

BSCS-F22-008

03-134191-039 MUHAMMAD IDRESS ARIF

03-134192-001 MUHAMMAD BILAL ZAHID

Bits 4 Building

In partial fulfilment of the requirements for the degree of **Bachelor of Science in Computer Science**

Supervisor: Fatima Siddiqui

Department of Computer Sciences Bahria University, Lahore Campus

Certificate



We accept the work contained in the report titled "Bits 4 Building"

written by

MUHAMMAD IDRESS ARIF

MUHAMMAD BILAL ZAHID

as a confirmation to the required standard for the partial fulfilment of the degree of Bachelor of Science in Computer Science.

Approved by:		
Supervisor:	Fatima Siddiqui	
		(Signatura)

June 20, 2023

DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Enrolment	Name	Signature
03-134191-039	MUHAMMAD IDRESS ARIF	
03-134192-001	MUHAMMAD BILAL ZAHID	

Date: June 20, 2023

Specially dedicated to

my beloved grandmother, mother, and father
(MUHAMMAD IDRESS ARIF)

my beloved grandmother, mother, and father
(MUHAMMAD BILAL ZAHID)

ACKNOWLEDGEMENTS

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to my research supervisor, Ms FATIMA SIDDIQUI for her invaluable advice, guidance, and her enormous patience throughout the development of the research.

In addition, we would also like to express my gratitude to our loving parent and friends who had helped and given me encouragement.

MUHAMMAD IDRESS ARIF MUHAMMAD BILAL ZAHID

BITS 4 BUILDING

ABSTRACT

The development of technology has made it easier for people to get everything they need delivered to their doorsteps in today's fast-paced society. Building own house is dream of everyone. In construction of house there is a lot of hustle people have to go through like finding sellers with reasonable prices and quality material, and sometimes they don't have much option to compare it in market. Sellers in some specific areas where there aren't many options are ripping off people with their own prices. To overcome these problems, we're developing this website to provide people with a single platform to have multiple sellers within their reach. Our website with have multiple categories in accordance with constructional modules where they'll have multiple option from which they can compare and select the best suitable to them. Alongside with that it'll also give them professionals to hire to get their work done.

We'll be using HTML, CSS, Bootstrap, JavaScript for Front-end; PHP, Laravel for Back-end, and MY SQL Server for Database.

TABLE OF CONTENTS

DECLAR	ATION			İ
ACKNOV	VLEDGE	MENTS		iv
ABSTRA	CT			v
TABLE C	OF CONT	ENTS		vi
LIST OF	TABLES			X
LIST OF	FIGURE	S		X
СНАРТЕ	RS			
1	INTF	RODUCT	ION	1
	1.1	Backgı	round	1
	1.2	Proble	m Statements	2
	1.3	Aims a	and Objectives	2
	1.4	Scope	of Project	2
2	SOF	ΓWARE 1	REQUIRMENTS SPECIFICATION (SRS)	3
	2.1	User C	classes and Characteristics	3
		2.1.1	Types of users	3
	2.2	Operat	ing Environment	4
		2.2.1	Resource Requirement	5
		2.2.2	Tools / Technology	5
	2.3	Design	and Implementation Constraints	5
		2.3.1	Hardware Limitations	6
		2.3.2	Tools	6
		2.3.3	Language Requirements	6
	2.4	Assum	ption and Dependencies	ϵ

				vii
		2.4.1	Assumptions	6
		2.4.2	Dependencies	6
	2.5	Non-fu	unctional Requirements	7
		2.5.1	Security Requirements	7
		2.5.2	Software Quality Attributes	7
	2.6	Other 1	Requirements	7
		2.6.1	Availability	7
		2.6.2	Maintainability	7
3	DESI	GN AND	METHODOLOGY	8
	3.1	ERD		8
	3.2	Data F	low Diagram	9
		3.2.1	Level-0:	9
		3.2.2	Level-1:	9
		3.2.3	Level-2:	10
	3.3	Systen	n Use Cases	11
		3.3.1	Main Use Case Diagram	11
		3.3.2	Buyer Sign up Use-Case diagram	12
		3.3.3	Seller Sign up Use-Case diagram	13
		3.3.4	Seller Login Use-Case diagram	13
		3.3.5	Buyer Login Use-Case diagram	14
		3.3.6	Buyer Use-Case diagram	15
		3.3.7	Seller Use-Case diagram	16
		3.3.8	Admin Use-Case diagram	17
		3.3.9	Buyer Setting Use-Case diagram	18
	3.4	Seque	nce Diagram	25
	3.5	Activit	ty Diagram	26
		3.5.1	Buyer Activity Diagram	26
		3.5.2	Seller Activity Diagram	27
	3.6	METH	IODOLOGY	28
		3.6.1	Feature Driven Development	28
		3.6.2	Develop an overall model	28
		3.6.3	Build feature list	28

				viii
		3.6.4	Plan by feature	28
		3.6.5	Design by feature	29
		3.6.6	Build by feature	29
4	DATA	A AND EX	XPERIMENTS (and/or IMPLMENTATION)	30
	4.1	Risks I	nvolved	30
	4.2	Langua	ge used for implementation	30
		4.2.1	Front End	30
		4.2.2	Back End	30
	4.3	Databa	se	30
	4.4	Implem	nentation.	31
5	RESU	J LTS AN	D DISCUSSIONS (or USER MANUAL)	32
	5.1	USER	MANUAL	32
		5.1.1	Website Homepage	32
		5.1.2	Admin Login	32
		5.1.3	Login Screen	33
		5.1.4	Admin Dashboard	33
		5.1.5	Buyer Login Screen	34
		5.1.6	Buyer profile screen	34
		5.1.7	Buyer Order	35
		5.1.8	Seller Login	37
		5.1.9	Seller Dashboard	38
		5.1.10	Seller Profile	39
		5.1.11	Seller Orders	39
		5.1.12	Seller Bids on Project	41
		5.1.13	Bids shown on Admin Side	43
		5.1.14	Local Host phpMyAdmin for Database	43

			ix
5	CON	CLUSION AND RECOMMENDATIONS	45
	6.1	Conclusion	45
	6.2	Recommendations	45
	6.3	Future Work	46
REF	ERENCE	S	47

LIST OF TABLES

TABLE	TITLE	PAGE
T-11-2 1. T-11T	aller alle are	5
Table 2. 1: Tools and Table 3. 1: Buyer Sign-		5 18
Table 3. 2: Manage Oro	•	19
Table 3. 3: Order Servi	ce Use-Case	20
Table 3. 4: Admin Logi	n Use-Case	22
Table 3. 5: Buyer Select	Category Use-Case	23

LIST OF FIGURES

FIGURE	TITLE	PAGE
Figure 3.1-1 ER	D.	8
Figure 3.2-1 Da	ta Flow Diagram (Level-0)	9
Figure 3.2-2 Da	ta Flow Diagram (Level-1)	9
Figure 3.2-3 Da	ta Flow Diagram (Level-2)	10
Figure 3.3-1 Sys	stem Use Case Diagram	11
Figure 3.3-2 Bu	yer Sign up Use-Case Diagram	12
Figure 3.3-3 Sel	ler Sign up Use-Case Diagram	13
Figure 3.3-4 Sel	ler Login Use-Case Diagram	13
Figure 3.3-5 Bu	yer Login Use-Case Diagram	14
Figure 3.3-6 Bu	yer Use-Case Diagram	15
Figure 3.3-7 Sel	ler Use-Case Diagram	16
Figure 3.3-8 Ad	min Use-Case Diagram	17
Figure 3.4-1 Sec	quence Diagram	25
Figure 3.5-1 Bu	yer Activity Diagram	26
Figure 3.5-2 Se	ller Activity Diagram	27
Figure 3.6-1 Fea	ature Driven Development	28

CHAPTER 1

INTRODUCTION

1.1 Background

Bits 4 Building will be a single platform through which buyers will be able to access multiple sellers. On our website, buyers will be able to compare and select the most suitable alternative from a variety of categories, each of which corresponds to a specific constructional module. These modules will include structural materials. The material type of each of these modules will be used to further categorise each module. buyers can purchase materials based on their needs, and the materials will be delivered to their doorstep at their convenience[1]. They can share their experience with the seller in question. Sellers will be listed according to their customer ratings.

In addition, they will be able to hire experts to complete their tasks. Buyers can publish what they need done at their location, and experts such as plumbers, electricians, and contractors can submit bids and proposals[2]. After reviewing the professional's proposal, the client can communicate with them in the offered chat box to discuss everything in further depth. If they can come to an agreement, they can collaborate.

