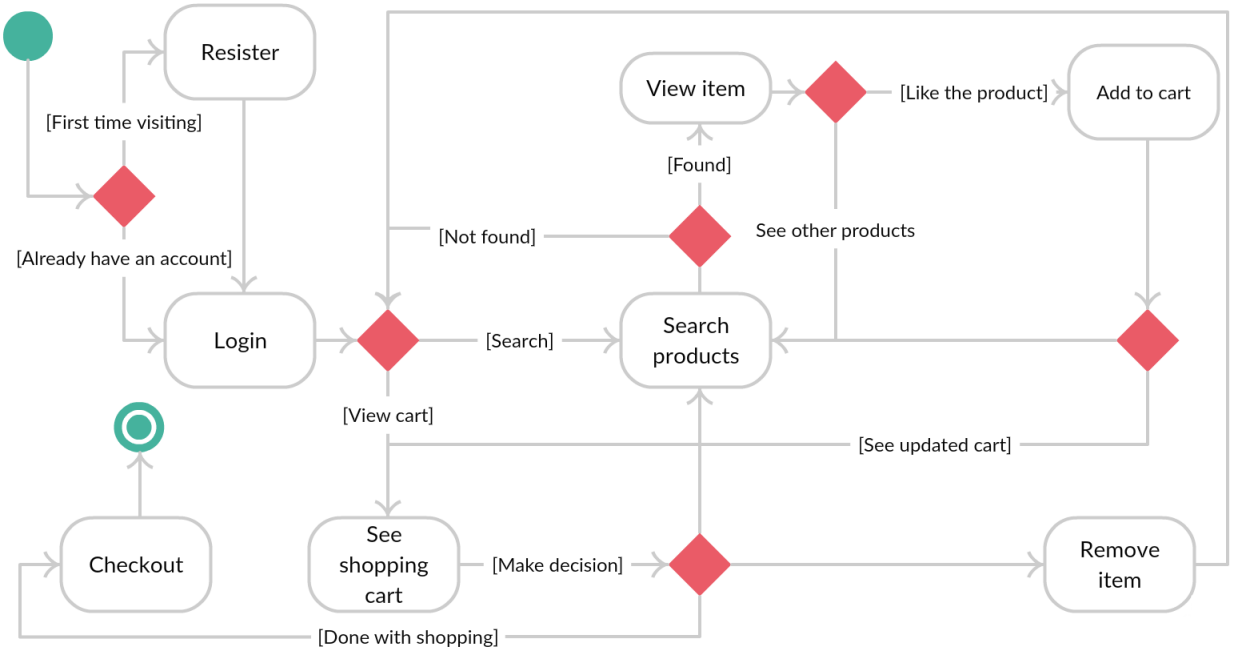
4.4. Class Diagram



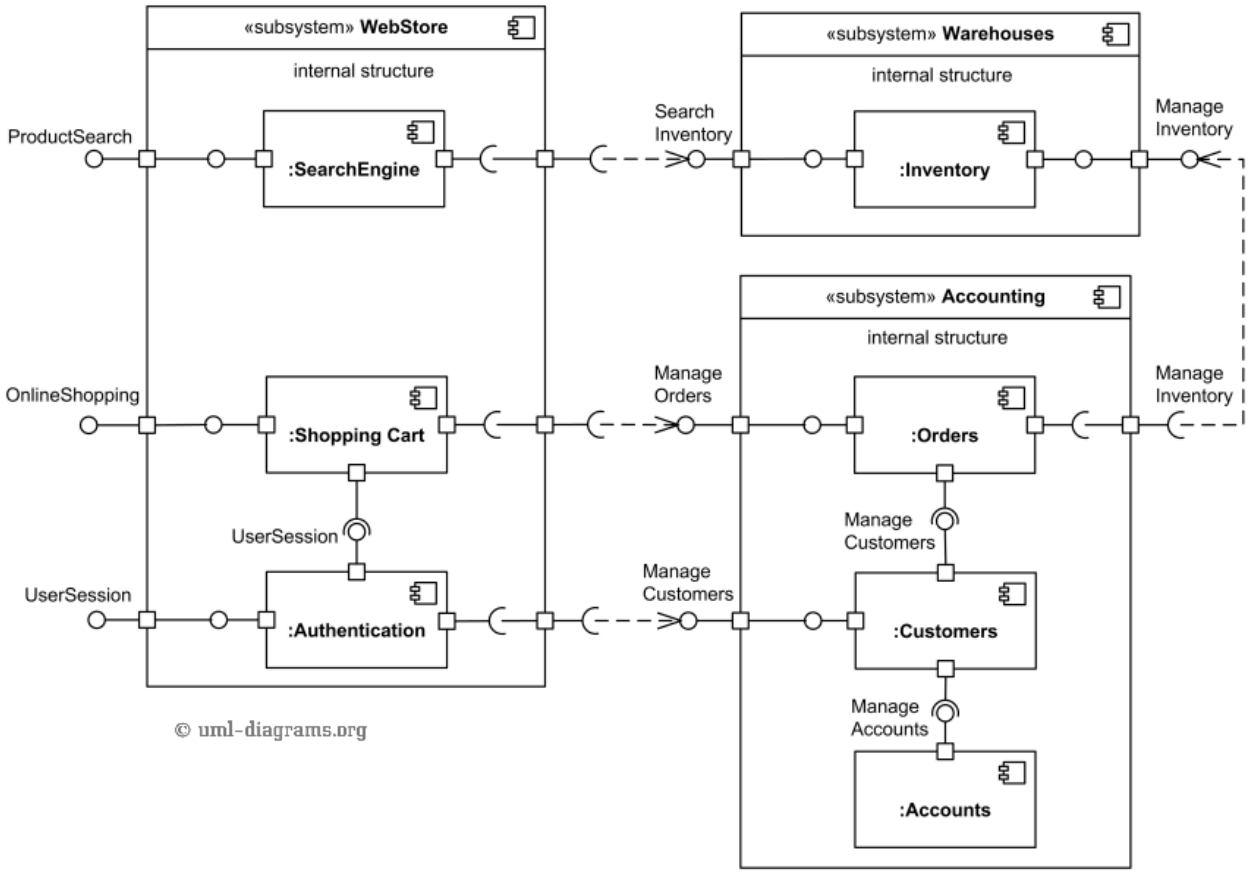
4.5. Sequence Diagram



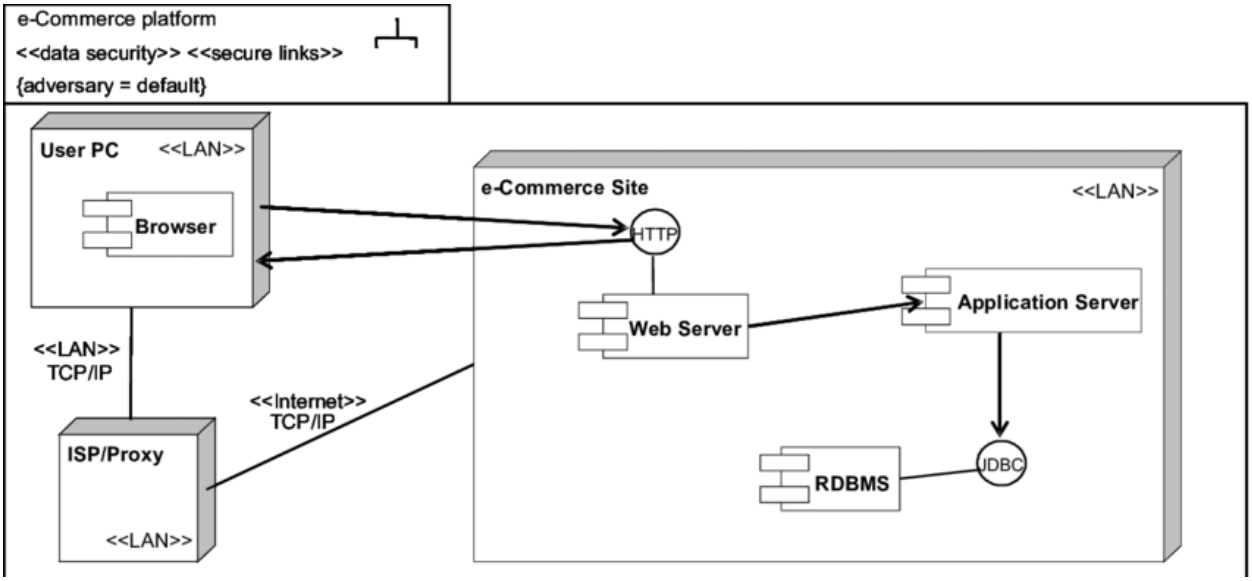
4.6. State Transition Diagram



4.7. Component Diagram



4.8. Deployment Diagram



Chapter 5
Implementation

Chapter 5: Implementation

This chapter describes the project implementation for developing the 3-D packaging Box. The project implements on Laravel, react.js and the database used is My SQL Database. The project will be able to run on any browser. The interface for the project will provide a platform where any customer can design their packaging boxes or order the existing ones.

