CONSTRUCTION SERVICES WEBSITE

FOR

BEGA VENTURES COMPANY

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Diploma in Business Information Systems 22.2F

Final Project Report

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The project is submitted in partial fulfillment of the requirement of the Diploma in Business Information Systems of National Institute of Business Management.

Declaration

I certify that this project does not incorporate without acknowledgement, any material previously submitted for a Diploma in any institution and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my project report, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.

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Abstract

In response to the evolving landscape of the construction industry, a comprehensive analysis of the current system of a construction website is presented in this report. Guided by the pursuit of efficiency and user centric services, the examination is navigated through user interactions, contact submissions, booking processes, and administrative functionalities.

Critical points where user input validation and system responses play pivotal roles are identified, with a focus on highlighting opportunities for improvement. The iterative nature of the processes ensures a user-friendly experience, minimizing errors and enhancing overall satisfaction. Administrative capabilities signify the system's robustness and adaptability to dynamic requirements.

As a roadmap for enhancement, targeted improvements are proposed, addressing identified pain points and optimizing user pathways. Addressing these concerns is central to elevating the construction website's functionality, responsiveness, and user engagement. This report is presented as a foundational guide for informed decision-making, fostering a user-centric and efficient digital environment in the construction industry.

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Acknowledgement

We would like to express our heartfelt appreciation to all those who contributed to the completion of this report. Special thanks to our supervisor, colleagues, and anyone else who played a role in making this project a reality.

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In conclusion, this report stands as a testament to the collaborative spirit and hard work of everyone involved. Thank you for being part of this journey and for your collective efforts in making this project a success.

Table of Content

Chapter 1

Introduction

This project is focused on developing an efficient and effective system for the respective company which is not encountering an online booking system. The proposed system will be designed to increase the sales and productivity of the company by improving its efficiency and other control systems. By using this it is expected to increase the company's planning, accuracy, and productivity.

1.1 Introduction of the Organization

"Bega Ventures" is a construction company in Kandy District. It has been in the field for more than 4 years and has been providing a genuine and trustworthy service to all its customers. They get supplies from outside suppliers for their construction and design.

1.2 Organization Structure

Bega Ventures follows a hierarchical organizational structure that consists of different roles and responsibilities. The structure typically includes positions as follows

1. Chief Executive Officer (CEO) - Oversees overall company operations and strategic planning

2. Construction Engineers Team - The Chartered Construction Engineer and Junior Construction Engineers work collaboratively to execute construction projects efficiently, ensuring attachment to safety standards and timely project completion.

3. Design and Planning Department- The Architect and the team are responsible for creating innovative and functional architectural designs and complete project plans to meet client specifications and industry standards.

4. Customer Support Service- The Customer Support team handles customer inquiries, resolves problems, and maintains customer relationships.

5. Administrative Staff - The Office Manager and Administrative Assistants manage office operations and provide administrative support to various departments.

6. Marketing Team- Marketing Specialists are responsible for promoting the company's services and developing effective marketing strategies.

7. Accounting and Finance Department- The Chief Accountant and the team manage financial transactions, maintain financial records, and ensure compliance with financial regulations.

8. Human Resources Department- The HR Manager and the team handles employee recruitment, training, and development within the company.

1.3 Current Operations in the Organization

This is a company in which the chairperson also works as the manager of the company. Since it's a small-scaled organization we have proposed our system with efficient features even to be managed by a single individual. The current reservation handling is done manually. Construction project planning, execution, and monitoring are done manually. This company has Manual scheduling of meetings, site visits, and construction activities, with limited coordination through phone and emails.

1.4 Users and Responsibilities Organization

Company Manager – Sets strategic goals, oversees the website's alignment with overall business objectives, and approves major decisions and content.

Construction Engineers and Architects- Help with the technical parts of the projects.

Customer Support Service – Clarify customer inquiries.

Accounting and Finance Department – Record money transactions of the projects.

Web Administrator – Responsible for maintaining, updating, and ensuring the website's functionality and security.

Web Developers – Designing, Developing, and Maintaining the Website.

Clients and Potential Clients- Book, Reserve, and Seek their required services.

1.5 Problem Definition

Our team visited “Bega Ventures” to observe the current manual system of the company and discovered some drawbacks in the system. The following are the drawbacks.

1. Inefficiency- Manual processes in Bega Ventures are often time-consuming and prone to errors, leading to inefficiencies in project execution and management.
2. Data Inconsistency- The company handles data manually which increases the risk of duplicate entries and data inconsistencies.
3. Limited accessibility- Manual records in the company are accessible only to those physically present, restricting remote access and collaboration.
4. Lack of transparency- Manual systems may lack transparency, making it difficult for stakeholders to track project progress in real time.
5. Communication gaps- Communicating manually can lead to miscommunication and delays in relaying important information.
6. Scalability Issues- As the company grows, manual processes become harder to manage and scale effectively.
7. Limited Analysis- Manual data does not lend itself well to data analysis and decision-making, which could impact project outcomes.
8. Customer Experience- Manual processes can result in delayed responses to customer inquiries and limited access to the company’s project updates.

1.6 Project Objectives

1. Streamlined Project Management- Develop a user-friendly system to easily manage construction projects, simplifying the planning, consultation, and design process for both interior and exterior spaces.

2. Efficient Service Access- Enable customers to effortlessly access and select various construction services, allowing for convenient early bookings and straightforward account management for a smooth and hassle-free customer experience.

3. Enhanced Transparency and Communication- Establish a system that encourages clear communication and smooth interaction between customers, the CEO, and employees. Provide valuable information about the company, its employees, and customer feedback for enhanced transparency.

4. Improved Efficiency and Productivity- Implement a solution that optimizes internal processes, leading to improved efficiency and productivity. This ensures timely and cost-effective completion of construction projects.

5. Empowered Stakeholders- Empower customers, the CEO, and employees by offering a comprehensive platform. Provide valuable insights, enhance decision-making, and foster collaborative engagement, leading to successful and satisfying construction projects for all stakeholders involved.

1.7 Proposed Solution

Bega Ventures is a comprehensive web-based solution designed to streamline construction services, making the entire process from planning to project completion efficient and user-friendly. This platform aims to bridge the gap between customers seeking construction services and employees responsible for delivering them, providing a seamless experience for all stakeholders.

