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Institute of Science and Technology
Amrit Campus

A
Project Report On
“GhumGham - A Tour Management System”
[Course Code: BIT 404]

Submitted to:
Department of Bachelor in Information Technology
Amrit Campus

*In partial fulfillment of the requirements for the Bachelor's Degree in Information
Technology*

Submitted By:
Apil Adhikari (270/077)
Pratik Bastola (209/077)
Rabin Pant (210/077)

Under the Supervision of
Bishwa Karn

Feburary, 2025

Certificate of Approval

This is to clarify that the project prepared by Apil Adhikari, Pratik Bastola and Rabin Pant entitled “GhumGham - A Tour Management System”, in partial fulfillment of the requirements for the degree of Bachelor in Information Technology, has been thoroughly studied. In our opinion, it is satisfactory in scope and quality as a project for the required degree.

The project demonstrates a comprehensive understanding of software development principles, including planning, analysis, design, implementation, and testing. It effectively addresses real-world challenges in the tourism industry by providing a robust platform for managing and booking tours. The system incorporates modern technologies and features such as geospatial queries, image uploads with resizing, user authentication, and role-based access control.

Finally, the Department of BIT, Amrit Campus approves this project for final evaluation.

.....

Bishwa Karn

Project Supervisor

.....

Dhirendra Kumar Yadav

Program Coordinator

.....

Jagdish Bhatta

External Examiner

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With respect,

Apil Adhikari (270/077)

Pratik Bastola (209/077)

Rabin Pant (210/077)

Abstract

The "GhumGham" Tour Booking System is a web-based application designed to simplify the process of booking and managing tours for users. The platform allows customers to browse available tours, register, log in, book tours, and post reviews for completed bookings. Admins can manage users, tours, reviews, and bookings. The application employs a recommendation system that suggests personalized tours based on the user's past bookings, leveraging machine learning techniques such as cosine similarity. Built using a stack of Node.js, Express, MongoDB, Mongoose, Pug templates, CSS, and JavaScript, "GhumGham" follows the Model-View-Controller (MVC) architecture to separate concerns, enhancing maintainability and scalability. The application also integrates a payment gateway for processing transactions and utilizes Mapbox for geospatial features such as displaying map views of tour locations. The project adopts an Agile development methodology, ensuring flexibility and iterative progress with regular feedback loops. This document provides detailed insights into the system's design, implementation, testing, and future recommendations, contributing to the development of a robust and user-friendly tour booking platform.

Keywords: *Tourism Management, Web Application, Tour Booking, Recommendation System, Node.js, Express, MongoDB, Payment Integration, User Roles, Agile Development, MVC Architecture, Cosine Similarity, Personalized Recommendations, GhumGham*

Table of Contents

Cover Page.....	i
Certificate of Approval	ii
Acknowledgements.....	iii
Abstract.....	iv
Table of Contents	v
List of Abbreviations and Acronyms	vii
List of Figures.....	viii
List of Tables.....	ix
Chapter 1: Introduction.....	1
1.1 Introduction.....	1
1.2 Problem Statement.....	1
1.3 Objectives	2
1.4 Scope and Limitations	2
1.5 Development Methodology	2
Chapter 2: Background Study and Literature Review	4
2.1 Background Study.....	4
2.2 Literature Review	4
Chapter 3: System Analysis	6
3.1 System Analysis.....	6
3.1.1 Requirement Analysis	6
3.1.1 Feasibility Analysis.....	9
3.1.1 System Analysis.....	12
Chapter 4: System Design.....	16
4.1 System Design	16
4.1.1 Architecture Design	16
4.1.2 Database Design	16
4.1.3 Physical Design.....	17
4.1.4 Database Management.....	17
4.1.6 Payment Integration.....	21
4.1.7 Refined Designs Logic.....	21
4.2 Algorithm Details: Tour Recommendation System	25
Chapter 5: Implementation and Testing.....	28
5.1. Implementation	28

5.1.1. Tools Used (CASE tools, Programming languages, Database platforms)....	28
5.1.2 Implementation Details of Modules	28
5.1 Testing.....	32
5.2.1 Unit Testing.....	32
5.3 Result Analysis	35
Chapter 6: Conclusion and Future Recommendations	39
6.1 Conclusion	39
6.2 Future Recommendations	39
References.....	42
Appendix.....	43

List of Abbreviations and Acronyms

API	Application Programming Interface
CRUD	Create, Read, Update, Delete
CSS	Cascading Style Sheets
DB	Database
GUI	Graphical User Interface
HTTP	HyperText Transfer Protocol
HTTPS	HyperText Transfer Protocol Secure
JS	JavaScript
JSON	JavaScript Object Notation
Mongoose	MongoDB Object Modeling Tool
MVC	Model-View-Controller
Node.js	JavaScript runtime built on Chrome's V8 JavaScript engine
NoSQL	Not Only SQL (refers to databases like MongoDB)
Pug	A template engine for Node.js
REST	Representational State Transfer
SQL	Structured Query Language
UI	User Interface
UX	User Experience
VPN	Virtual Private Network
XML	Extensible Markup Language
AWS	Amazon Web Services
HTTP/HTTPS	HyperText Transfer Protocol / HyperText Transfer Protocol Secure
IDE	Integrated Development Environment

List of Figures

Figure 1: Gantt Chart	11
Figure 2: Object Modeling using Class Diagram	12
Figure 3: Object Modeling using Object Diagram	13
Figure 4: Dynamic Modeling using State Diagram	13
Figure 5: Dynamic Modeling using Sequence Diagram.....	14
Figure 6: Process modelling using Activity Diagram.....	15
Figure 7: Overview Page Wireframe	18
Figure 8: Login Form Wireframe.....	18
Figure 9: Register Form Wireframe.....	19
Figure 10: Recommendation Page Wireframe.....	19
Figure 11: User Dashboard Wireframe	20
Figure 12: Admin Dashboard Wireframe.....	20
Figure 13: Refined class design of the system.....	21
Figure 14: User Registration and Login Sequence Diagram	22
Figure 15: Tour Booking Sequence Diagram	22
Figure 16: Image Uploading and Resizing	23
Figure 17: Geospatial Queries	24
Figure 18: Key Component Diagram of system	24
Figure 19: Deployment Diagram	25

List of Tables

Table 1: Schedule Feasibility.....	11
Table 2: User Authentication Module Tests.....	32
Table 3: User Registration Module Tests.....	33
Table 4: Recommendation Algorithm Module Tests.....	34
Table 5: Test Case for New Tour Listing.....	34
Table 6: Test Case for Tour Booking by User.....	35

Chapter 1: Introduction

1.1 Introduction

Tourism plays a vital role in global economic growth, offering travelers diverse experiences. However, both travelers and tour operators face challenges in accessing reliable and personalized tour information. Travelers struggle to find tours that match their preferences, while operators need efficient tools to manage tours, upload images, and handle geospatial data.

To address these issues, "GhumGham", a web-based Tour Management System, has been developed to simplify tour creation, management, and booking. The platform caters to admins, lead-guides, guides, and users, providing a seamless experience for all stakeholders.

Key features include geospatial queries for finding tours within a specific radius, a recommendation system based on collaborative filtering, and an intuitive tour booking system. Admins and lead-guides can create, update, and manage tours efficiently, while users can browse and book their preferred experiences.

Built with modern technologies like Node.js, Express.js, MongoDB, and Pug, the system ensures scalability, security, and usability. By automating tasks and improving real-time insights, GhumGham enhances operational efficiency and provides a better user experience for both tourists and operators.

1.2 Problem Statement

The tourism industry lacks a centralized and efficient system for managing tours. Travelers often struggle to find detailed and reliable information, including pricing, schedules, and locations. Additionally, they lack personalized recommendations, making it difficult to discover relevant tours.

Tour operators also face challenges in creating, updating, and managing tours, handling geospatial data, and processing bookings manually, leading to inefficiencies and missed opportunities. Traditional methods are time-consuming, error-prone, and operationally inefficient.

To overcome these challenges, GhumGham provides an automated, feature-rich platform where users can browse, book, and manage tours seamlessly. The system integrates geospatial queries, image processing, and collaborative filtering recommendations to enhance the overall experience.

1.3 Objectives

The primary objective of GhumGham is:

- To implement travel/tour management system so as to streamline tour management and enhance user experience through efficient booking, tour recommendations, and a secure, scalable system.

1.4 Scope and Limitations

Scope

GhumGham facilitates tour management and bookings with key features:

- Recommendation System: Personalized tour suggestions based on user preferences.
- User Roles: Admins manage tours, lead-guides assist in operations, guides view tour details, and users browse and book.
- Payment Integration: Secure transactions through a payment gateway.

Limitations

Despite its robust functionality, the system has some limitations:

- Limited Payment Options: Supports only credit/debit cards and digital wallets.
- Web-Based Only: No dedicated mobile app; accessible via mobile browsers.
- Basic Analytics: Limited to tour statistics, lacking advanced predictive modeling.
- Scalability Constraints: May need optimization for large-scale operations.
- Recommendation System: Collaborative filtering may not fully capture seasonal trends.
- Training Requirement: Admins and lead-guides require training for tour and geospatial data management.
- Limited Customization: Adding multi-language support or third-party integrations requires further development.