Bits 4 Building will provide a module allowing merchants to register for a one-month, three-month, six-month, or one-year plan. It will grant sellers administrative access to personalise their goods and offer incentives to entice customers. Also, in the event of any bugs or problems on their end, there will be a complaints box where they can submit their concerns, which will be resolved by us[3].

1.2 Problem Statements

The problem statement for the final year project is to develop a user-friendly web-based platform called "Bits4Building" that addresses the challenges faced by construction professionals in Pakistan. The platform aims to provide a centralized solution that streamlines the procurement process, improves cost estimation accuracy, facilitates project posting and bidding, enhances communication between users and vendors, and ensures convenient material delivery to project sites.

1.3 Aims and Objectives

The objectives of the project are as following:

- i) To provide one platform to buyers and sellers.
- ii) To provide cost calculator.
- iii) To provide Sellers with Inventory customization.
- iv) To provide individual contractors with biding option on available projects.
- v) To provide information Pop-ups for customer guidance.

1.4 Scope of Project

- i) Buyers can purchase structural material.
- ii) Buyer can book appointments for professionals.
- iii) It is to provide customers with estimation cost and material that'll be used in construction.
- iv) It is to provide tracking of order.
- v) Multiple sellers will be gathered at one platform so buyer will have variety and comparison of price as well.
- vi) It'll provide buyers with feedback option and sellers will be sorted on top according to their rating.
- vii) The buyer can rate the product when he makes a purchase.

CHAPTER 2

SOFTWARE REQUIRMENTS SPECIFICATION (SRS)

2.1 User Classes and Characteristics

There are three types of user classes that will use this product. One use class is the buyers, sellers and other user class is the admin.

2.1.1 Types of users

- 1. Admin.
- 2. Buyers.
- 3. Sellers.

2.1.1.1 Admin

- Login.
- Delete buyers.
- Block buyers.
- Delete sellers.
- Block sellers.
- Add products category.
- Delete product category.
- Update product category.
- Managing Orders.
- Managing Payments.
- Managing Contents.

2.1.1.2 Buyers

- Sign up.
- Login.
- Choose guidance related to the category.
- Choose category.
- Place Orders.
- Add to Cart.
- Make payments.
- Review sellers.
- Post Projects.
- Cancel Order.

2.1.1.3 Sellers

- Sign up.
- Login.
- Selling products.
- Accept orders.
- Deliver orders.
- Cancel orders.
- Bid on project.
- Contact buyers.
- Withdraw money.
- Order completion.
- Review buyer.

2.2 Operating Environment

The following hardware and software requirements are necessary for the design and development of this website.

2.2.1 Resource Requirement

The resources required are:

1. Laptop(s): Hp core i5 5th generation, Dell Core i7 5th generation.

2. Ram: 4 GB

3. Hard Disk: Min 256 GB4. Operating System: 64 bits

2.2.2 Tools / Technology

While designing and developing this website, there are following hardware and software requirements.

Table 2. 1: Tools and Technology

Sr. No.	Technology/Hardware	Tools/Software	Technique/Description
1.	Laptop		Use for Development.
2.		Operating System • Laptop (Windows).	Use for compatibility of hardware and website.
4.		VS Code	IDE for programming.
6.		PHP Laravel	Programming Language (Back end).
7.		HTML, CSS, Bootstrap, JavaScript	Website Layout Design (Front end).
8.		MY SQL	Database.
9.		Xampp Server	For Local Host

2.3 Design and Implementation Constraints

The Design and Implementation Constraints for website are as follows:

- Hardware Limitations.
- Tools.
- Language Requirements.

2.3.1 Hardware Limitations

The hardware limitation may depend on various factors such as the server configuration, the hosting provider, and the anticipated traffic on the website.

2.3.2 Tools

Visual Studio Code will be used for the development of the website which involves a working with various frameworks and libraries[4].

2.3.3 Language Requirements

The website will be developed in HTML, CSS, Bootstrap, JavaScript Programming Languages for as Front-end Language[5]. PHP Laravel Programming Language for as Back-end Language[6]. The developer requires the time for learning these languages proficiently.

2.4 Assumption and Dependencies

The performance of (BITS 4 Building) depends upon the user's internet.

2.4.1 Assumptions

- No copyright breaches.
- An active internet connection must be required.
- The operating environment must be virus free and must be run smoothly.

2.4.2 Dependencies

• The website interface must be user friendly and easy to use.

2.5 Non-functional Requirements

- To run the website, internet is very essential because the online website usually rely on the internet. System will have a better performance if the internet is faster.
- A proper comparison among different vendors must be displayed to the user so the users can easily choose best opportunity.

2.5.1 Security Requirements

- Only an authorized person can use the website.
- Changes can be made by only admins.

2.5.2 Software Quality Attributes

• It is web-based application system and high portability is given to its users.

2.6 Other Requirements

2.6.1 Availability

24/7 the system should be available.

2.6.2 Maintainability

The system must be straightforward to configure and maintain.

CHAPTER 3

DESIGN AND METHODOLOGY

3.1 ERD

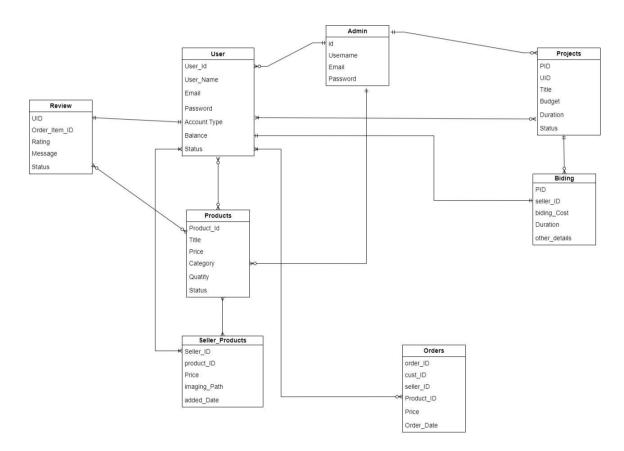


Figure 3.1-1 ERD

In the Entity-Relationship Diagram (ERD), the admin has mandatory one-to-many relationships with users, projects, and products. Users and products have a many-to-many relationship. Users can post multiple projects, leave one review per instance, and place multiple orders. Each user has a mandatory cart, and products can have zero or multiple reviews. A cart can contain zero or multiple products. Orders have a mandatory relationship with order invoices. This comprehensive ERD outlines the relationships between the admin, users, projects, products, reviews, cart, orders, and order invoices, capturing the dependencies and associations within the system.

3.2 Data Flow Diagram

3.2.1 Level-0:

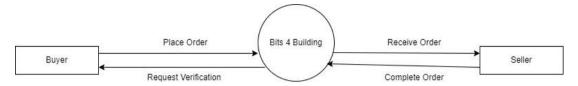


Figure 3.2-1 Data Flow Diagram (Level-0)

In the process of a transaction between a buyer and a seller, there is a system called "bits 4 building" that facilitates the exchange. The buyer initiates the transaction by placing an order, which is then submitted to the seller by the system. Upon receiving the request, the seller reviews and approves it, and proceeds to complete the order. After completing the order, the seller asks the buyer for verification to ensure the transaction's accuracy and satisfaction.

3.2.2 Level-1:

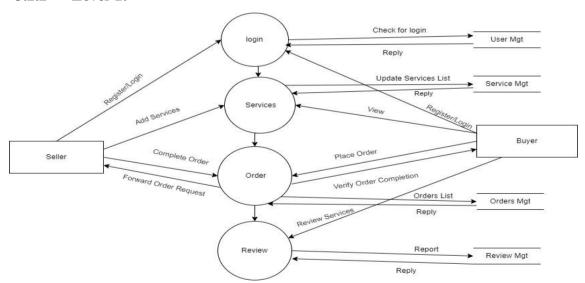


Figure 3.2-2 Data Flow Diagram (Level-1)

Seller:

The seller logs in using a login operation that verifies their identity through the database. Once logged in, the seller can add products through a services operation, which inserts the product into the database and lists it on the website with admin

authorization. The seller approves and completes orders using an order operation and sends a verification request to the buyer. Additionally, the order operation updates the seller's inventory with the product's status.

Buyer:

Buyers log in using a login operation that authorizes them through the database. Once logged in, buyers can place orders through an order operation and respond to the seller's verification requests for services. The order operation updates the database and lists the remaining products. Buyers can also provide reviews on the seller's services using a review operation, which adds them to the database and lists them on the website.