- Effortless Service Selection: This website simplifies service selection by offering a user-friendly interface where customers can browse and choose from a wide range of construction services, including planning, consultation, construction, and design (both interior and exterior).
- Seamless Booking Experience: This platform facilitates hassle-free booking. Customers can quickly schedule services, select preferred dates and times, and receive instant confirmation, reducing the booking process to a few easy steps.
- Flexibility for Updates: The Bega Ventures website allows customers to modify their bookings with ease. Whether rescheduling or adjusting, flexibility is at your fingertips.
- Cancellation Made Simple: The website provides a straightforward cancellation process, putting control in the hands of the customers while maintaining transparency.
- Empowering Customer Reviews: Bega Ventures values customer feedback. After each service, customers can share their experiences and ratings, helping others make informed decisions and encouraging service providers to excel.
- Employee Management: For employees, this website offers a user-friendly interface that streamlines assignments and provides real-time access to schedules and responsibilities. It's a tool designed to enhance performance and reduce administrative overhead.

1.8 Chapter Summary

This report proposes a transformative solution for Bega Ventures Company, a reputable construction firm in the Kandy District. Currently relying on manual processes, the organization aims to address inefficiencies in reservations, project planning, and execution. The hierarchical organizational structure, reflecting diverse roles, sets the stage for a digital transformation.

With a focus on streamlining project management and enhancing transparency, the project introduces "Bega Ventures," a web-based platform. This solution, with features like seamless booking and efficient employee management, aims to bridge communication gaps, empowering stakeholders and elevating the overall customer experience.

Chapter 2

Methodology

2.1 Introduction

The approach to developing Bega Ventures' construction services website is guided by precision and adaptability. Embracing the Agile method, it prioritizes continuous feedback and flexibility. Through interviews and a review of existing records, gain comprehensive insights into Bega Ventures' needs. Utilizing user-friendly tools like Figma, HTML, CSS, JavaScript, PHP, and MySQL, it ensures a modern web platform. Rigorous testing and a detailed project plan, outlined in a Work Breakdown Structure, underscore the commitment to a seamless and tailored solution for Bega Ventures.

2.2 Data Collection Methods

Meetings and Interviews- Engage with the Bega Ventures' management to understand their requirements and expectations.

Refer to existing manual records and documentation- Identify critical data points and drawbacks within the current system.

2.3 Software Process Model

We propose to develop the Bega Ventures website using an Agile approach. This method involves building the website gradually and incorporating regular feedback sessions with Bega Ventures management to ensure that the website reflects unique business requirements. Through frequent testing, we will guarantee that the website is user-friendly and effectively showcases construction services. Our collaborative team will work closely with the management of Bega Ventures to ensure that every aspect of the website aligns seamlessly with their business goals. This strategy will enable us to create a customized website that perfectly represents Bega Ventures and facilitates an engaging customer experience.

2.4 Software Development Tools

UI/UX- Figma

Frontend: HTML, CSS, JavaScript, with the integration of responsive design frameworks for optimal user experience across devices.

Backend: PHP for server-side scripting and seamless database connectivity.

Database Management: MySQL to manage and store crucial project data securely.

2.5 Testing Strategies

Unit testing for individual components to ensure each part of the system works as intended.

Integration testing to verify the seamless interaction between different modules of the web application.

User acceptance testing involves key stakeholders and end-users in evaluating the system's usability and functionality.

Regular quality assurance checks to maintain the integrity and security of the data.

2.6 Implementation Plan

Work Breakdown Structure

1. Frontend Development
    - Task- Creating the visual design using HTML, CSS, and JavaScript. Making sure the site looks good on all devices.
    - Goals- Finalize the overall look of the website.
    - Result - A user-friendly and visually appealing website.

2. Backend Integration

    - Tasks - Setting up the behind-the-scenes technology. Connecting the design to the site's functions.
    - Goals - Ensure smooth interaction between the website's design and its inner workings.
    - Result - A seamless and functional website experience

3. Database Setup

    - Tasks - Creating a secure and well-structured database using MySQL. Making sure the data is safe and organized.
    - Goals - Establish a secure and efficient system for storing and managing website information
    - Result- A safe and well-managed database system

4. Testing Phase

    - Tasks - Checking every part of the website to find and fix any issues. Making sure the website works smoothly for users
    - Goals - Ensure the website is fully functional and free of any technical problems
    - Result- A stable and user-friendly website experience

5. Deployment Phase

- Tasks - Getting the website ready for the public to see. Making sure the transition to the live website is seamless
- Goals - Successfully launch the website for users to access
- Results - A fully operational and accessible website for your customers.

2.7 Chapter Summary

Our methodology centers on an Agile approach, ensuring flexibility and responsiveness throughout the development of Bega Ventures' construction services website. We gather insights through interviews and a review of existing records to understand the unique needs of the company. Using user-friendly tools like Figma, HTML, CSS, JavaScript, PHP, and MySQL, we aim to create a contemporary and efficient web platform. Rigorous testing, including unit and integration testing, guarantees functionality and security. The detailed project plan, presented in a Work Breakdown Structure, provides a systematic guide from frontend development to deployment, reflecting our commitment to delivering a tailored and seamlessly integrated solution for Bega Ventures.