1.5 Development Methodology

The Agile Model was used for development, following an iterative and incremental approach that emphasizes flexibility, collaboration, and continuous improvement. Unlike the Waterfall Model, Agile enables overlapping phases and frequent feedback, allowing adaptability to changes. Following phases were followed:

Requirement Gathering

This phase involved identifying key features and refining them iteratively through stakeholder feedback. Core requirements included:

- Tour Management: Tour creation, image uploads, geospatial queries, and recommendations.
- User Roles: Admins, lead-guides, guides, and users with distinct permissions.
- Performance: Scalability, security, and usability.
- User Interface: Simple and intuitive dashboards for bookings and tour management.

System Design

The system's architecture and components were designed iteratively:

- Database Design: MongoDB schemas for users, tours, reviews, and bookings.
- Component Design: Modules for authentication, tour management, payment integration, and geospatial queries.
- Prototyping: Wireframes and mockups for user interfaces and booking forms.
- Iterative Refinement: Regular updates to ER diagrams and flowcharts based on sprint feedback.

Implementation

Development followed an incremental approach, focusing on feature delivery in sprints:

- Sprint 1: User authentication, Role based access control.
- Sprint 2: Tour Management, Image uploads and resizing (using Multer & Sharp).
- Sprint 3: Geospatial queries for location-based tour searches and Recommendation system.
- Sprint 4: Payment gateway integration for secure transactions and Booking management.
- Sprint 5: Reporting and analytics, notification and alerts.
- Sprint 6: Unit testing, System testing and Bug Fixes.

Testing

Testing was conducted iteratively, ensuring each feature worked before moving to the next sprint:

- Unit Testing: Validating individual modules (e.g., authentication, payments).
- Integration Testing: Ensuring backend, database, and frontend components worked together.
- Bug Fixing: Addressing issues and refining features based on test results.

Chapter 2: Background Study and Literature Review

2.1 Background Study

The tourism industry has experienced significant growth over the past few decades, becoming a vital component of the global economy. This expansion has been facilitated by advancements in technology, particularly the internet, which has transformed how travelers access information and book services. Online Tourism Management Systems (OTMS) have emerged as essential tools, enabling businesses to manage operations efficiently and offer enhanced services to customers.

OTMS platforms integrate various functionalities, including tour creation, booking management, payment processing, and customer relationship management. These systems aim to streamline operations, reduce manual workload, and improve the overall customer experience. The development of such systems involves leveraging modern technologies like geospatial data processing, recommendation algorithms, and secure payment gateways to meet the dynamic needs of both service providers and consumers.

2.2 Literature Review

Several studies have explored the development and implementation of tourism management systems, highlighting their impact on the industry.

A study by Qin and Pan [1] introduced a smart tourism management system designed through multisource data visualization-based knowledge discovery. The system aims to digitally facilitate tourism business scheduling and manage tourism affairs effectively. The authors emphasized the importance of integrating multisource data to enhance decision-making processes in tourism management.

Fang et al. [2] proposed a hybrid deep learning model to forecast inter-destination tourism flow. The model utilizes multi-source datasets to predict tourism flow between destinations, aiding in tasks like destination role classification and visitation pattern mining. This approach enhances the understanding of tourist behavior and supports effective tourism management.

Abdulhamid and Usman [3] designed a destination information management system tailored for tourists. The system provides comprehensive information and navigation assistance, enhancing the tourist experience by offering detailed insights into various

destinations. The study highlights the significance of accessible information in promoting tourism and improving visitor satisfaction.

Santos et al. [4] addressed the issue of overtourism by developing a wireless crowd detection system. The system monitors tourist density in real-time, enabling destination managers to implement measures that mitigate negative impacts associated with overcrowding. This proactive approach contributes to sustainable tourism practices and enhances the quality of life for residents in tourist destinations.

Zheng [5] focused on the development of a tourism management system design that emphasizes user management and information query capabilities. The system aims to provide a flexible platform for managing tourism information resources, thereby improving operational efficiency and service delivery in the tourism sector.

Sharma and Gupta [6] discussed a tourism management system developed to manage tour bookings efficiently. The system addresses the drawbacks of existing manual processes by offering a user-friendly, GUI-oriented platform that enhances operational efficiency and user satisfaction.

These studies collectively underscore the critical role of technology in modernizing tourism management. They highlight the necessity for comprehensive systems that not only handle administrative tasks but also enhance user engagement through personalized services and efficient information management. The insights from these studies inform the development of "GhumGham," ensuring it aligns with industry best practices and addresses the identified challenges in tourism management.

Chapter 3: System Analysis

3.1 System Analysis

System analysis is a crucial phase in developing an Inventory Management System (IMS). It encompasses the evaluation of the system's requirements, feasibility, and design to ensure it aligns with user needs and organizational goals. This phase involves identifying the system's objectives, analyzing its functionality, and assessing its technical and economic viability.

3.1.1 Requirement Analysis

For this project, the requirement analysis process aimed to identify the key features and functionality of the system, as well as any constraints or limitations that needed to be considered during development.

i. Functional Requirements

- **User Authentication and Role-Based Access Control**

The system must provide secure mechanisms for user registration, login, and account management. Users will be assigned specific roles, including Admin, Lead-Guide, Guide, and Regular User, each with distinct permissions. Admins have the highest level of control, allowing them to manage tours, assign guides, and oversee system operations. Lead-Guides are responsible for creating, updating, and deleting tours. Guides can view tour details but cannot modify critical data. Regular Users, who are the primary customers, can browse available tours, make bookings, and receive personalized recommendations. Role-based access control ensures that users can only access the functionalities relevant to their role, enhancing security and preventing unauthorized modifications.

- **Tour Management**

Admins and Lead-Guides should be able to create, update, and delete tours, ensuring the system remains up to date with available tour options. Each tour should contain essential details, including name, duration, price, difficulty level, start location, and geospatial data to help users make informed decisions. To maintain a high-quality visual experience, users must be able to upload cover images and additional images for tours. These images should be automatically resized to a standard resolution using an image-processing library like Sharp to optimize performance and maintain consistency across the platform.

- **Recommendation System**

The system should incorporate a recommendation engine that personalizes the user experience by suggesting tours based on individual preferences and booking history. Using collaborative filtering techniques, the system can analyze the behavior of users with similar interests and suggest relevant tours. If a user has no prior booking history, the system should recommend top-rated tours based on aggregate user feedback and ratings. This feature enhances user engagement and increases the likelihood of successful bookings.

- **Payment Integration**

Users should be able to securely book tours and make payments through an integrated payment gateway. The system should support multiple payment methods, including credit/debit cards and digital wallets, ensuring convenience and accessibility for users. Security measures such as encryption and tokenization should be implemented to protect sensitive payment information. Upon successful payment, users should receive confirmation details, and the system should automatically update booking records.

- **Notifications and Alerts**

The system should include a notification mechanism to keep users informed about essential updates. Notifications should be sent for booking confirmations, payment receipts, tour cancellations, and schedule changes. The system should allow notifications to be delivered via email or SMS, ensuring timely communication with users. This feature enhances user experience by keeping customers well-informed and reducing the risk of missed bookings or unexpected changes.

ii. Non-Functional Requirements

- **Performance**

The system must be optimized to support multiple concurrent users while maintaining fast response times. Efficient handling of user interactions, geospatial queries, and data retrieval is essential for a seamless user experience. The platform should be designed to minimize latency in tour searches, booking processes, and payment transactions, ensuring quick and reliable service.

- **Security**

Security is a critical aspect of the system, requiring strong authentication and data protection mechanisms. User credentials should be securely stored using hashing

algorithms, such as bcrypt, and authentication should be managed using JWT tokens. Payment information must be encrypted to prevent data breaches. Additionally, role-based access control should be implemented to restrict unauthorized actions, ensuring that only designated users can access and modify specific system functionalities.

- **Usability**

The user interface should be intuitive and easy to navigate, ensuring that users can perform tasks with minimal effort. The system should be designed with a user-centric approach, incorporating clear navigation menus, structured layouts, and accessible information. A well-designed UI improves the overall user experience, reducing confusion and the need for extensive training. The system should also provide tooltips, guided workflows, and help documentation to assist users in navigating its features.

- **Reliability**

The system should be designed to ensure high availability and minimal downtime. Regular data backups should be implemented to prevent data loss in case of unexpected failures. Fault tolerance mechanisms should be incorporated to handle system crashes or server failures gracefully, ensuring uninterrupted service. The platform should be monitored continuously for potential issues, with automated alerts set up for critical failures.