Login Credential Verification Buyer Login User Mgf Services List Services Select Service Services Mgt Category Request Complete Details Make Order Add to Carl Order Mat Place Order Order Details Edit Review Review Review Mat

3.2.3 Level-2:

Figure 3.2-3 Data Flow Diagram (Level-2)

Review Details

The services operation is divided into select categories, which further includes select service for buyers to choose a product. The order process is divided into add to cart, allowing buyers to add products and continue shopping. Within the add to cart process, there is a sub-category called Make payment, where buyers can choose their preferred payment method. Another sub-category within add to cart is Place order, where buyers finalize their purchase. The review process includes the sub-category Edit review, enabling buyers to modify their reviews.

3.3 System Use Cases

3.3.1 Main Use Case Diagram

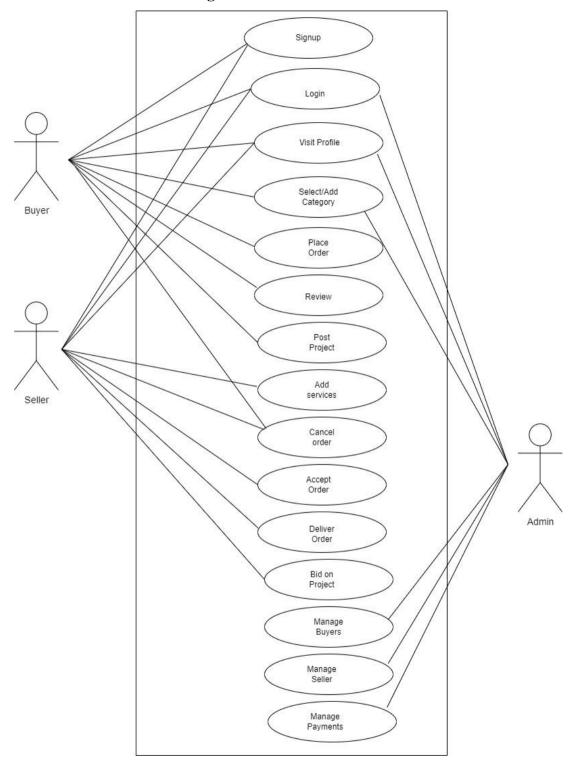


Figure 3.3-1 System Use Case Diagram

In the system, there are different roles assigned to users. The admin has the ability to log in, access their profile, add categories, manage buyers and sellers, and handle payments. Sellers can sign up, log in, manage their profiles, add products, cancel and

approve orders, deliver services, and bid on projects. Buyers, on the other hand, can sign up, log in, manage their profiles, select categories, place orders, post reviews, and post projects. Each role has specific functionalities and responsibilities within the system.

3.3.2 Buyer Sign up Use-Case diagram

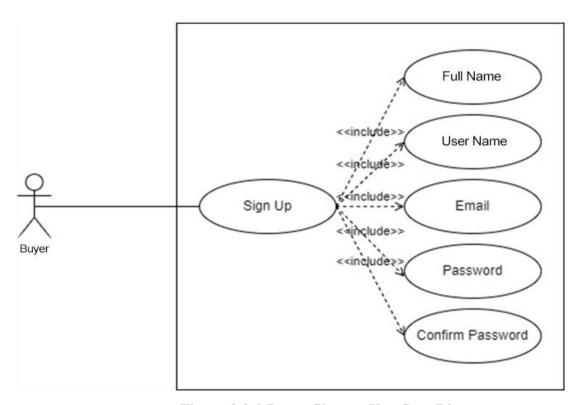


Figure 3.3-2 Buyer Sign up Use-Case Diagram

Buyers have the option to sign up by providing their full name, username, email address, password, and confirming the password.

3.3.3 Seller Sign up Use-Case diagram

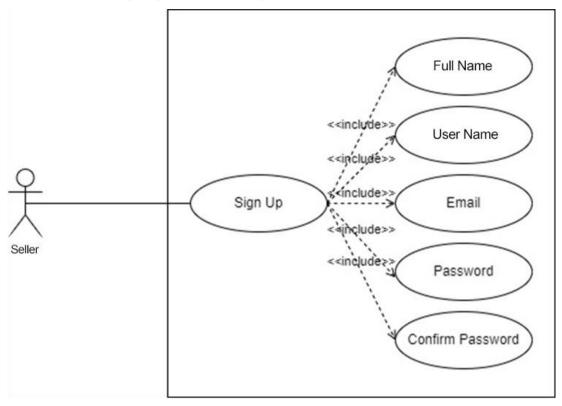


Figure 3.3-3 Seller Sign up Use-Case Diagram

Sellers have the option to sign up by providing their full name, username, email address, password, and confirming the password.

3.3.4 Seller Login Use-Case diagram

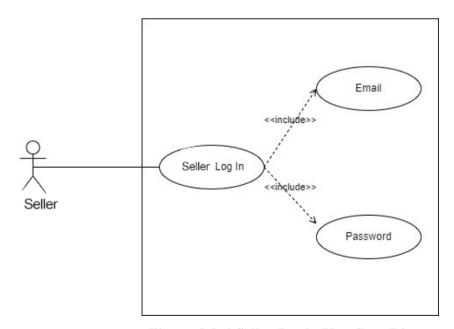


Figure 3.3-4 Seller Login Use-Case Diagram

Sellers can login using email address and password they selected while signing up.

3.3.5 Buyer Login Use-Case diagram

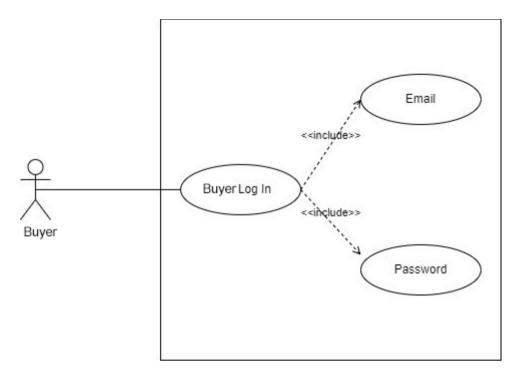


Figure 3.3-5 Buyer Login Use-Case Diagram

Buyers can login using email address and password they selected while signing up.

3.3.6 Buyer Use-Case diagram

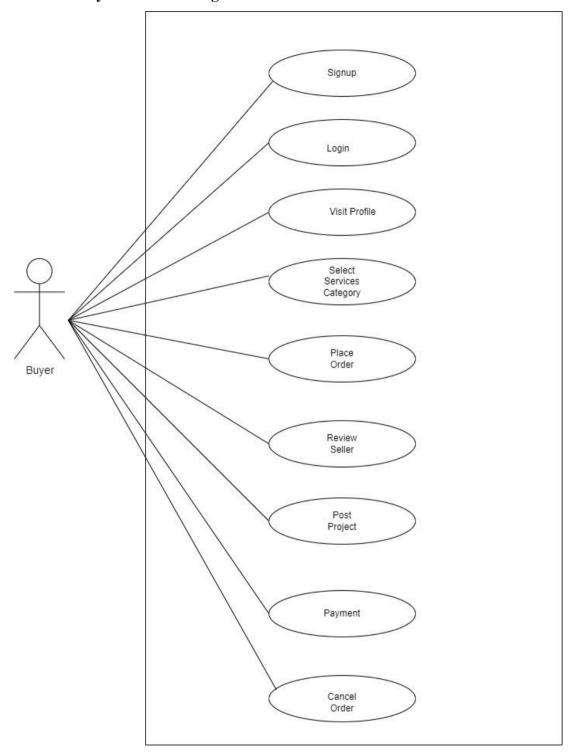


Figure 3.3-6 Buyer Use-Case Diagram

In the system, Buyers, on the other hand, can sign up, log in, manage their profiles, select categories, place orders, post reviews, and post projects.