Chapter 3

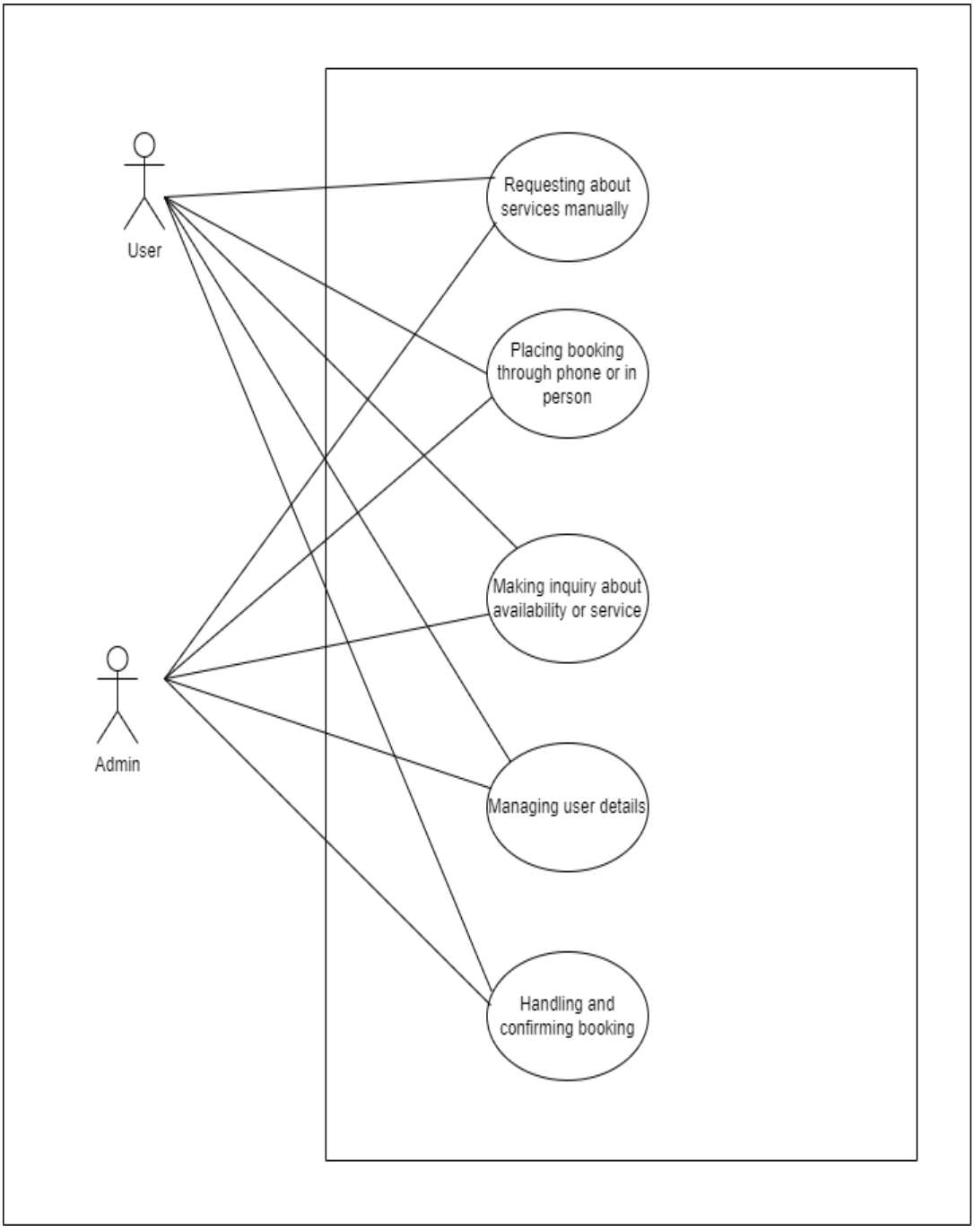
Analysis

3.1 Introduction

In the analysis part, tools like UML (Unified Modeling Language) and ER (Entity-Relationship) diagrams are to understand how things happen inside the system. These diagrams are like blueprints that show us the details of manual processes, how people use the website, and how everything works together.

The UML diagram helps to see how different parts of the system connect, and the ER diagram shows how things like users, services, and bookings are related. These diagrams are super useful for suggesting solutions that not only fix current problems but also bring the construction website up to date with what users expect today. It's a careful analysis that gets everything ready for making the user experience better.

3.2 UML Diagrams3.2.1 Use Case Diagram of Current System

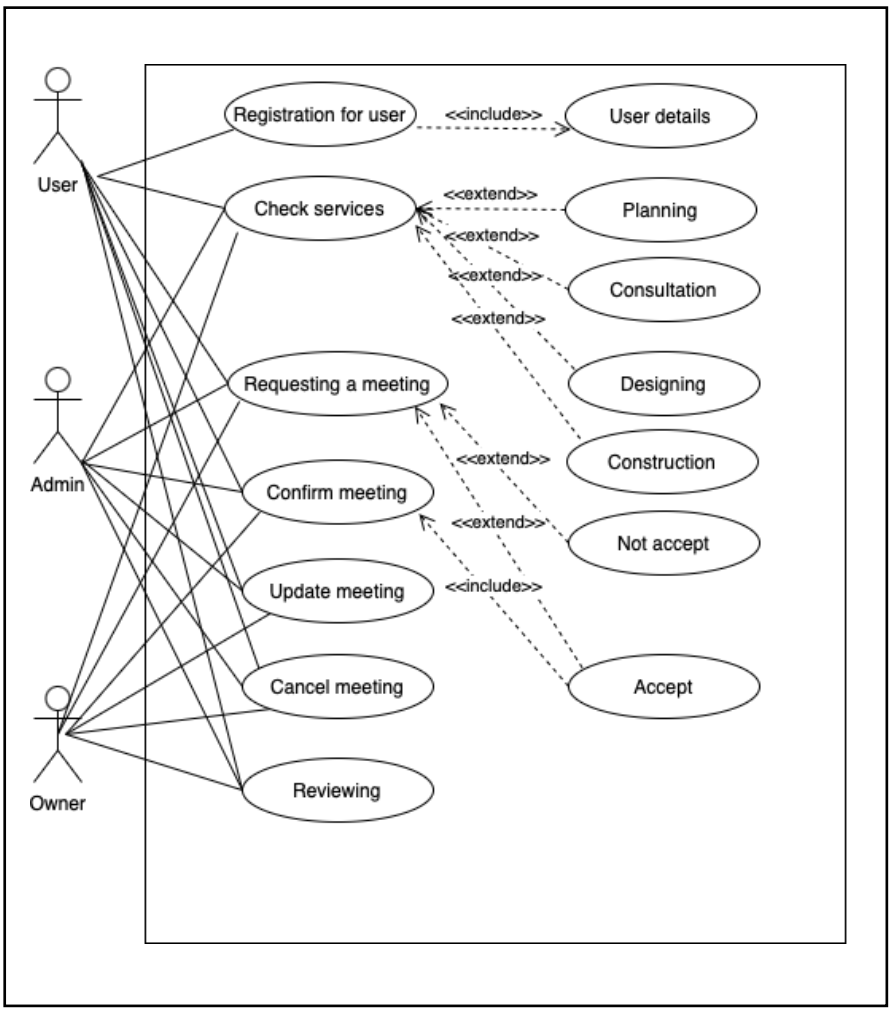


3.2.1 Use Case Diagram of Current System

Explanation for Use Case Diagram of Current System:

The use case diagram provides a snapshot of the interactions within the manual system that preceded the automation of our construction services website. Two key actors, "User" and "Admin," represent individuals and administrators involved in the manual processes. For users, actions include requesting information about services, placing bookings through phone or in-person interactions, providing manual feedback or reviews, and making inquiries about service or booking statuses manually. Administrators, on the other hand, engage in managing user information, handling and confirming bookings received manually, and recording and managing customer reviews through non-automated means. The diagram succinctly illustrates the basic tasks carried out manually before the implementation of a formalized system, offering insights into the dynamics of the pre-automated construction services processes.

3.2.2 Use Case Diagram of Proposed System

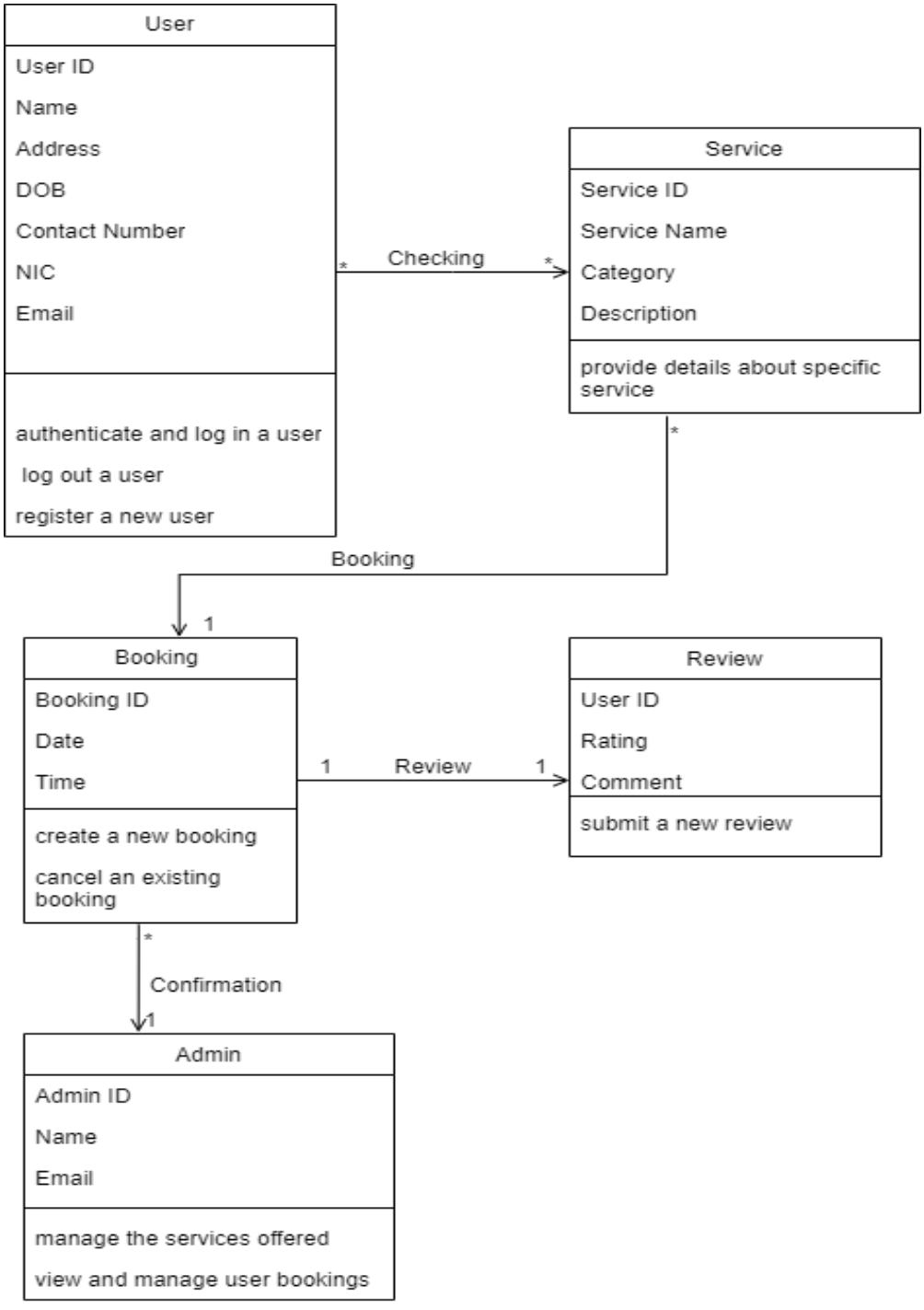


3.2.2 Use Case Diagram of Proposed System

Explanation for Use Case Diagram of Proposed System:

The presented use case diagram provides a visual representation of key interactions between Users and Administrators within our construction website system. Users can effortlessly explore services, register for a personalized experience, log in securely, book services, and contribute valuable reviews. Administrators, on the other hand, have the capability to dynamically manage services and efficiently oversee user bookings. This diagram encapsulates the user-centric design and administrative functionalities, ensuring an intuitive and streamlined experience for both users and administrators on our construction website platform.