5.1. Important Flow Control/Pseudo codes

There is a simple and important Pseudo code that is the overview of the project.

Step 1: First of all, if you are a new user/admin than register you're self.

Step 2: After registration login in to the system. If user/admin forgot their password he can reset their password on clicking the option forgot.

Step 3: You'll see user interface of the website.

Step 4: you can see products of your choice.

Step 5: You can search for your desired product.

Step 6: You make design your own product.

Step 7: You can add to cart your desired product.

Step 8: You can pay online using Debit cards, Credit cards, Paypal.

Step 9: Logout from the system.

5.2. Components, Libraries, Web Services and stubs

We are using Firebase Authentication for User and Admin login which verifies the credentials of the users. We use multiple libraries React JS, Three JS, React Dom, React Component, React Form.

5.3. Deployment Environment

We developed this project on server using C panel using the Visual Studio Code which is used for website development and other developments. We are providing the solution which is a website and it can be accessed using any browser. The database of the project is deployed on the online server.

5.4. Tools and Techniques

The Below mention tools and techniques will help to achieve the goal.

Front End Technology

- ReactJS
- Redux
- Three JS

Back End Technology

- PHP Laravel

Technology

- Firebase
- Amazon S3 Bucket

Database

- My SQL

Editor

- VS Code
- PHPStorm

5.5. Best Practices / Coding Standards

There are following best practices and are the best coding standard that is usually follow by the developers before make a project.

- Defined life cycle and milestone
- Stable requirements and scope
- Defined organization, systems and roles
- Quality Assurance
- Plan Commitments
- Scope and mission

5.6. Version Control

We are currently working on the version 2.0 of the application. The changes will occur and affect the version by the time as the website is making and in working condition but we still in development stage.

Chapter 6
Testing and Evaluation

Chapter 6: Testing and Evaluation

Software Testing is evaluation of the software against requirements gathered from users and system specifications. Testing is conducted at the phase level in software development life cycle or at module level in program code. Software testing comprises of Validation and Verification. This chapter is all about the process by which a system or components are compared against requirements and specifications through testing. We will perform all the testing phase in our project which will increase the performance of the system and improve the design of the system. The project will be stable and supportable after the testing and evaluation.

6.1. Use Case Testing

We test every use case in our project for every possible scenario. Basically use cases are descriptions of a sequence of actions that the system can perform in response to exposure of users or other software systems. Use cases represent functional requirements of the system from a user perspective, not from a technical point of view, so they allow us to accurately place priorities of the functions according to importance of results. We test registration use case to enter all possible value in a field that a common user can enter. We enter some wrong value to check the validation of a form. Use case testing is very helpful.
During testing, use cases allow you to evaluate the accuracy of implementation of user requirements and to perform step-by-step verification of these requirements.

6.2. Equivalence partitioning

Equivalence partitioning is very helpful in testing software. In our development phase we will test the entire module or form with all the validate value if we enter invalid value the software through an error that show user enter a wrong value. It is very helpful to reduce the time of testing. Every test case is cover in equivalence partitioning the valid part or the invalid part also test here. Test cases are designed to cover each partition at least once.

6.3. Boundary value analysis

Boundary value analysis is a software testing technique used to check the error at the boundaries of an input domain. In simple words the input is divided into higher and lower end values. If these values pass the test, it is assumed that all values in between may pass too. For example if we enter password in number the boundary value is including all the positive number. The input domain is all the positive number negative number is not included. We will perform the boundary value analysis in our project.

6.4. Data flow testing

In development process the data flow testing done to ensure the working of all the variables that are used in our project. Data Flow Testing is a type of structural testing. It is a method that is used to find the test paths of a program according to the locations of definitions and uses of variables in the project. Basically we use Data Flow Testing to control flow graph to find the situations that can interrupt the flow of the project.