3.3.7 Seller Use-Case diagram

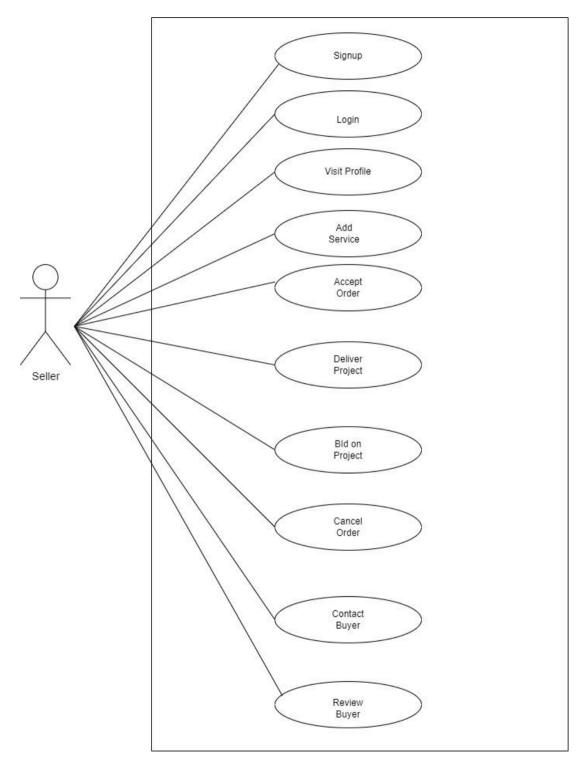


Figure 3.3-7 Seller Use-Case Diagram

In the system, Sellers can sign up, log in, manage their profiles, add products, cancel, and approve orders, deliver services, and bid on projects.

3.3.8 Admin Use-Case diagram

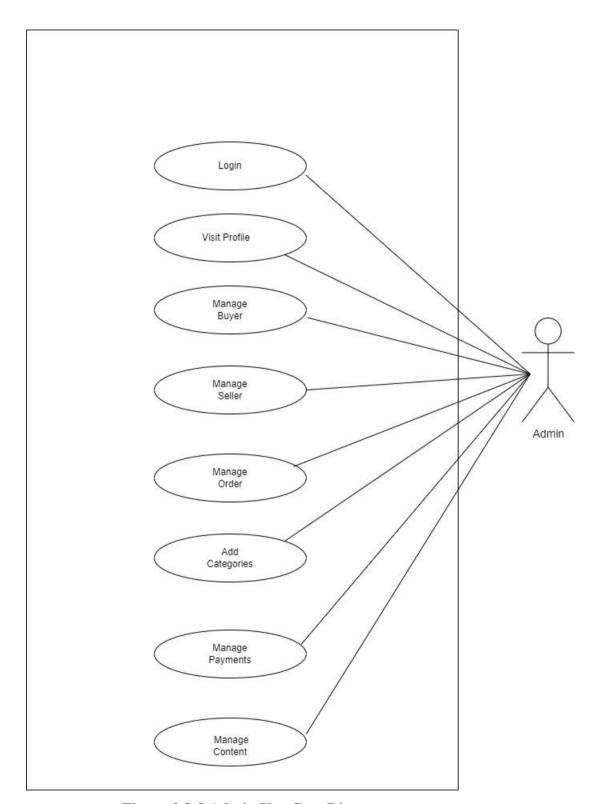


Figure 3.3-8 Admin Use-Case Diagram

In the system, the admin can log in, access their profile, add categories, manage buyers and sellers, and handle payments.

3.3.9 Buyer Setting Use-Case diagram

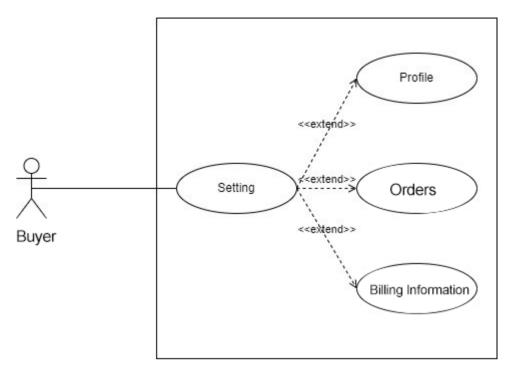


Figure 3.3-9 Buyer Setting Use-Case Diagram

Here we have buyer setting use-case in which buyer can update profile, view their orders, and check their billing information.

Table 3. 1: Buyer Sign-Up Use-Case

	Name	Buyer Sign-up Use-Case
1.	Use-Case ID	B4B-UC-01
2.	Created by	Muhammad Bilal Zahid
3.	Date of Creation	02/02/2023
4.	Revised by	Muhammad Idress Arif
5.	Date of Revise	05/03/2023
6.	Primary Actor	Un-registered Buyer
7.	Secondary Actor	None
8.	Frequency	High
9.	Trigger	This use case is initiated when a new buyer wants to register on our website.
10.	Description	This use case allows the buyer to register on our website.

		Sign up through Email/Password to become the	
		registered buyer of our website.	
11.	Preconditions	The Buyer is un registered.	
12.	Postconditions	The Buyer is successfully registered.	
		Buyer click the Create Account button.	
		2. Buyer enters full name, username, email and	
13.	Normal Eleve	password to register.	
13.	Normal Flow	3. Verification link is sent to buyer's email.	
		4. Buyer opens the verification link.	
		5. Account account is created successfully.	
		Buyer has left some credentials.	
14.	Alternative Flow	2. System show a message to fill all credentials.	
14.	Atternative Flow	3. Buyer enters all credentials.	
		4. Buyer press signup.	
15.	Include	-	
16.	Special Requirements	System must exist	
17.	Assumptions	Email exists	

This use case enables buyers to register on our website. The process begins when the buyer clicks on the "Create Account" button. They then provide their full name, username, email, and password to complete the registration. A verification link is sent to the buyer's email address. Upon receiving the link, the buyer opens it to verify their account. Once the verification is successful, the buyer's account is created successfully.

Table 3. 2: Manage Order Use-Case

	Name	Manage Order Use-Case
1.	Use-Case ID	B4B-UC-02
2.	Created by	Muhammad Bilal Zahid
3.	Date of Creation	02/02/2023
4.	Revised by	Muhammad Idress Arif
5.	Date of Revise	05/03/2023

6.	Primary Actor	Seller
7.	Secondary Actor	None
8.	Frequency	High
9.	Trigger	This use case is initiated when a seller wants to manger order on our website.
10.	Description	This use case allows the seller to deliver orders to buyer on our website. The seller bids on active projects.
11.	Preconditions	The seller is registered.
13.	Normal Flow	 Seller login on our website. Seller accepts the order. Seller fulfilled the requirements. Seller delivers the project.
14.	Alternative Flow	Seller bids on projects according to the requirement.
15.	Include	-
16.	Special Requirements	System must exist
17.	Assumptions	Email exists

This use case enables sellers to deliver orders to buyers on our website. The process starts with the seller logging in to our website. Once logged in, the seller accepts the order and fulfils the necessary requirements. After completing the project, the seller delivers it to the buyer. Additionally, sellers have the option to bid on projects based on the specified requirements.

Table 3. 3: Order Service Use-Case

	Name	Order Service Use-Case
1.	Use-Case ID	B4B-UC-03
2.	Created by	Muhammad Bilal Zahid
3.	Date of Creation	02/02/2023
4.	Revised by	Muhammad Idress Arif
5.	Date of Revise	05/03/2023
6.	Primary Actor	Buyer

7.	Secondary Actor	None
8.	Frequency	High
9.	Trigger	The use case is initiated when buyer want a services according to his requirement on our website.
10.	Description	This use case allows buyer to place order on seller profile. This use case also allows buyer to post project for bid.
11.	Preconditions	The buyer is registered.
12.	Postconditions	The user successfully gets the services.
13.	Normal Flow	 Buyer login on our website. The buyer places the order. Buyer uploads the requirements. Payment for the service. The buyer received the order. After receiving order, buyer can review the seller.
14.	Alternative Flow	 Buyer posts the project for bid. After posting the project, the seller offer bid on that project. Then buyer accept the bid.
15.	Include	-
16.	Special Requirements	System must exist
17.	Assumptions	Email exists

This use case enables buyers to interact with sellers on our website in two ways. Firstly, the buyer can log in and place an order on the seller's profile. They upload the requirements for the order and proceed with the payment for the service. Once the buyer receives the order, they have the option to review the seller. Secondly, the buyer can also post a project for bidding. After posting the project, sellers can offer bids on the project. The buyer then can review the bids and accept the preferred bid. Overall, this process ensures that the registered buyer successfully receives the desired services on our platform.