3.2.3 Class Diagram of Proposed System



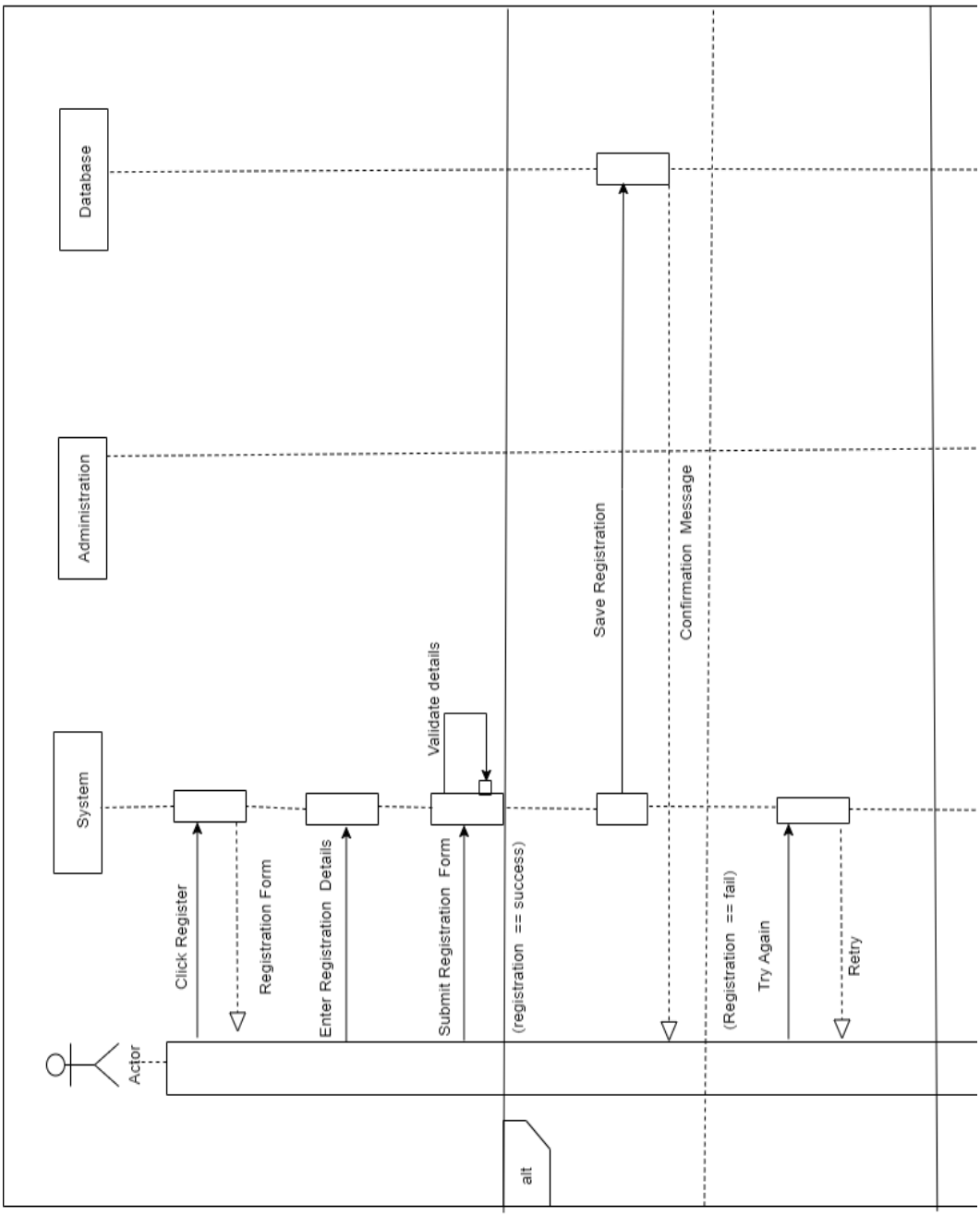
3.2.3 Class Diagram of Proposed System

Explanation for Class Diagram:

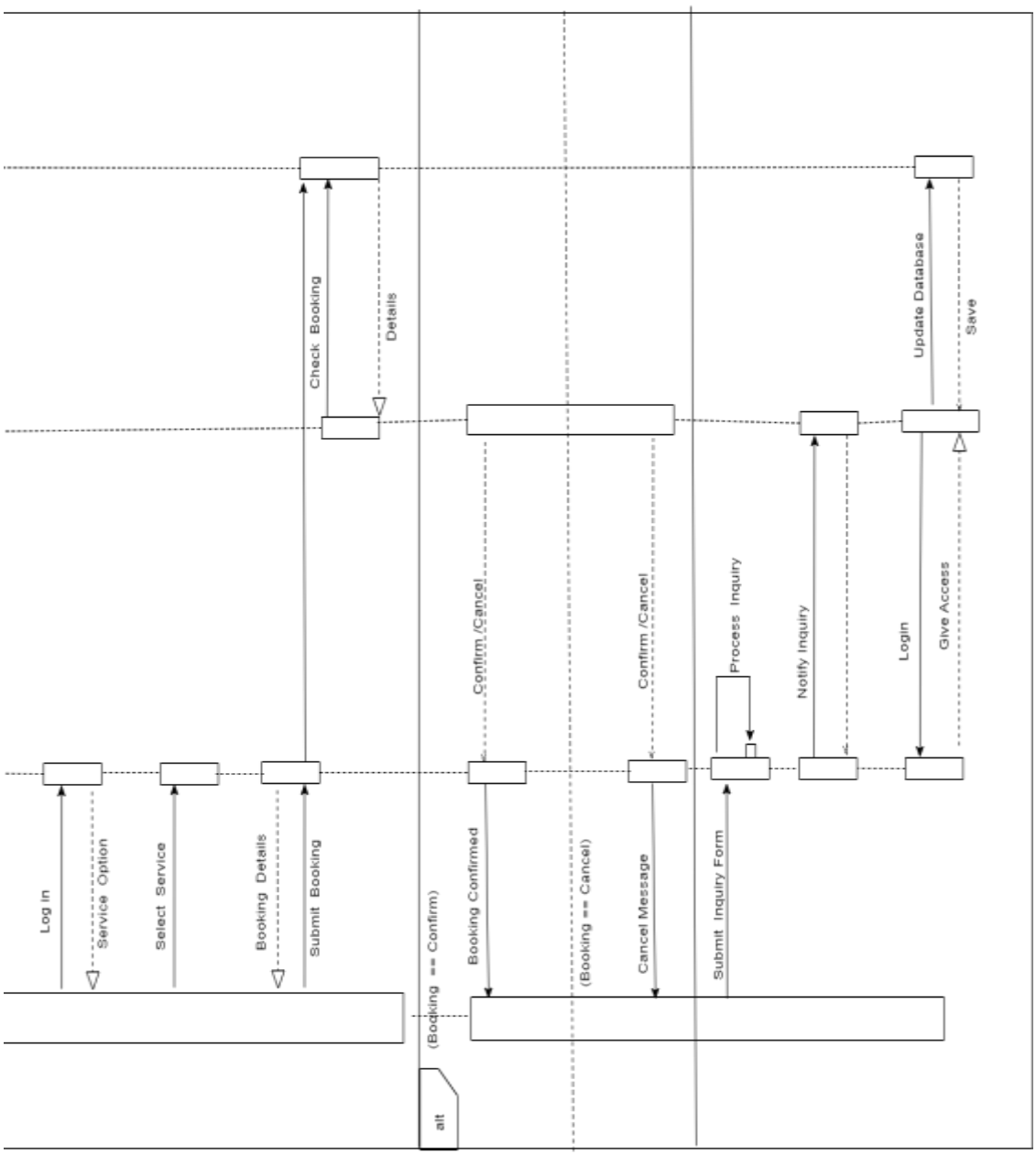
The class diagram encapsulates the key entities and their interactions within the construction website system. The User class represents individuals with unique identifiers, facilitating user authentication, registration, and logout functionalities. Services offered by Bega Ventures are modeled through the Service class, detailing each service's name and description. The Booking class manages user bookings, linking users and services with unique identifiers, dates, and times. User reviews are captured in the Review class, where users submit ratings and comments. Lastly, the Admin class signifies system administrators, with methods for overseeing services and user bookings. This comprehensive class diagram forms the backbone of the system's structural design, delineating relationships and functionalities for effective construction website management.