- **Scalability**

The system should be designed to accommodate growth in user base and data volume. As more users register and book tours, the backend infrastructure should scale efficiently without performance degradation. Technologies such as cloud hosting and database indexing should be leveraged to handle increasing workloads. The system architecture should allow for horizontal scaling, enabling additional servers or database instances to be added as demand grows.

- **Accessibility**

To ensure inclusivity, the system should comply with accessibility standards, enabling users with disabilities to interact with its features effectively. Support for screen readers, keyboard navigation, and high-contrast modes should be integrated to cater to users with visual impairments. Compliance with relevant web accessibility guidelines (e.g., WCAG) should be a priority, ensuring that all users,

regardless of ability, can access and use the platform comfortably.

3.1.1 Feasibility Analysis

Feasibility analysis is crucial to determine whether the "GhumGham" tour management system can be successfully developed and implemented within the given constraints. It evaluates the technical, operational, economic, and schedule feasibility of the project.

i. Technical Feasibility

Technical feasibility assesses whether the required technology, tools, and expertise are available to develop and deploy the system. The "GhumGham" platform is built using modern and widely adopted technologies, ensuring that development, maintenance, and scalability are achievable. The backend is developed using Node.js and Express.js, which provide a fast and scalable environment for handling multiple user requests efficiently. The database is managed using MongoDB, which supports flexible data storage and geospatial queries essential for tour location-based searches.

For frontend development, the system uses Pug templating engine, ensuring lightweight and server-side-rendered pages for optimal performance. Authentication and authorization mechanisms are implemented using JWT (JSON Web Tokens) and bcrypt for secure password hashing. Payment processing is integrated using third-party APIs such as Stripe, ensuring safe and seamless transactions. Image uploads and processing are handled using Multer and Sharp, enabling efficient storage and optimized resolution.

As all these technologies are open-source and well-documented, the project is technically feasible, with the required frameworks and expertise available.

ii. Operational Feasibility

Operational feasibility evaluates whether the system will function effectively within the organization and meet user needs. The "GhumGham" system provides a user-friendly and efficient solution for both travelers and tour operators. Users can browse available tours, book tours, and receive personalized recommendations, ensuring a smooth booking experience. Admins, Lead-Guides, and Guides can easily manage tours, upload images, and monitor bookings, reducing manual workload and improving efficiency.

The system integrates notifications and alerts via email or SMS, keeping users informed about booking confirmations, tour updates, and payment status. Additionally, role-based access control ensures that only authorized personnel can modify or manage sensitive information, reducing operational risks.

Training requirements for admins and lead-guides are minimal due to the system's intuitive design and easy-to-use interface. Overall, the system is highly feasible from an operational perspective, as it enhances productivity, improves customer satisfaction, and streamlines tour management processes.

iii. Economic Feasibility

Economic feasibility determines whether the project is financially viable by comparing development costs with expected benefits. The development of "GhumGham" primarily relies on open-source technologies (Node.js, Express.js, MongoDB, Pug, Multer, Stripe API), significantly reducing licensing costs. Hosting the application on cloud platforms such as AWS, DigitalOcean, or Heroku incurs manageable expenses, with scalability options available as user demand increases.

The primary costs involved in the project include:

- Development costs: Compensation for developers (if outsourced) or resources for an in-house team.
- Infrastructure costs: Hosting, domain registration, and database storage.
- Third-party API costs: Payment gateway transaction fees (e.g., Stripe charges per transaction).
- Marketing and promotion costs: Advertising to attract users and tour operators to the platform.

The return on investment (ROI) is expected to be high as the platform can generate revenue through commission-based earnings from bookings, premium listings for tour operators, and subscription-based plans for additional features. As the tourism industry continues to grow, the demand for efficient booking platforms increases, making the system economically feasible.

iv. Schedule Feasibility

Schedule feasibility assesses whether the project can be completed within the allocated time frame. The "GhumGham" system follows an Agile development methodology, allowing for an iterative approach where functionalities are developed, tested, and deployed incrementally. The project is divided into sprints, each focusing on a specific set of features:

Table 1: Schedule Feasibility

Sprint	Duration	Key Features
Sprint 1	3 weeks	User authentication, role-based access control
Sprint 2	4 weeks	Tour management, image uploads & resizing
Sprint 3	4 weeks	Geospatial queries, recommendation system
Sprint 4	3 weeks	Payment integration, booking management
Sprint 5	3 weeks	Reporting & analytics, notifications & alerts
Sprint 6	4 weeks	Unit testing, system testing, bug fixing

The estimated total project timeline is 4 to 5 months, including time for development, testing, and refinements. The use of version control (Git/GitHub) and continuous integration (CI/CD pipelines) ensures that new features can be deployed incrementally without major disruptions.

Given the planned schedule and availability of resources, the project is schedule feasible and can be completed within the proposed timeframe.