6.5. Unit testing

During the development process, unit testing will be done to ensure that the entire modules are built correctly. Every smallest module that is the part of the application will be test individually and independently are tested to determine whether they are fit for use.

Login Testing

```
class LoginPageTest extends TestCase
{
    /**
     * A basic test example.
     *
     * @return void
     */
    public function testLoginPage()
    {
        $response = $this->get('/login');
        $response->assertStatus(200);
    }

}
```

Register Testing

```
class RegisterTest extends TestCase
{

    public function testRegisterPage()
    {
        $response = $this->get('/register');
        $response->assertStatus(200);
    }
}
```

Insert User

```
class InsertUserTest extends TestCase
{

    public function testInsertUser()
    {
        $data =  [
            'name' => str_random(5),
            'email' => str_random(7).'@testing.com',
            'password'                                                  =>
'$2y$10$TKh8H1.PfQx37YgCzwiKb.KjNyWgaHb9cbcoQgdIVFlYg7B77UdFm',      //
secret is the hashed MD5 for this string
            'remember_token' => str_random(9),
        ];

        $user = User::create($data);

        $this->assertInstanceOf(User::class, $user);

        $this->assertEquals($data['name'], $user->name);
        $this->assertEquals($data['email'], $user->email);
        $this->assertEquals($data['password'], $user->password);

    }
}
```

Delete User

```
class DeleteUserTest extends TestCase
{

    public function testDeleteUser()
    {
           //just creating a new user in case of no user
        factory(User::class)->create();

        $user = User::first();

        if($user)
          $user->delete();

        $this->assertTrue(true);
    }
}
```

Results:

```
PSC:\xampp\htdocs\3d> ./vendor/bin/phpunit
>>
>>
PHPUnit 6.5.14 by Sebastian Bergmann and contributors.

.................
17 / 17 (100%)

Time: 2.01 seconds, Memory: 18.00MB

OK (17 tests, 34 assertions)
PS C:\xampp\htdocs\3d>
```

6.6. Integration testing

Integration testing will be done after we have built the entire component and combined them into the application. We will test the database, the web coding and the user interface and other functionalities here.

6.7. Performance testing

It is a testing technique carried out to determine system performance in terms of sensitivity, reactivity and stability under a particular workload. We will perform this testing technique in our project. We add a different project or we will add many workers in our projects to test the performance of the application. We will check the stability or sensitivity of our project under a particular workload.

6.8. Stress Testing

We will perform stress testing in our project. Stress testing is a type of software testing that verifies the stability and reliability of the system. We will make the project stable or reliable. This test particularly determines the system on its error handling under extremely heavy load conditions. We will add a particular workload in our project to check the reliability. And will verify the stability of our project.

Chapter 7
Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

It is an E-commerce website which we are developing for our office, Our Company provides services of custom printing, and we take online orders and deliver them. It is a B2B Business. The problem in the consisting website and the competitor's website is that they are not providing the facility to customize their product. Those who are providing this facility are not user-friendly. It is very difficult for the users to use those websites and customize their products. We will make it user-friendly so that each customer can customize their product according to their own choice. We are going to make the website user–friendly, and every customer can customize their product. We will also put a payment integration method in it so that every user can place their order and pay easily on the website rather than contact us and ask for payment methods. It will also be a responsive web application so users can use it on whatever device they have

7.2. Achievements and Improvements

When we complete this project, we will be able to design and create 3d boxes. People will be able to make and design boxes online and we'll provide a platform where developer, designer, QA all can communicate and assign tasks to each other's.

7.3. Critical Review

When we complete this project, we will be able to design and create 3d boxes. People will be able to make and design boxes online and we'll provide a platform where developer, designer, QA all can communicate and assign tasks to each other's.

7.4. Lessons Learnt

Too many lesson learnt during the development of this project. If you create some special thing it needs more energy and more effort. If you work hard you can achieved everything in your life. During the development of this project we learn how to work in a group. How to make different modules that you can test individually. Test the entire module before test the whole program. Understand the flow or working of a lengthy code.

7.5. Future Enhancements/Recommendations

After completing this project we will add to many things in this project. Future enhancements in this project are we will make an online Editing/Designing platform for the users.

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