3.2.4 Sequence Diagram

3.2.4 Sequence Diagram of Proposed System



3.2.4 Sequence Diagram of Proposed System

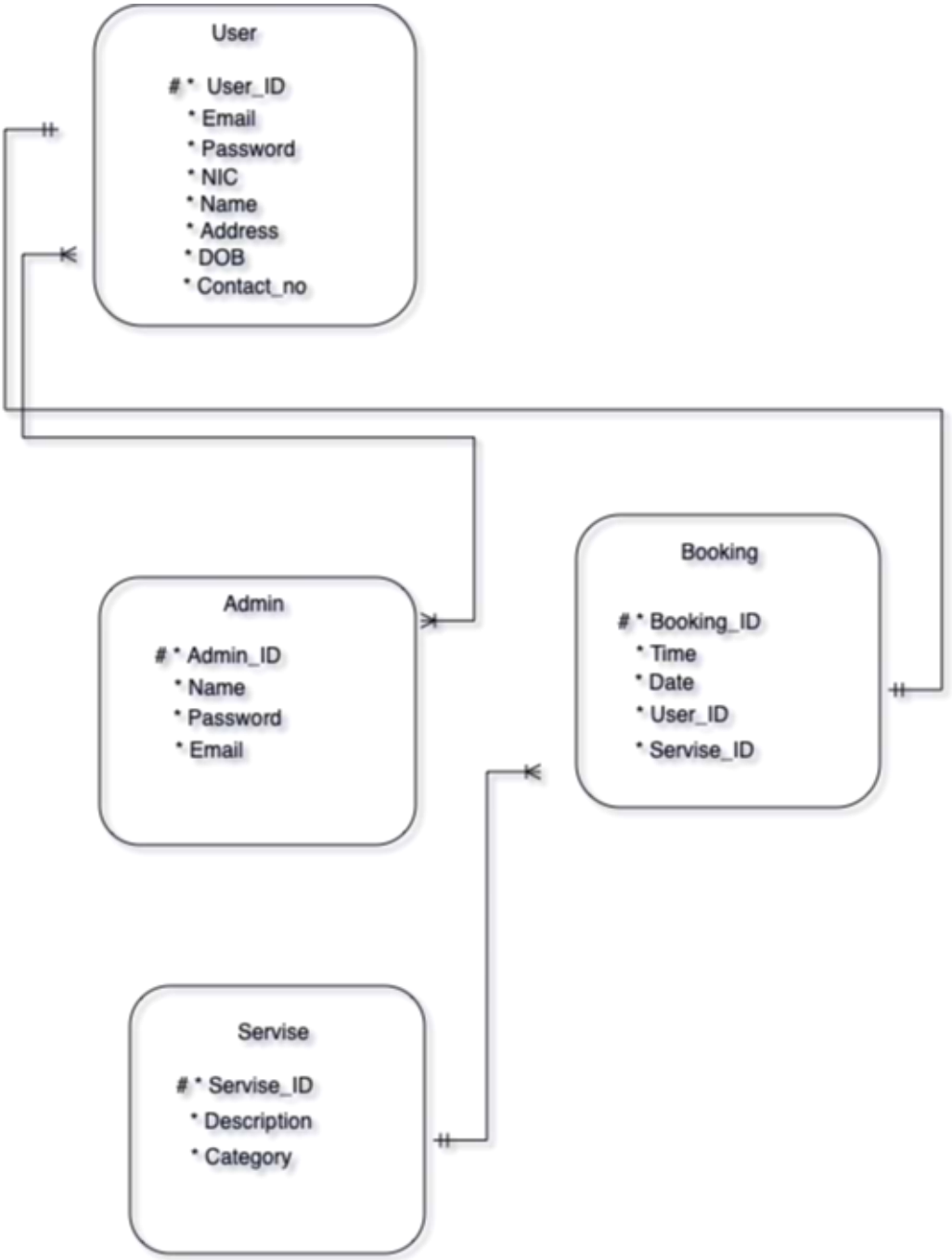


Explanation of Sequence Diagram:

The sequence diagram is a comprehensive guide outlining the step-by-step interactions within our envisioned construction services website. It meticulously illustrates the processes involved in user registration, service booking, inquiry handling, and administrator content updates. For user registration, the journey begins with the user requesting the home page and progresses through form submission, ultimately saving the user's details securely in the database. In the case of service booking, the diagram navigates through user login, service selection, booking confirmation, and backend processing, ensuring a seamless user experience. Inquiry handling is depicted as a user-initiated process where the system processes inquiries and simultaneously notifies administrators. Lastly, the sequence illustrates how administrators log in, update website content, and save these changes in the database.