Table 3. 4: Admin Login Use-Case

	Name	Admin Login Use-Case
1.	Use-Case ID	B4B-UC-04
2.	Created by	Muhammad Bilal Zahid
3.	Date of Creation	02/02/2023
4.	Revised by	Muhammad Idress Arif
5.	Date of Revise	05/03/2023
6.	Primary Actor	Admin
7.	Secondary Actor	None
8.	Frequency	Low
9.	Trigger	The use case is initiated when admin login to the
).	Trigger	system.
		This use case allow admin to manage buyer, manage
10.	Description	seller and manage orders.
10.	Description	This use case also allows admin to manage content,
		add categories and manage transection.
11.	Preconditions	Admin has login credentials.
12.	Postconditions	Admin manages sellers, buyers
	Normal Flow	1. Admin login to system.
		2. Admin manages sell, buyers.
13.		3. Admin approve services.
13.		4. Admin cancel the order.
		5. Admin upgrade level of seller.
		6. Admin verify the seller, buyer.
	Alternative Flow	4. Admin can see their dashboard.
14.		5. Admin manages transactions.
		6. Admin can see the bid projects.
15.	Include	-
16.	Special Requirements	System must exist
17.	Assumptions	Admin has access.

This use case focuses on the buyer's ability to select a service from a category on our website. After logging in, the buyer chooses a service from the available categories. They then upload the requirements for the selected service and proceed with the payment. Once the buyer receives the order, they have the option to review the seller's performance. Additionally, the buyer can also post a project for bidding, allowing sellers to offer bids. The buyer can review the bids and accept the preferred bid for the project. In both scenarios, the registered buyer successfully obtains the desired service or project from our platform.

Table 3. 5: Buyer Select Category Use-Case

	Table 5. 5. Buyer Select Calegory Ose-Case		
	Name	Buyer Select Category Use-Case	
1.	Use-Case ID	B4B-UC-05	
2.	Created by	Muhammad Bilal Zahid	
3.	Date of Creation	02/02/2023	
4.	Revised by	Muhammad Idress Arif	
5.	Date of Revise	05/03/2023	
6.	Primary Actor	Buyer	
7.	Secondary Actor	None	
8.	Frequency	High	
9.	Trigger	The use case is initiated when buyer want a service	
<i>)</i> .		according to his requirement on our website.	
10.	Description	This use case allows buyer to select service from	
10.		category.	
11.	Preconditions	The buyer is registered.	
12.	Postconditions	The user is successfully getting the service from	
12.		category.	
	Normal Flow	Buyer login on our website.	
13.		2. Buyers select the service from category.	
		3. Buyer uploads the requirements.	
		4. Payment for the service.	
		5. After receiving order, buyer can review the	
		seller.	
14.	Alternative Flow	7. Buyer posts the project for bid.	

		8. After posting the project, the seller offer bid on	
		that project.	
		9. Then buyer accept the bid.	
15.	Include	-	
16.	Special Requirements	System must exist	
17.	Assumptions	Email exists	

In this use case, a registered buyer logs in to our website and selects a service from a category. They upload their requirements and make the payment for the service. After receiving the order, the buyer can review the seller based on their experience. Additionally, the buyer has the option to post a project for bidding. Sellers offer bids on the project, and the buyer accepts the most suitable bid to proceed with the collaboration.

3.4 Sequence Diagram

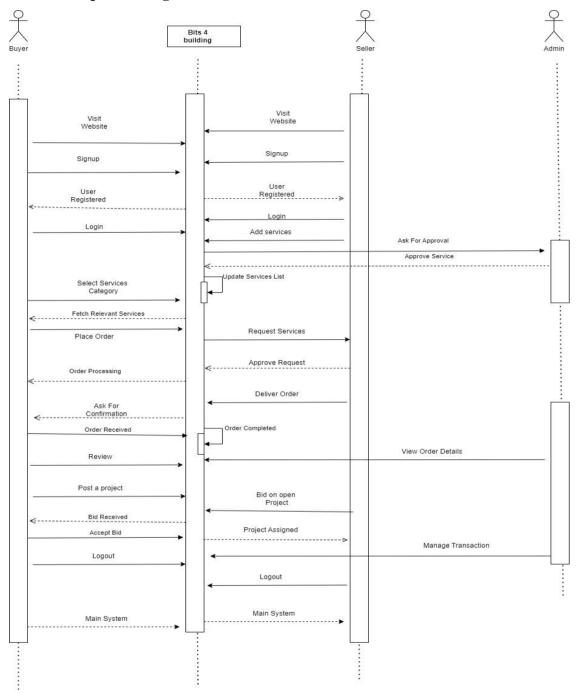


Figure 3.4-1 Sequence Diagram

Buyers and sellers sign up on the website and their data is saved in the database. Upon login, the system verifies the credentials and grants access accordingly. Sellers can add products, which are approved by the admin and listed on the website. Buyers browse and select products, placing orders that are processed by the respective sellers. After delivery, buyers confirm receipt and can leave reviews. Buyers can also post projects, receive bids from sellers, and offer projects to the chosen seller. The admin manages

orders and transactions. Finally, both buyers and sellers can log out, concluding their website interaction.

3.5 Activity Diagram

3.5.1 Buyer Activity Diagram

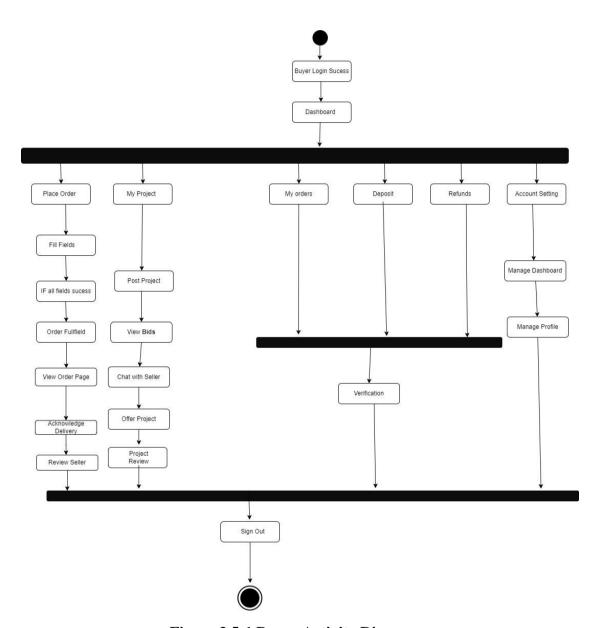


Figure 3.5-1 Buyer Activity Diagram

The buyer's login on the website grants them access to a range of operations. They can easily place orders by selecting products, providing contact information, and completing the order process. After placing an order, they can verify delivery and leave reviews for sellers. The buyer's dashboard offers a comprehensive set of features, allowing them to manage ongoing and completed projects, post new projects, view

bids, and communicate with sellers. They can also track order statuses, deposit funds to their wallet, initiate refunds, and customize their profile. This comprehensive approach enhances the buyer's experience, making it efficient to navigate and perform various actions on the website.

3.5.2 Seller Activity Diagram

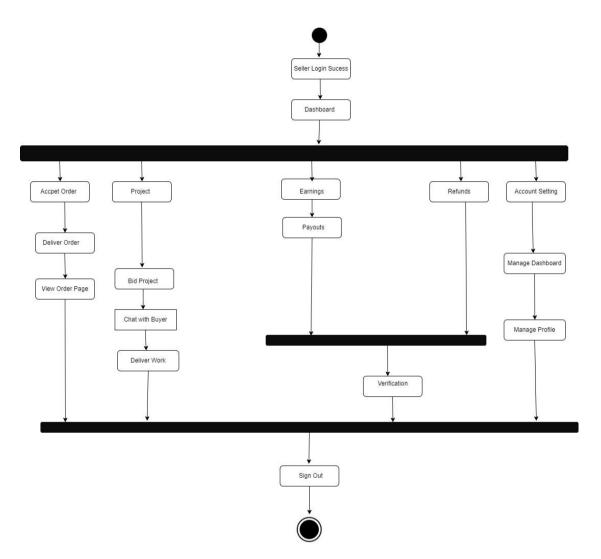


Figure 3.5-2 Seller Activity Diagram

The seller's login provides access to a personalized dashboard for various operations. They can review and accept incoming orders, deliver work to buyers, browse projects, place bids, and communicate with buyers. The dashboard also offers insights into earnings, pay-out transactions, and allows the seller to process valid refunds. Account settings enable profile management and customization of the dashboard. It's a convenient hub for sellers to manage orders, projects, earnings, and account preferences efficiently.

3.6 METHODOLOGY

3.6.1 Feature Driven Development

Feature-driven development is an iterative and incremental software development methodology. It is a lightweight or agile method for developing software. FDD integrates numerous industry-recognized best practises into a unified whole. These strategies are centred on client-valued functionality[7].



Figure 3.6-1 Feature Driven Development

3.6.2 Develop an overall model

Domain object modelling is one of the cornerstones of feature-driven development. Domain object modelling is a method of representing interconnected concepts and their interactions. An outline of the domain model is generated in the first stage. This object model will serve as the project's blueprint.