Gantt Chart

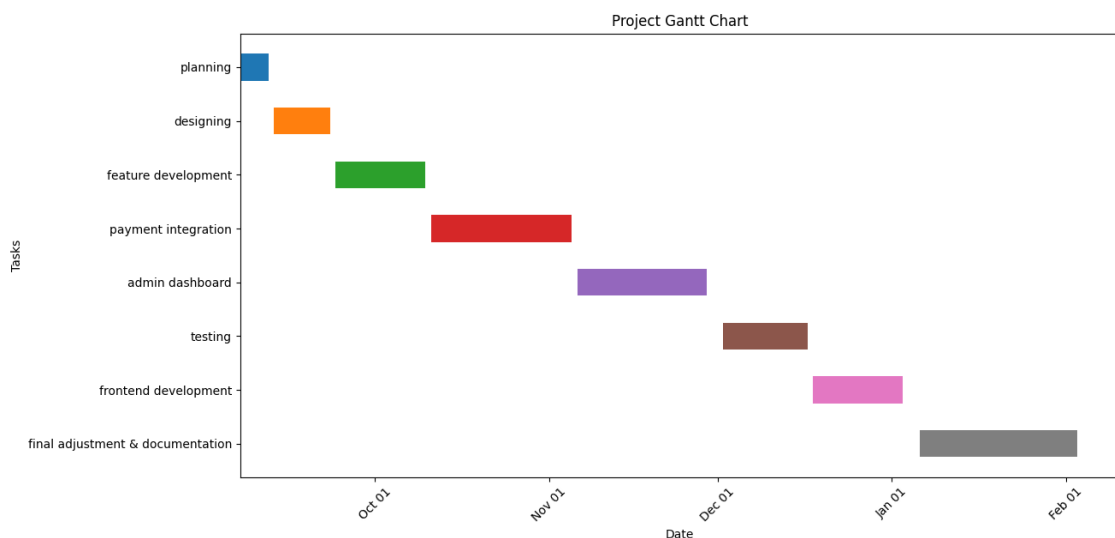


Figure 1: Gantt Chart

3.1.1 System Analysis

3.1.1.1 Object Modeling using Class and Object Diagram

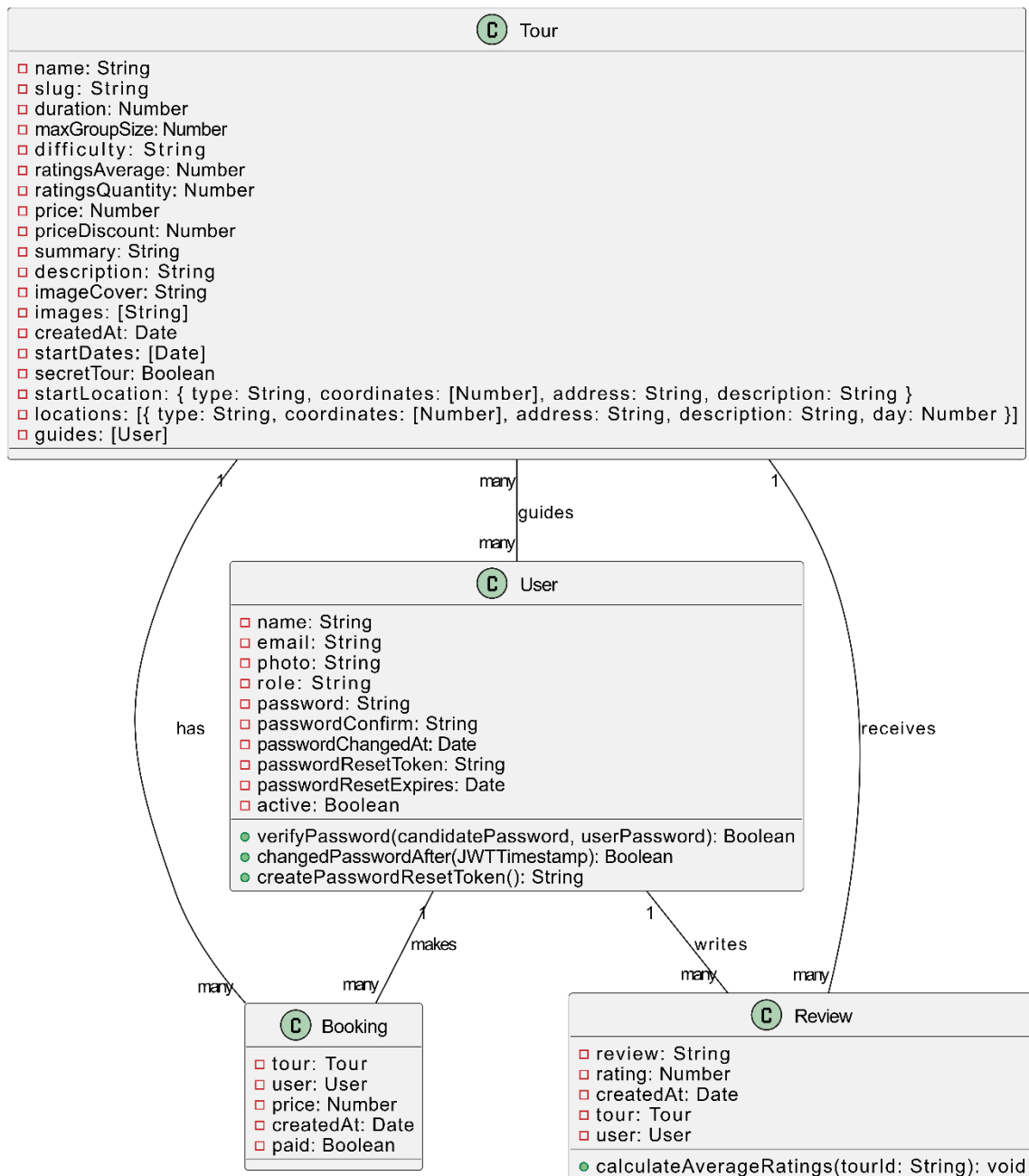


Figure 2: Object Modeling using Class Diagram

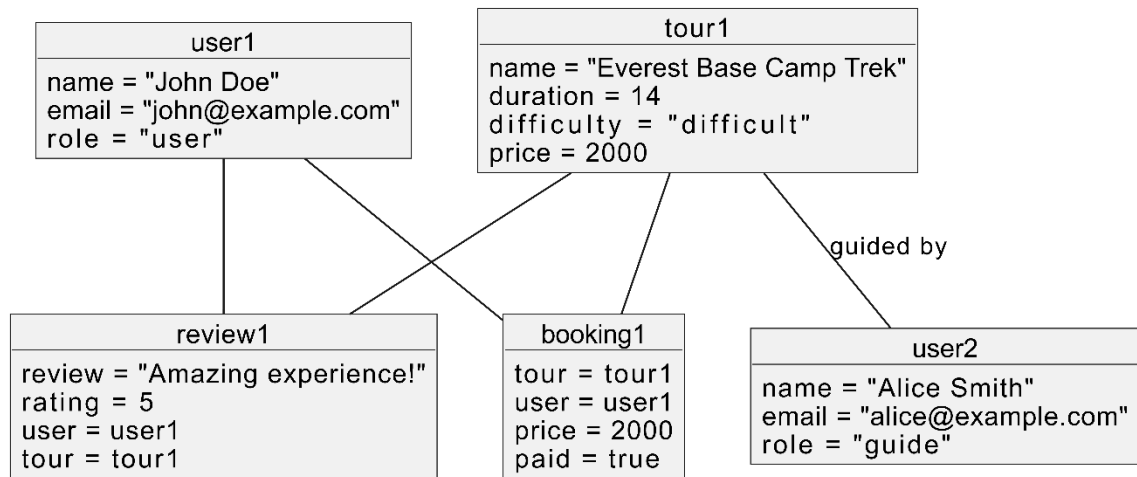


Figure 3: Object Modeling using Object Diagram

3.1.1.2 Dynamic modelling using State and Sequence Diagrams

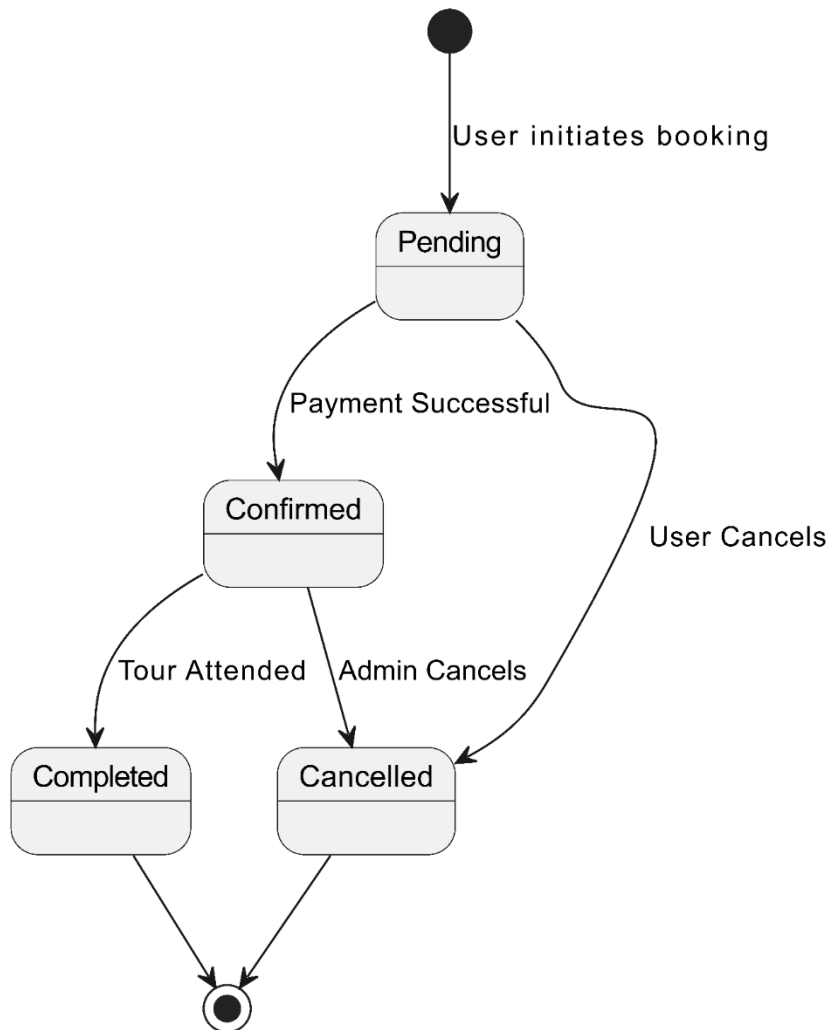


Figure 4: Dynamic Modeling using State Diagram

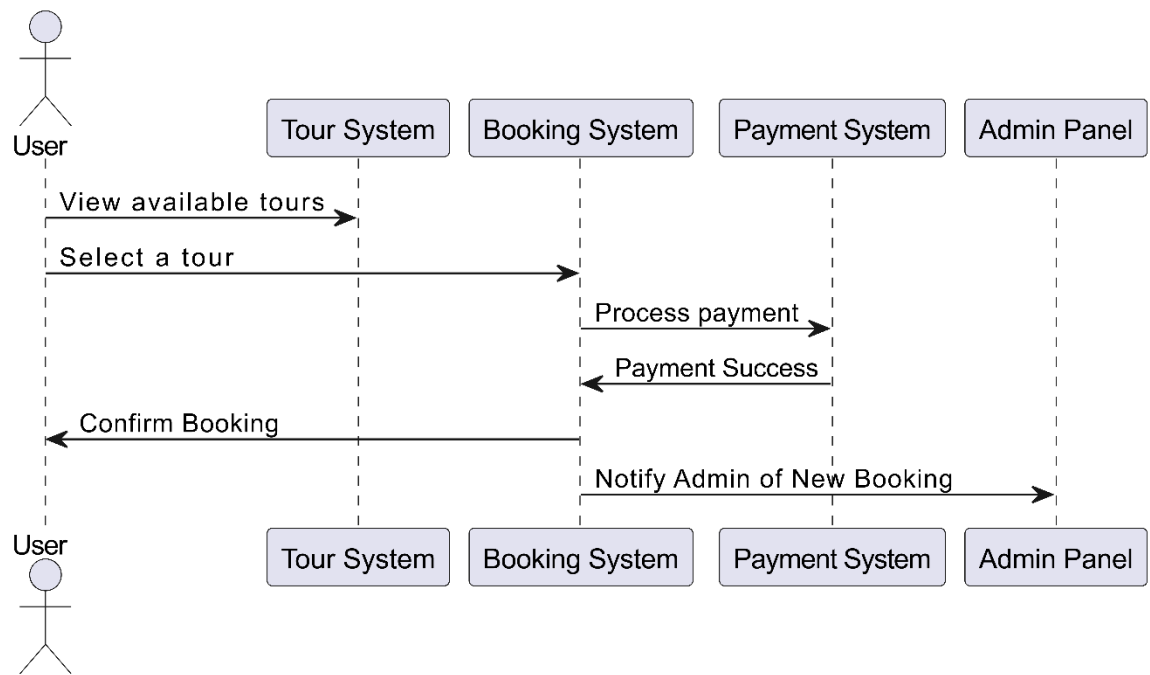


Figure 5: Dynamic Modeling using Sequence Diagram

3.1.1.3 Process modelling using Activity Diagrams



Figure 6: Process modelling using Activity Diagram

Chapter 4: System Design

4.1 System Design

The system design phase builds upon the analysis phase by refining the models and providing a detailed blueprint for implementation. The following sections describe the design components of the GhumGham.