This detailed sequence diagram serves as a vital tool for understanding the intricate dynamics of user-system-database interactions, providing invaluable insights for the development and successful implementation of our construction services website.

3.3 ER Diagram of the Proposed System



3.3 ER Diagram of Proposed System

Explanation of ER Diagram

The ER diagram for the construction company website system illustrates the relationships among key elements. Users are central, identified by UserID, providing details like name and contact information. Services, with ServiceID, ServiceName, and Description, represent the offerings.

Bookings, managed through BookingID, link users and services, including date, time, and cost. User reviews, identified by ReviewID, connect to users and services, featuring ratings and comments. Administrators, identified by AdminID, oversee the system.

This diagram is a visual guide, depicting relationships and maintaining system order. Keys like UserID and ServiceID ensure smooth information flow within the construction company website.

3.4 Chapter Summary

In this chapter, we acted like detectives, using tools like UML and ER diagrams to understand how our construction website really works. UML diagrams were like blueprints, showing us how different parts of the system fit together, and ER diagrams helped us see how things like users, services, and bookings are connected.

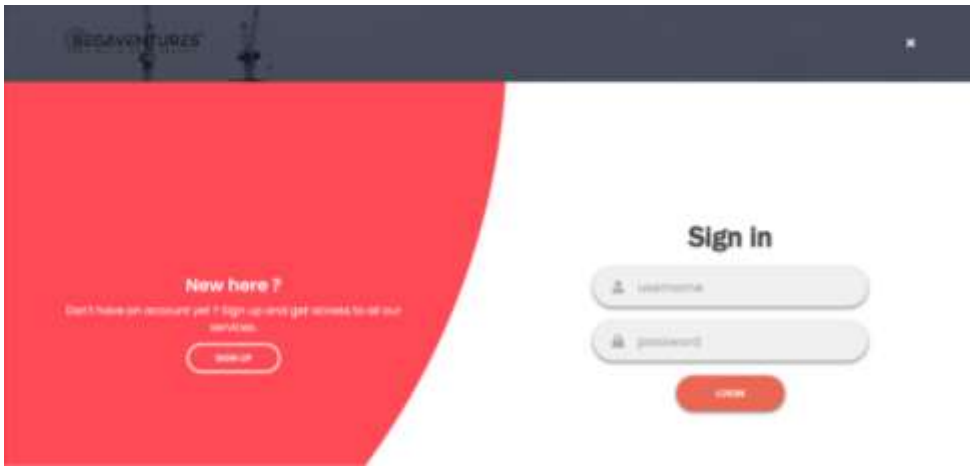
Our detective work was like a roadmap, guiding us through what the system does well, where it could be better, and where we can make improvements. We identified the details, possible issues, and chances to make things even better. The goal is not just to fix problems but to bring our construction website up to date with what users expect today.

This careful analysis is the foundation for making the user experience smoother and more in line with what people want from a construction website in today's world.

Chapter 4

Solution Design

4.1 Interface Design **(**Pseudo Code)



4.1.1 Login interface

START

Enter username

Enter password

If username is null

Display “Fill all the fields”

End if

If password is null

Display “Fill all the fields”

End if

Click login

If Click login button

If password is incorrect

Display “Failed to login”

End if

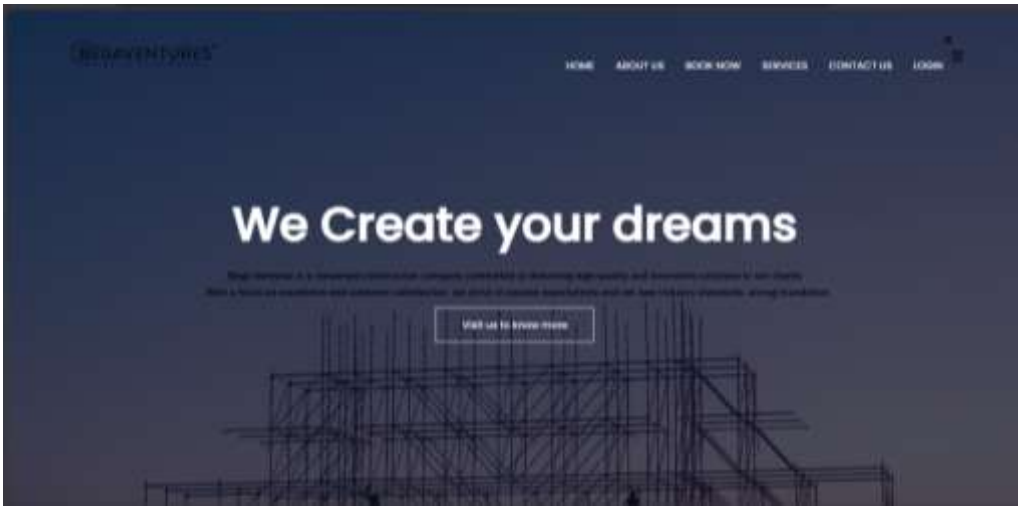
Else

Login to the web page

End else

End if

END



4.1.2 About us interface

START

If click see more

Load about us

Else if

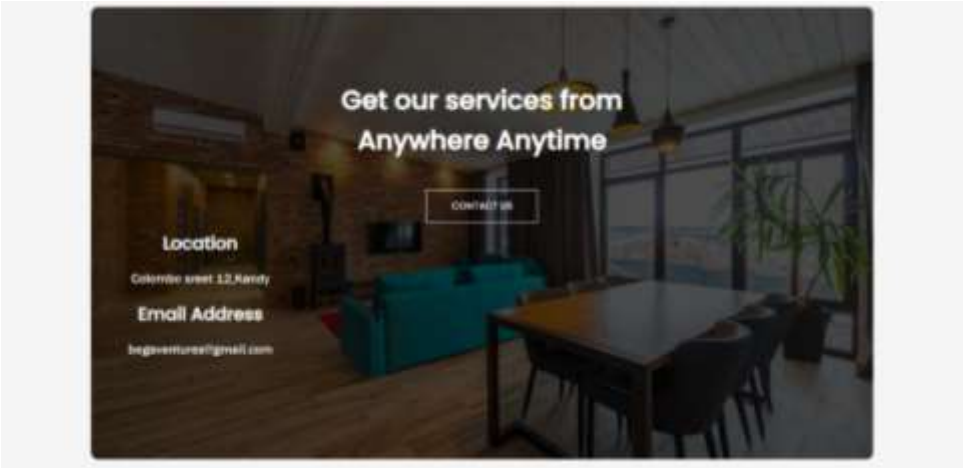
Load meet our team members

Else if

Load customer review

End if

END



4.1.3 Contact us interface

START

If user clicks "Contact Us"