3.6.3 Build feature list

The characteristics list outlines the aspects that must be conveyed as actions, outcomes, or objects.

3.6.4 Plan by feature

Following the creation of the feature list, you must define the sequence in which they must be developed and implemented, as well as who on the team is responsible for each item, as well as identify potential risks, dependencies, workload limits, and other impediments[8].

3.6.5 Design by feature

Each feature has its own design package. The design phase ends with a team-wide design review.

3.6.6 Build by feature

It is time to start developing code now that the design has been accepted. All the components required to support the feature design have been implemented. Front-end and back-end elements such as user interfaces and database queries are examples of these elements. Once individual team members have finished their tasks, the item is moved to testing, and the procedure is repeated for the subsequent item on the schedule.

CHAPTER 4

DATA AND EXPERIMENTS (and/or IMPLMENTATION)

4.1 Risks Involved

Following are the risks which could be involved in BITS 4 BUILDING.

- o Power Failure
- Networking Problems

4.2 Language used for implementation

Following languages were used for the implementation of the website:

4.2.1 Front End

- HTML
- CSS
- JavaScript

4.2.2 Back End

PHP Laravel

4.3 Database

In this project, MySQL database will be used to store and manage various data related to the website, such as buyer information, seller information, product information, and order information.

When a user interacts with the website, such as browsing products or placing orders, the website's backend (built with PHP and Laravel) will communicate with the MySQL database to retrieve the required data[9]. For example, when a buyer places an order for certain materials, the website will add that order to the order table in the database.

MySQL will also be used to store and manage seller data, such as their inventory and product prices. When a buyer searches for a particular product or material, the website will query the MySQL database to retrieve the relevant information from the seller table.

Overall, MySQL plays a crucial role in managing and storing the data required for the website to function properly, and it allows the website to retrieve quickly and efficiently, and update data as needed.

4.4 Implementation.

The first step is to set up the development environment with the required tools and technologies, such as a web server, PHP, Laravel, and MySQL.

The next step is to design the database schema and create the necessary tables and relationships. This involves defining the entities and their attributes, and how they relate to each other.

Once the database schema is in place, the next step is to develop the front-end of the website using HTML, CSS, and JavaScript. This involves designing the user interface and implementing the functionality of the website, such as the forms for placing orders and booking appointments.

The back-end of the website is developed using PHP and Laravel, which involves creating the necessary routes, controllers, and models to handle the user requests and interact with the database.

Testing is an essential part of the implementation process, which involves testing the website for functionality, performance, and security. This includes unit testing, integration testing, and end-to-end testing.

CHAPTER 5

RESULTS AND DISCUSSIONS (or USER MANUAL)

5.1 USER MANUAL

5.1.1 Website Homepage

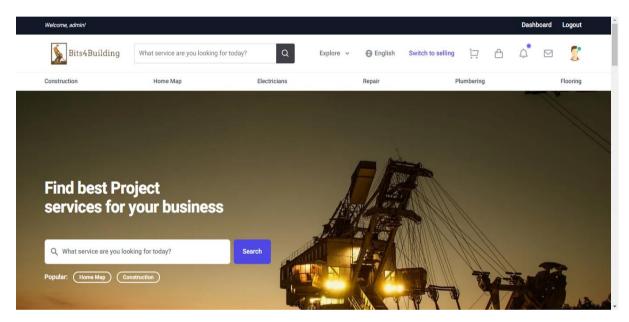


Figure 5.1.1

Here is the website homepage.

5.1.2 Admin Login

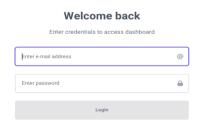


Figure 5.1.2

Enter credentials to access admin dashboard.

5.1.3 Login Screen

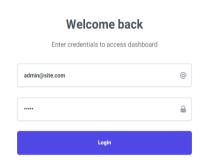


Figure 5.1.3

Enter Username and Password to access admin dashboard. After correcting credentials admin successfully login.

5.1.4 Admin Dashboard

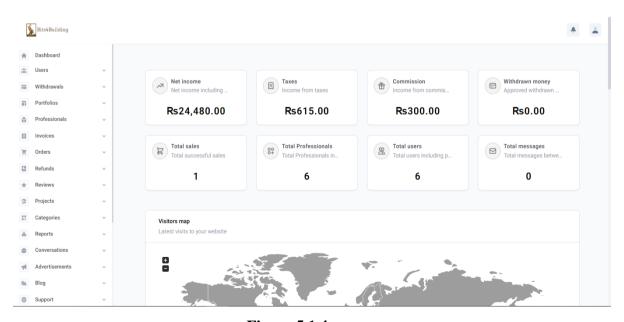


Figure 5.1.4

After Successful login to admin. Here is the dashboard of admin where admin can manage buyers, sellers, withdrawals, invoices, managing orders, refunds, reviews, managing categories.

5.1.5 Buyer Login Screen

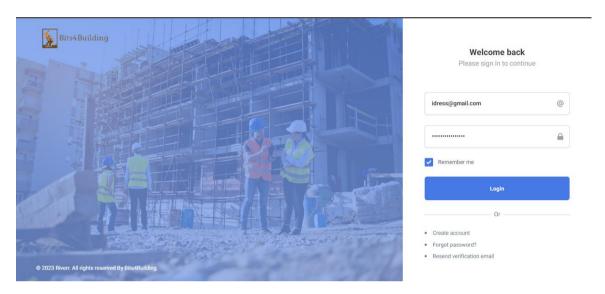


Figure 5.1.5

5.1.6 Buyer profile screen

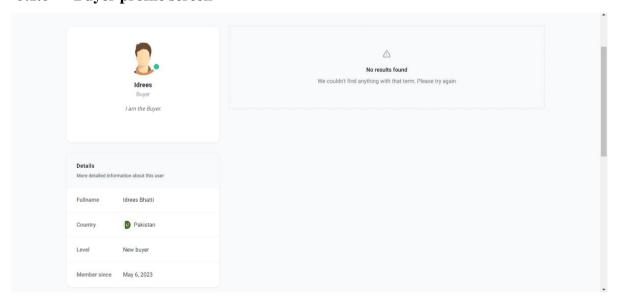


Figure 5.1.6

5.1.7 Buyer Order

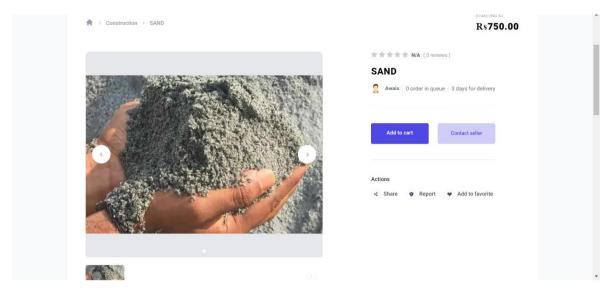


Figure 5.1.7

Firstly, Buyer selects category and product for ordering.

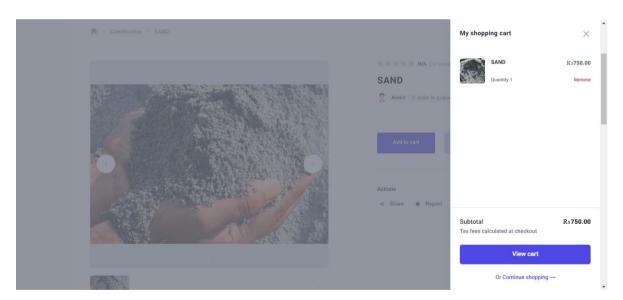


Figure 5.1.8

After selecting product for ordering then next step is Add to cart.

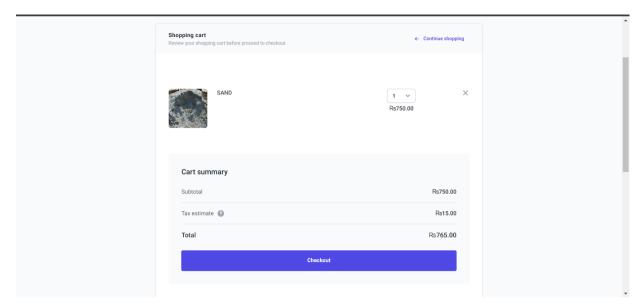


Figure 5.1.9

After Add to cart, next step is checkout.