4.1.1 Architecture Design

The Architecture Design of GhumGham follows the **MVC (Model-View-Controller)** architectural pattern, which helps maintain a clean separation of concerns and ensures a modular and scalable codebase. The Model is responsible for representing and managing the data of the system, including entities like Users, Tours, Bookings, Reviews, and Payments, all of which are stored and processed via the MongoDB database. The View layer is built using Pug templates, CSS, and JavaScript, providing a user-friendly interface that communicates with the backend through RESTful APIs. The Controller layer, implemented with Express.js, acts as the intermediary between the View and the Model, handling user inputs, business logic, and data processing. By using this design, GhumGham ensures clear organization of code, allowing developers to easily manage and update the application without affecting other components.

4.1.2 Database Design

The Database Design for GhumGham uses MongoDB, a NoSQL database, to store and manage the dynamic and flexible data structure of the system. Key entities in the database include Users, Tours, Bookings, Reviews, and Payments. Each of these entities is represented as a collection in MongoDB, where documents within the collection store data for each specific instance. For example, the Users collection stores user details such as their name, email, and role, while the Tours collection stores information about the tours, including location, price, and duration. The relationships between entities are handled using ObjectIds to reference other collections, establishing connections between users, their bookings, and the tours they book. MongoDB's flexibility allows for easy adjustments and scaling, which is crucial as the system evolves and handles more data over time.

4.1.3 Physical Design

The Physical Design of GhumGham ensures that the system is optimized for performance, security, and efficient data storage. The MongoDB database is hosted on a cloud based server, providing scalability to handle increasing amounts of data and users. To enhance performance, indexing is applied to frequently queried fields, such as `userId`, `tourId`, and `bookingId`, ensuring fast data retrieval. The system is also designed with strong security measures in place, including JWT authentication for secure user login, bcrypt hashing for password storage, and SSL/TLS encryption for secure communication between the frontend and backend. Additionally, input validation is performed both client-side and server-side to prevent security threats like SQL injections and XSS attacks.

4.1.4 Database Management

The Database Management aspect of GhumGham focuses on the efficient handling and manipulation of data stored in the MongoDB database. The Data Access Layer interacts directly with MongoDB through Mongoose, an ODM (Object Data Modeling) library, to define schemas and models for each entity in the system. This abstraction layer simplifies the interaction between the application and the database by allowing the use of JavaScript objects instead of complex SQL queries. MongoDB's flexible schema enables the system to store unstructured or semi-structured data, making it easy to accommodate changes as the project evolves. Database management also includes regular backup procedures to ensure data integrity and prevent loss, as well as optimizations such as sharding and replication to distribute data across multiple servers, ensuring high availability and fault tolerance.

4.1.5 User Interface Design

The User Interface (UI) Design of GhumGham focuses on providing an intuitive, responsive, and engaging experience for users interacting with the tour management platform. The frontend is built using CSS, and JavaScript, along with Pug templates for dynamic content rendering on the server side. The UI includes various components such as a homepage displaying available tours, detailed pages for individual tours, user login and signup forms, and dashboards for viewing bookings and reviews. Mapbox is integrated to display interactive maps for tour locations, enhancing the user experience with visual geospatial data. The frontend interacts with the backend via Axios, which sends requests to the server and updates the UI with the latest data without needing to refresh the page. This

ensures a seamless, smooth user experience while maintaining real-time interaction with the database.