Load the Contact Us page

Enter name

Enter email address

Enter message

If name is null

Display “Please enter your name”

End if

If email is null

Display “Please enter your email”

End if

If message is null

Display “Please enter your message”

End if

If all fields are entered

Submit the form

End if

END

4.1.4 Services interface

START

If user clicks "Service"

Load the Service page

If user clicks "Book Now"

Display “Book Now page”

END

4.1.5 Book now interface

4.1.6 Book now interface

START

If user clicks "Book Now"

Load the Book Now page

Enter name

Enter email

Select preferred time

Select preferred date

Select service

Enter NIC number

Enter reason

If name is null

Display “Please enter your name”

If email is null

Display “Please enter your email”

If preferred date is null

Display “Select a valid date”

If selected service is null

Display “Select at least one service”

If NIC number is null

Display “Please enter NIC”

If reason is null

Display “Please enter a reason”

If all fields are entered

Submit the form

END

4.1.7 Admin interface

START

Display all from admin panel

If user chooses "Update"

Update date

If user chooses "Delete"

Delete NIC number

If user chooses "Add"

Insert into name, date, NIC, select service, contact details

END

4.2 Database Design

Admin

admin_id	name	password

User

user_id	username	email	contact_no	password

Booking

booking_id	user_id	username	time	date

4.1.8 Database Schema

Chapter 5

Conclusion

The Bega Ventures Company website creation project has been a transformative effort, focusing on improving the digital presence of our construction business. Throughout this project, a user-friendly interface, streamlined processes, and robust administrative tools have been prioritized.

The proposed solutions and optimizations outlined in this report aim to significantly enhance the website's functionality. This includes creating a more seamless interaction between clients, administrators, and the construction services we offer.

The envisioned website acts not only as an information hub but also as a dynamic platform facilitating smooth communication, efficient booking processes, and responsive customer interactions. By incorporating modern design principles, secure transaction capabilities, and intuitive user pathways, Bega Ventures is positioned as a leader in the digital landscape within the construction industry.

As we move from analysis to implementation, this report serves as a roadmap for executing enhancements. It lays the foundation for a digital ecosystem that aligns with contemporary standards, meets user expectations, and positions Bega Ventures at the forefront of the online construction sector.

The success of this project is measured not just by the code and design but by the positive impact it will have on clients, administrators, and overall business operations at Bega Ventures. This website is more than a digital entity; it's a strategic asset poised to propel Bega Ventures to new heights in the digital era.

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Appendices

Login.php

```
<?php
require_once 'connection.php';
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    if (isset($_POST['username']) && isset($_POST['password'])) {
        $username = $_POST['username'];
        $password = $_POST['password'];
  $stmt = $conn->prepare("SELECT * FROM user WHERE username = ?");
        if ($stmt) {
            $stmt->bind_param("s", $username);
            $stmt->execute();
  $result = $stmt->get_result();
  if ($result) {
                if ($result->num_rows === 1) {
                    $row = $result->fetch_assoc();
                    $hashed_password = $row['password'];
                    if (password_verify($password, $hashed_password)) {
                        echo "Login successful!";
                    } else {
                        echo "Invalid password!";
                            }
                } else {
                    echo "Invalid username!";
                }
            } else {
                echo "Error fetching results: " . $conn->error;
```

```
            }
                $result->close();
        } else {
            echo "Statement preparation error: " . $conn->error;
        }
                $stmt->close();
    } else {
        echo "Please provide both username and password!";
    }
 if (isset($_POST['username']) && isset($_POST['contact']) && isset($_POST['email']) && isset($_POST['password'])) {
        $newUsername = $_POST['username'];
        $newContactNumber = $_POST['contact'];
        $newEmail = $_POST['email'];
        $newPassword = $_POST['password'];
 $hashedPassword = password_hash($newPassword, PASSWORD_BCRYPT);
 $stmt = $conn->prepare("INSERT INTO user (username, contact, email, password) VALUES (?, ?, ?, ?)");
        if ($stmt) {
            $stmt->bind_param("ssss", $newUsername, $newContact, $newEmail, $hashedPassword);
            $stmt->execute();
                if ($stmt->affected_rows === 1) {
                echo "Registration successful!";
            } else {
                echo "Registration failed!";
            }
                $stmt->close();
        } else {
```

```
            echo "Statement preparation error: " . $conn->error;
        }
    } else {
        echo "Please provide username, contact number, email, and password!";
    }
} else {
    echo "Access denied!";
}
$conn->close();
?>
```

Connection.php

```
<?php
$servername = "local_host";
$username = "root";
$password = "";
$dbname = "construction";
$conn = new mysqli($servername, $username, $password, $dbname);
if ($conn->connect_error) {
    die("Connection failed: " . $conn->connect_error);
}
?>
```

Book now

```
<?php
require_once 'connection.php';
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $username = $_POST['username'];
    $email = $_POST['email'];
    $contactNumber = $_POST['contact_no'];
    $time = $_POST['time'];
    $date = $_POST['date'];
    $services = isset($_POST['service']) ? implode(', ', $_POST['services']) : '';
    $reason = $_POST['reason'];
    $sql = "INSERT INTO booknow(username, email, contact_no, time, date, service, reason)
    VALUES ('$username', '$email', '$contact_no', '$time', '$date', '$services', '$reason')";
  if ($conn->query($sql) === TRUE) {
        echo "Booking successfully submitted!";
    } else {
        echo "Error: " . $sql . "<br>" . $conn->error;
    }
 $conn->close();
}
?>
```