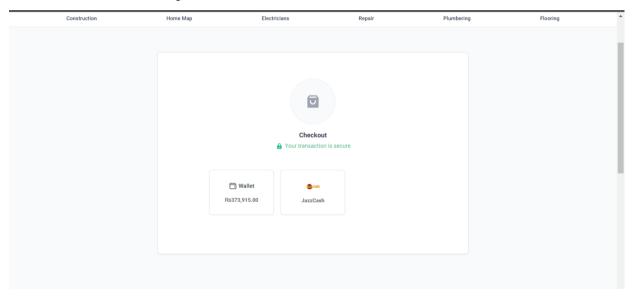


Figure 5.1.10

After Checkout, Select the payment method.

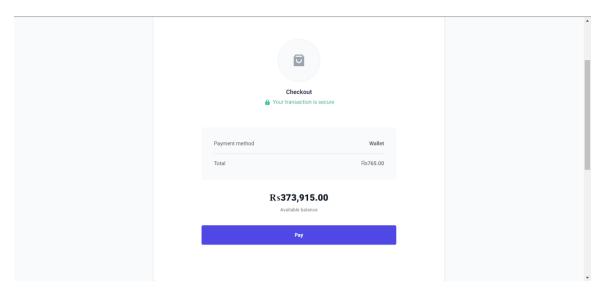


Figure 5.1.11

After selecting payment method, then pay.

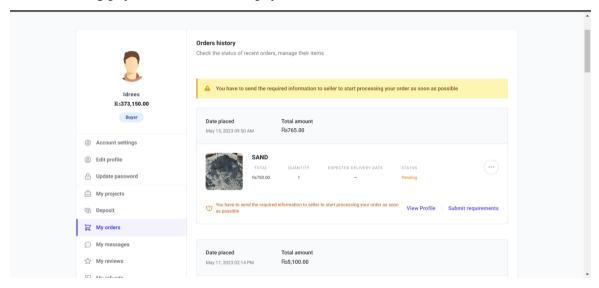


Figure 5.1.12

After pay, Buyer order is in pending. Seller confirms the order then order is being processed to delivered.

5.1.8 Seller Login

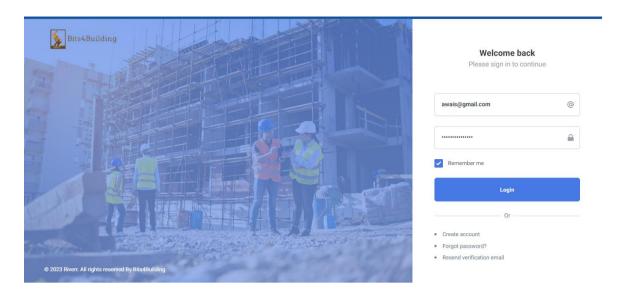


Figure 5.1.13

Here is the seller login, Seller login with username and password if credentials correct seller successfully login.

5.1.9 Seller Dashboard

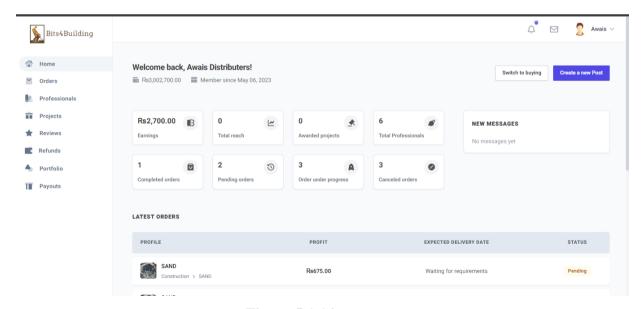


Figure 5.1.14

Seller dashboard. Where Seller can see all orders, reviews, earnings, refunds, and payouts.

5.1.10 Seller Profile

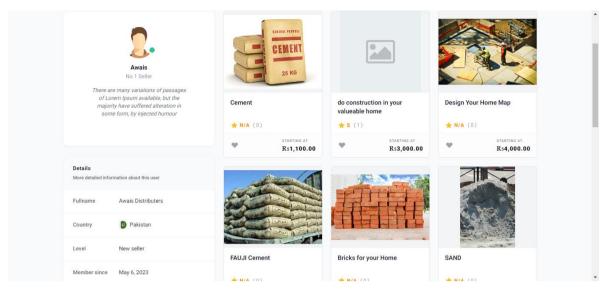


Figure 5.1.15

The Seller profile screen consists of following tabs:

- Full name
- Country
- Level
- Member since
- Products that seller offered

5.1.11 Seller Orders

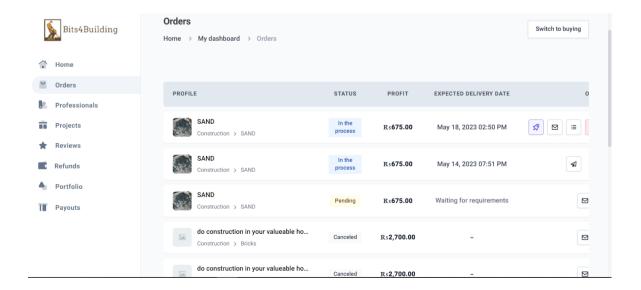


Figure 5.1.16

Seller confirms the order then order will be in process.

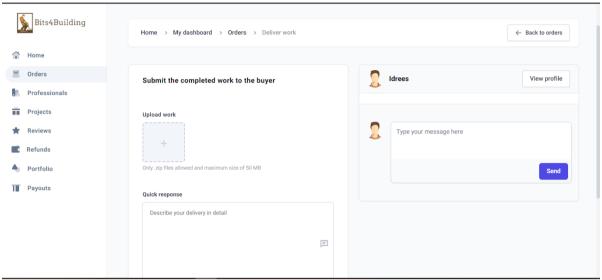


Figure 5.1.17

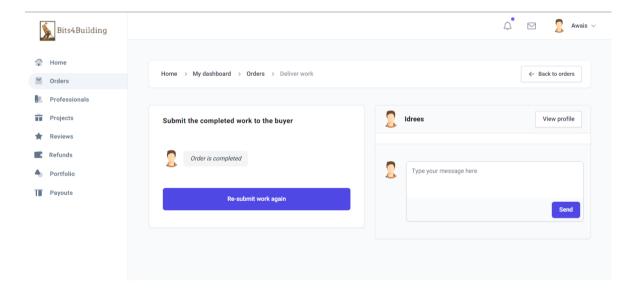


Figure 5.1.18

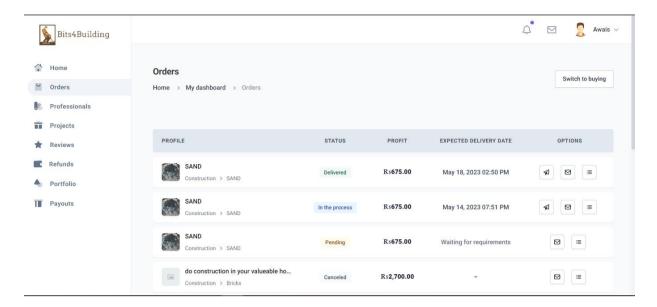


Figure 5.1.19

Order Delivered Successfully.

5.1.12 Seller Bids on Project

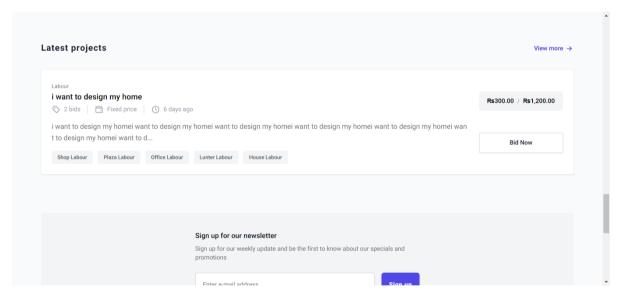


Figure 5.1.20

Here is the buyers project, and seller bids on buyer project.

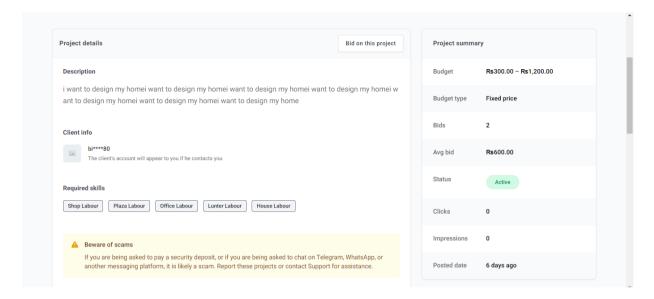


Figure 5.1.21

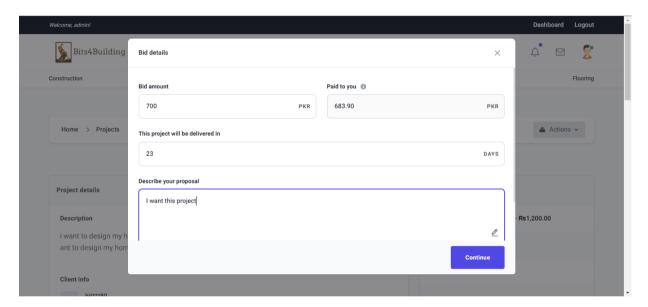


Figure 5.1.22

In this seller offer bid for buyer project.