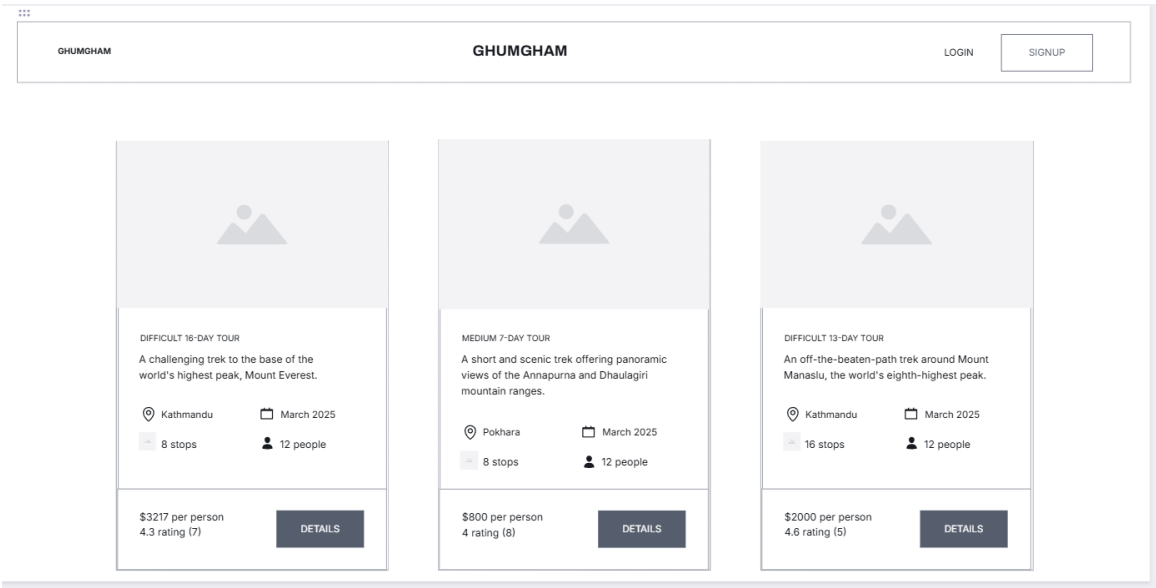


Figure 7: Overview Page Wireframe

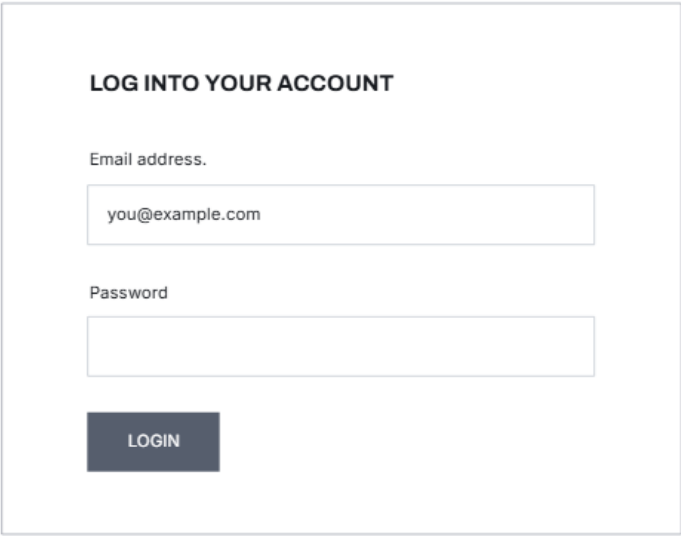


Figure 8: Login Form Wireframe

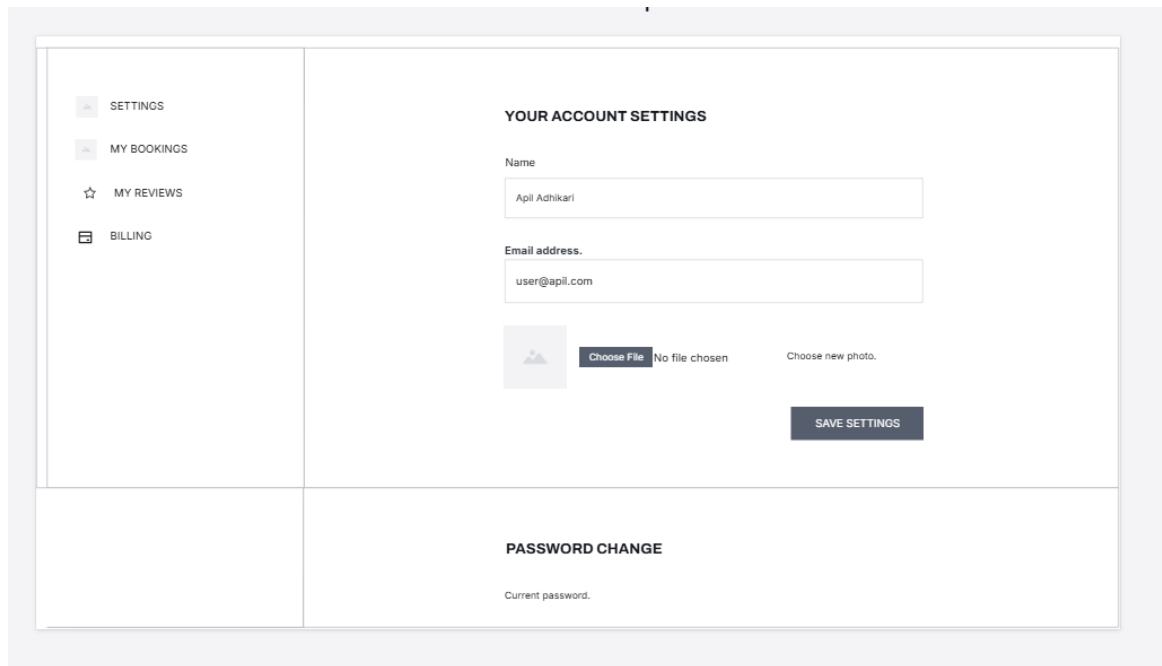


Figure 11: User Dashboard Wireframe

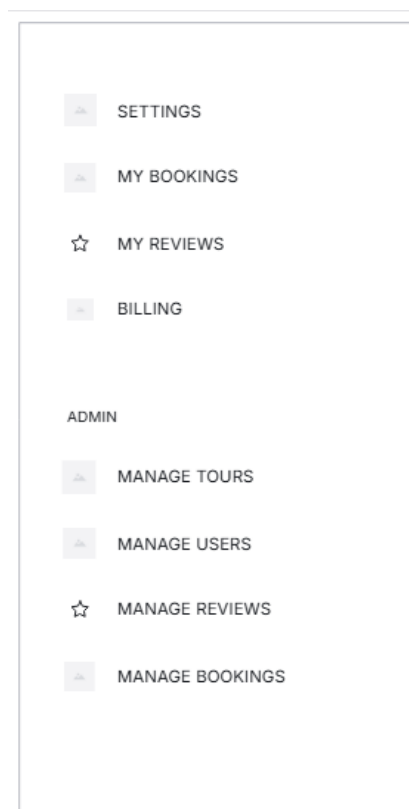


Figure 12: Admin Dashboard Wireframe

4.1.6 Payment Integration

The Payment Integration design in GhumGham ensures secure and reliable payment processing for bookings. The system integrates with third-party payment services like **Stripe**, allowing users to complete transactions securely through their preferred payment methods. The payment process begins when a user selects a tour and proceeds to the checkout, where they enter their payment details. The backend handles the payment by securely transmitting the payment data to the payment gateway, which processes the transaction and returns the result (success, failure, or error). Upon successful payment, the system updates the Payment and Booking entities in the database. For security, sensitive payment details are never stored on the system, and SSL encryption ensures that payment data is transmitted safely over the network.