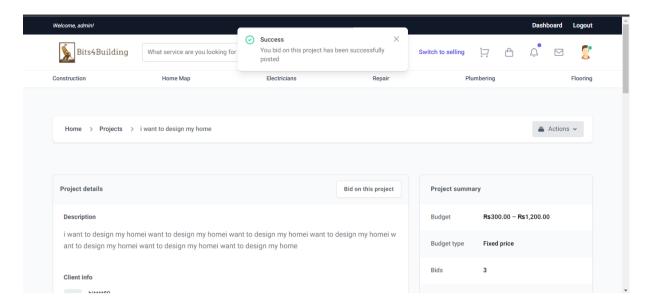


Figure 5.1.23

Seller Successfully offered the bid of buyer project.

5.1.13 Bids shown on Admin Side

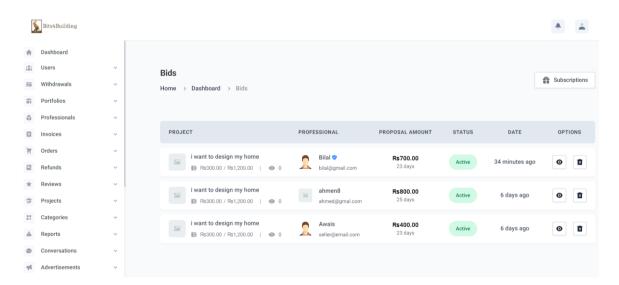


Figure 5.1.24

Admin Can Check Bids on Admin Panel.

5.1.14 Local Host phpMyAdmin for Database

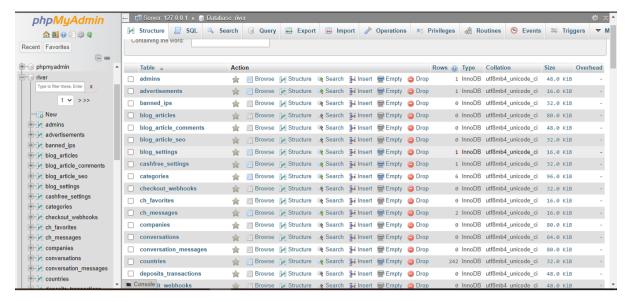


Figure 5.1.25

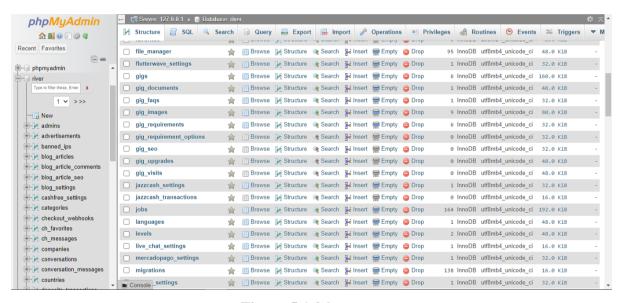


Figure 5.1.26

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In conclusion, the Bits 4 Building project aims to address the problems that people face when constructing houses by providing them with a single platform to access multiple sellers with quality construction materials and professionals to help them complete their projects. The project utilises HTML, CSS, Bootstrap, JavaScript for Front-end, PHP, Laravel for Back-end, and MY SQL Server for Database, providing a user-friendly and secure platform for both buyers and sellers. The project's key objective, bid options for contractors, have been achieved using an Agile methodology and FDD framework. Overall, Bits 4 Building aims to streamline the construction process, save time, and provide customers with a more satisfactory experience when building their homes.

6.2 Recommendations

To further enhance the Bits 4 Building system, several innovative features can be considered for future development. To promote sustainability, a dedicated section highlighting eco-friendly materials, energy-efficient solutions, and green building practices could be included. This would encourage users to adopt environmentally conscious choices in their construction projects. Integration with smart home technology platforms would enable users to connect and control various aspects of their homes, adding convenience, energy efficiency, and enhanced automation capabilities. By incorporating these innovative features, the Bits 4 Building system would provide enhanced user experiences, add value, and keep pace with the evolving construction and other services industry.

6.3 Future Work

This System is web-based application and. So, our positive intention towards the future work is to extend this website to android application and IOS at all versions. That, this easy, convenient, and remarkable application will be installed to all users.

REFERENCES

- [1] T. Ala-Risku and M. Kärkkäinen, "Material delivery problems in construction projects: A possible solution," *Int. J. Prod. Econ.*, vol. 104, no. 1, pp. 19–29, 2006, doi: 10.1016/j.ijpe.2004.12.027.
- [2] A. Bagies and C. Fortune, "Bid/ no-bid decision modelling for construction projects," *Assoc. Res. Constr. Manag. ARCOM 2006 Procs 22nd Annu. ARCOM Conf.*, vol. 1, no. September, pp. 511–521, 2006.
- [3] "Managing Construction Projects Graham M. Winch Google Books." https://books.google.com.pk/books?hl=en&lr=&id=z8bwas7GGEkC&oi=fnd &pg=PR13&dq=construction+projects+&ots=49jZSgXjld&sig=6TyMQq_b2 WQ1N4TVI24diFAc9Ow&redir_esc=y#v=onepage&q=construction projects&f=false (accessed Oct. 10, 2022).
- "What is Visual Studio Code? Microsoft's extensible code editor | InfoWorld." https://www.infoworld.com/article/3666488/what-is-visual-studio-code-microsofts-extensible-code-editor.html (accessed May 18, 2023).
- [5] "Frontend Programming Languages Explained." https://codeop.tech/the-key-frontend-programming-languages-explained/ (accessed May 18, 2023).
- [6] "Laravel Overview." https://www.tutorialspoint.com/laravel/laravel_overview.htm (accessed May 18, 2023).
- [7] "FDD | Why use feature driven software development process." https://evontech.com/component/easyblog/why-to-choose-feature-driven-development-for-software-development.html?Itemid=159 (accessed May 03, 2023).
- [8] F. Anwer, S. Aftab, U. Waheed, and S. S. Muhammad, "Agile Software Development Models TDD, FDD, DSDM, and Crystal Methods: A Survey," *Int. J. Multidiscip. Sci. Eng.*, vol. 8, no. 2, pp. 1–10, 2017, [Online]. Available: https://www.researchgate.net/profile/Shabib_Aftab/publication/316273992_A gile_Software_Development_Models_TDD_FDD_DSDM_and_Crystal_Methods_A_Survey/links/58f86bc44585158d8a6c4f11/Agile-Software-Development-Models-TDD-FDD-DSDM-and-Crystal-Methods-A-Survey.
- [9] M. Di Giacomo, "MySQL: Lessons Learned," 2005.

Ripo	ot					
ORIGINALITY REPORT						
	5% 11% RITY INDEX INTERNET SOURCE	O% PUBLICATIONS	13% STUDENT PAPERS			
PRIMARY SOURCES						
1	www.coursehero.co	m	4%			
2	Submitted to Higher Pakistan Student Paper	Education Com	mission 3 _%			
3	Submitted to Institut Postgraduate Studie Lumpur Student Paper		√ %			
4	Submitted to Ivy Teo Central Office Student Paper	ch Community C	follege 1%			
5	Submitted to Asia e	University	1%			
6	Submitted to Kuala I University College Student Paper	Lumpur Infrastri	ucture 1%			
7	pdfcoffee.com Internet Source		1%			

8	Student Paper	<1%
9	Submitted to Universiti Tunku Abdul Rahman	<1%
10	Submitted to Al Ain University of Science and Technology Student Paper	<1%
11	media.proquest.com Internet Source	<1%
12	Submitted to Universiti Tenaga Nasional Student Paper	<1%
13	umpir.ump.edu.my Internet Source	<1%
14	eprints.utem.edu.my Internet Source	<1%
15	github.com Internet Source	<1%
16	hackernoon.com Internet Source	<1%
17	www.nrc.gov Internet Source	<1%
18	assets.legrand.com Internet Source	<1%