4.1.7 Refined Designs Logic

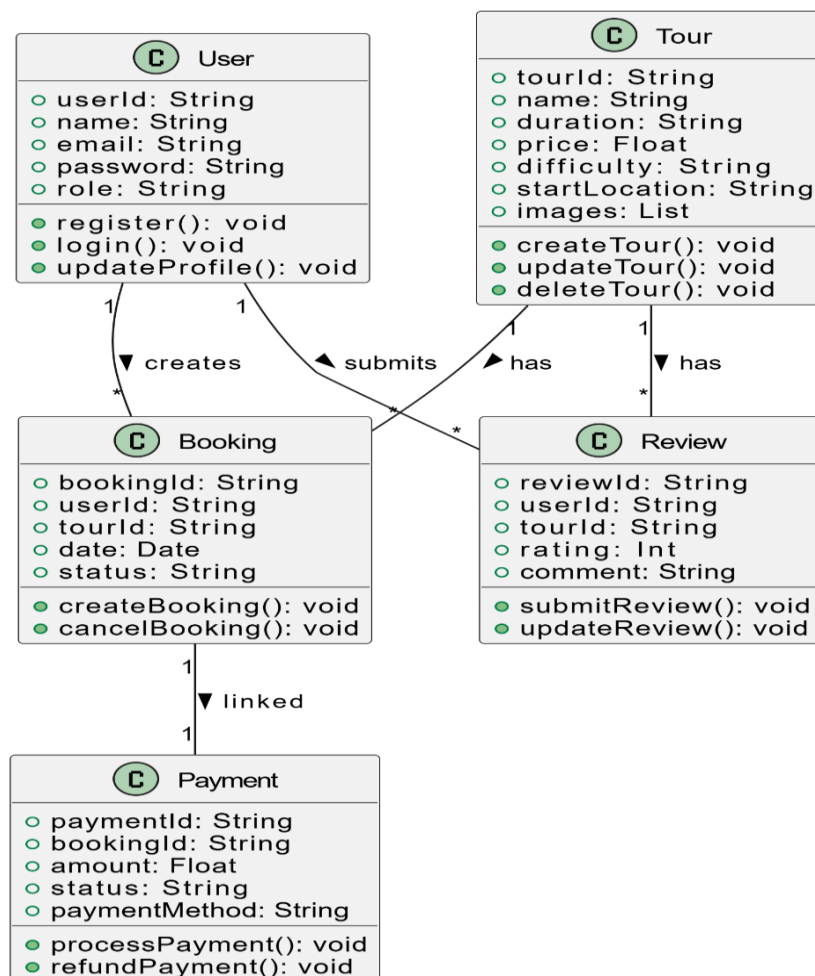


Figure 13: Refined class design of the system

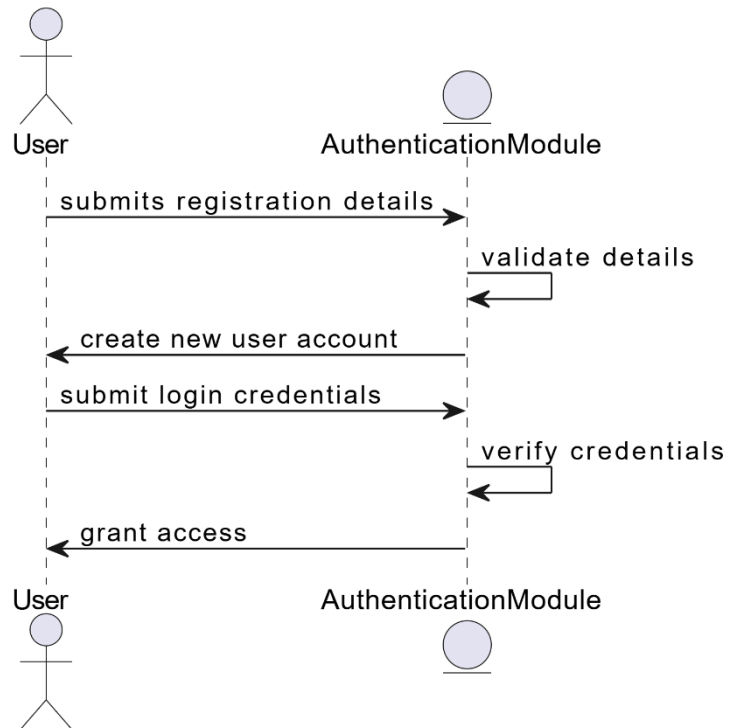


Figure 14: User Registration and Login Sequence Diagram

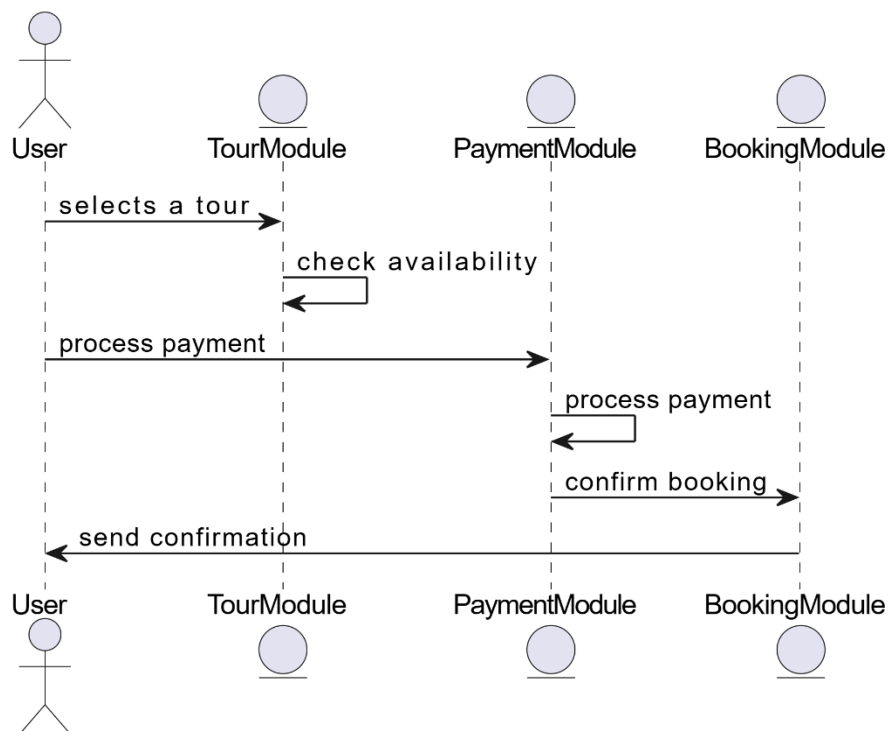


Figure 15: Tour Booking Sequence Diagram

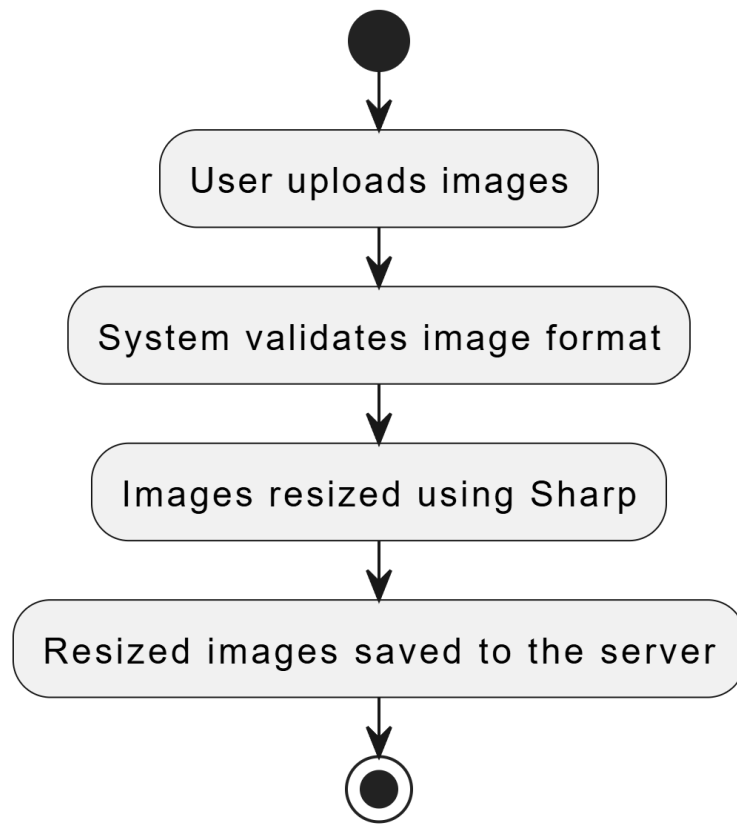


Figure 16: Image Uploading and Resizing

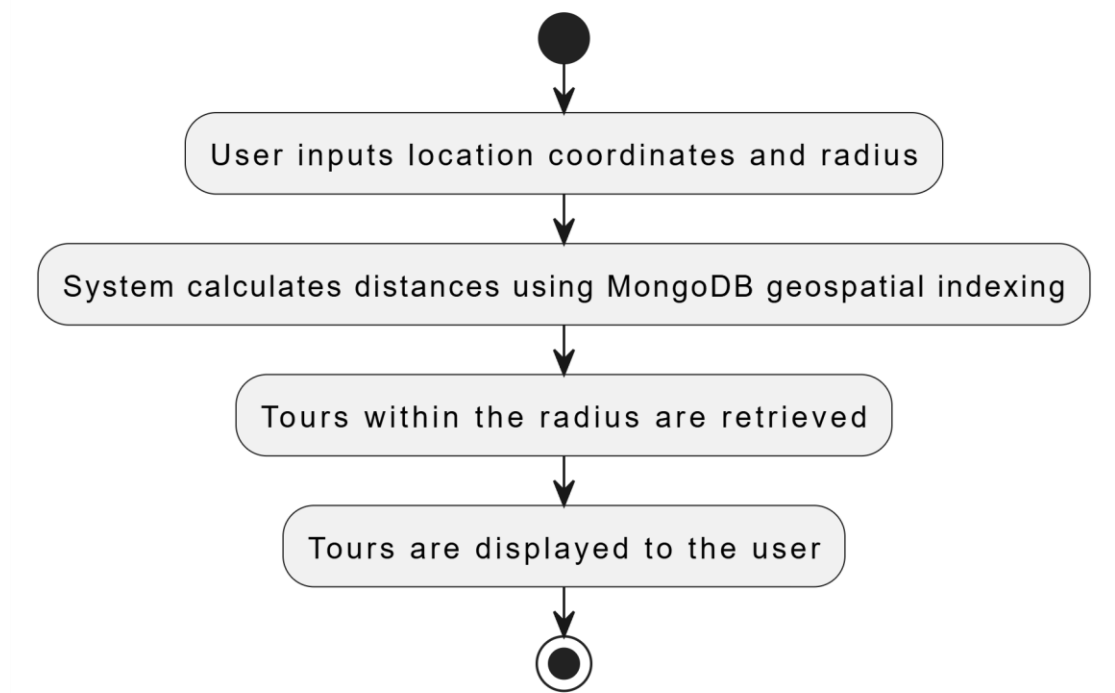


Figure 17: Geospatial Queries

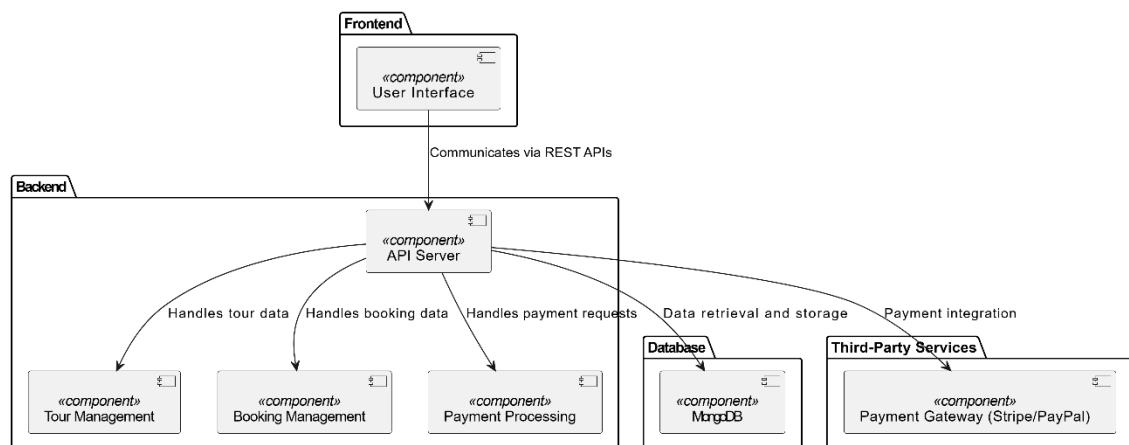


Figure 18: Key Component Diagram of system

Deployment Diagram

The Deployment Diagram for the GhumGham Tour App illustrates the physical architecture of the system, showing how different hardware and software components interact. Users access the application through a web browser on their devices, which communicates with the backend server hosted on localhost:8000 during development or a cloud server in production. The backend, built with Node.js and Express, processes user requests, manages

authentication, handles bookings, and interacts with a MongoDB database for data storage. The backend also integrates with external services, such as the Mapbox API for displaying maps and a Payment Gateway API for handling transactions.

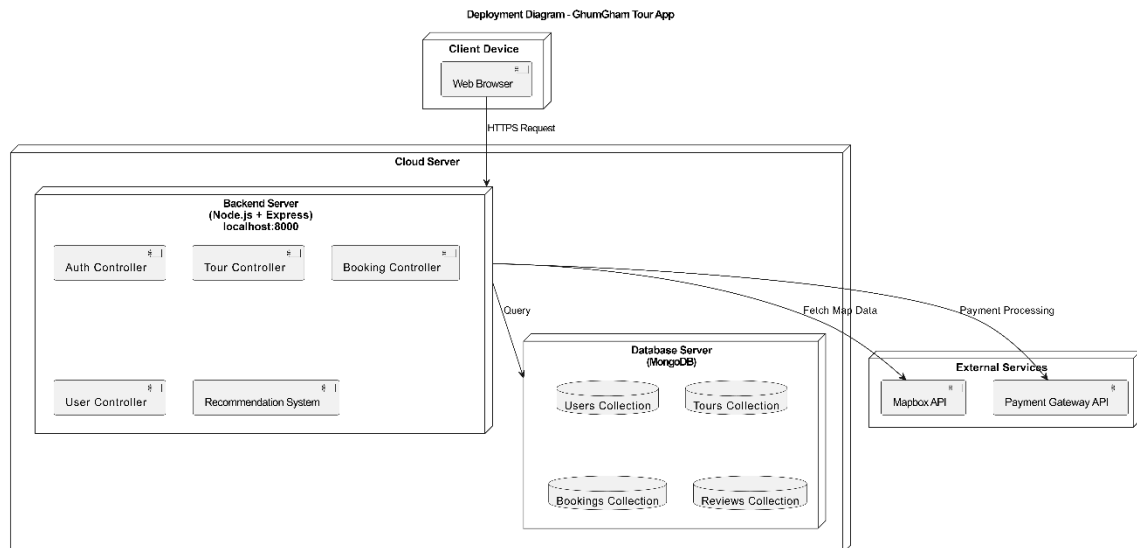


Figure 19: Deployment Diagram

4.2 Algorithm Details: Tour Recommendation System

GhumGham employs a collaborative filtering algorithm, leveraging cosine similarity, to provide personalized tour recommendations. By analysing the booking history of users with similar preferences, we suggest tours that are highly likely to resonate with individual users.

How does it work?

Cosine similarity is a method used to determine how similar two items are, particularly when those items can be represented as vectors in a multi-dimensional space. In the context of tour recommendations, it helps to understand how alike two users are in terms of their booking preferences. Imagine each user's booking history as a vector, where each dimension represents a different tour. If a user has booked a tour, the corresponding dimension in their vector has a value; otherwise, it's zero. Cosine similarity measures the angle between these two user vectors. A smaller angle indicates greater similarity, and a larger angle indicates less similarity. Mathematically, it's calculated by dividing the dot product of the two vectors by the product of their magnitudes. The dot product essentially counts the number of tours both users have booked, while the magnitudes represent the "length" of each user's booking history. The result is a value between -1 and 1, where 1 signifies perfect similarity, 0 means no similarity, and -1 indicates complete dissimilarity.

In essence, cosine similarity allows us to compare user preferences by focusing on the direction of their "preference vectors," rather than their magnitudes, making it effective for identifying users with similar tastes regardless of how many tours they've booked.

Algorithm Breakdown:

Cosine Similarity Calculation:

We determine user similarity by calculating the cosine similarity between users' booked tours. This score reflects how alike users are in their tour preferences.

Formula:

$$\text{cosine similarity} = (\text{Dot Product of Booked Tours}) / (\text{Magnitude of User 1's Booked Tours} * \text{Magnitude of User 2's Booked Tours})$$

Process:

- Identify tours booked by both users.
- Calculate the dot product: count of common tours.
- Calculate the magnitude: square root of each user's total booked tours.
- Apply the formula.

Data Retrieval:

The `getRecommendations` function retrieves all user bookings, populating tour and user details.

Process:

- Fetch all bookings using `Booking.find()`.
- Use `populate('tour')` and `populate('user')` to link bookings with tours and users.
- Create a `userBookings` map: user IDs to their booked tours.

Handling Unbooked Users:

If a user has no booking history, we recommend the top 3 highest-rated tours.

Process:

- Check if the user has bookings.
- If not, fetch tours sorted by `ratingsAverage` (descending).
- Return the top 3 tours.

Similarity Scoring:

For users with bookings, we calculate cosine similarity with all other users.

Process:

- Iterate through `userBookings`.
- Calculate cosine similarity with the current user.

- Store similarity scores: [{ userId, similarity }].

Similarity Sorting:

We sort users by their similarity score (highest to lowest).

Process:

- Sort the similarities array.
- Top Similar Users:
- We select the top 5 most similar users.

Process:

- Slice the sorted similarities array.
- Recommendation Collection:

We gather tours booked by the top similar users, removing duplicates and previously booked tours.

Process:

- Add booked tours from top users to a recommendedTours set.
- Remove tours the current user has booked.

Tour Detail Fetching:

We fetch detailed information for the recommended tours.

Process:

- Use `Tour.find({ _id: { $in: Array.from(recommendedTours) } })`.

Recommendation Delivery:

We return the recommended tours and their count.

Process:

- Send tour details and count in the response.

Chapter 5: Implementation and Testing

5.1. Implementation

5.1.1. Tools Used (CASE tools, Programming languages, Database platforms)

For the development of the "GhumGham" tour web application, various tools and technologies were utilized to ensure efficient development and deployment. Below are the key tools and technologies used:

- **Development Tools:** Visual Studio Code (VSCode) was used as the primary integrated development environment (IDE). Draw.io and Figma were utilized for creating system architecture diagrams, wireframes, and design prototypes.
- **Programming Languages:** The core programming language used for backend development was JavaScript, utilizing Node.js and Express for building the backend API. The frontend was developed using Pug, CSS, and JavaScript.
- **Database:** MongoDB was used as the database management system to store user, tour, booking, and review data. Mongoose was used for database object modeling and to interact with MongoDB.
- **Version Control:** Git and GitHub were used for version control and collaborative code management, ensuring smooth teamwork and version tracking.
- **API Testing:** Postman was used for testing and ensuring the correct functionality of the API endpoints.
- **Communication:** Discord was used for team communication, ensuring collaboration throughout the development process.
- **Agile Approach:** The project followed an Agile development methodology, with iterative sprints and continuous feedback loops, ensuring that the system met stakeholder expectations and could adapt to changing requirements.

5.1.2 Implementation Details of Modules

The system was implemented in modular components, each responsible for specific functionalities. Below are the details of the implementation of key modules:

- **User Authentication Module:** The user authentication module ensures secure registration, login, and role-based access control. Users submit their details via a form, and the data is validated on both client and server sides. Passwords are hashed using **bcrypt** before being stored in the database to enhance security. JSON Web Tokens (JWT) are generated for session management, allowing users to remain

authenticated across sessions. Middleware functions enforce role-based access control, ensuring that only authorized users can access specific routes. Roles include Admin, Lead-Guide, Guide, and Regular User, each with distinct permissions.

- **Tour Management Module:** The tour management module enables admins and lead-guides to create, update, and delete tours efficiently. Tour details, such as name, duration, price, difficulty, start location, and images, are submitted via forms. Images are uploaded using **Multer** and resized to a standard resolution (2000x1333 pixels) using **Sharp**. The resized images are saved in the **public/img/tours** directory, and their filenames are stored in the database. Data validation is performed using Mongoose schemas to ensure consistency and accuracy. Updates and deletions are handled through dedicated API endpoints, with proper error handling to manage edge cases.
- **Image Upload and Resizing Module:** The image upload and resizing module handles the storage and optimization of images for tours. Users upload cover images and additional images for tours, which are temporarily stored in memory using **Multer**. The **Sharp** library processes these images by resizing them to a 3:2 ratio (2000x1333 pixels) and converting them to JPEG format with a quality setting of 90%. Temporary filenames are assigned during processing and later renamed to permanent filenames based on the tour ID and timestamp. This ensures consistent naming conventions and avoids conflicts in the file system.
- **Geospatial Query Module:** The geospatial query module allows users to find tours within a specific radius of a given location. Users provide latitude, longitude, distance, and unit (km/mi) as input parameters. The radius is calculated in radians based on the Earth's radius, and MongoDB's \$geoWithin operator is used to retrieve tours within the specified radius. This functionality leverages MongoDB's geospatial indexing capabilities, ensuring efficient and accurate results. The module returns matching tours along with their details, enhancing the user experience by providing location-based recommendations.
- **Recommendation System Module:** The recommendation system module provides personalized suggestions to users based on their preferences or booking history. **Collaborative filtering** is used to identify users with similar booking patterns and recommend tours booked by those users. If no booking history exists, the system falls back to recommending top-rated tours. This module enhances user engagement

by helping travellers discover tours that align with their interests, ultimately improving the likelihood of bookings and customer satisfaction.

Function to calculate cosine similarity between two users

```
const calculateCosineSimilarity = (user1, user2) => {
  const commonTours = user1.bookedTours.filter((tour) =>
    user2.bookedTours.includes(tour),
  );
  const dotProduct = commonTours.length;
  const magnitude1 = Math.sqrt(user1.bookedTours.length);
  const magnitude2 = Math.sqrt(user2.bookedTours.length);
  return dotProduct / (magnitude1 * magnitude2);
};
```

Function to get recommendations for a user

```
exports.getRecommendations = async (req, res, next) => {
  const userId = req.params.id;

  // Fetch all bookings
  const bookings = await
  Booking.find().populate('tour').populate('user');

  // Create a map of users and their booked tours
  const userBookings = {};
  bookings.forEach((booking) => {
    if (booking.user && booking.tour) {
      if (!userBookings[booking.user.id]) {
        userBookings[booking.user.id] = { user: booking.user,
bookedTours: [] };
      }
      userBookings[booking.user.id].bookedTours.push(booking.tour.id);
    }
  });

  console.log('User Bookings:', userBookings);

  const currentUser = userBookings[userId];
```

```

// If the user has no bookings, recommend the most popular tours
if (!currentUser) {
  const popularTours = await Tour.find()
    .sort({ ratingsAverage: -1 })
    .limit(3);
  return res.status(200).json({
    status: 'success',
    results: popularTours.length,
    data: {
      recommendations: popularTours,
    },
  });
}
console.log('Current User Bookings:', currentUser);

```

Calculate similarities between the current user and all other users (Collaborative Filtering)

```

const similarities = Object.values(userBookings).map((user) => ({
  userId: user.user.id,
  similarity: calculateCosineSimilarity(currentUser, user),
}));

console.log('Similarities:', similarities);

// Sort users by similarity in descending order
similarities.sort((a, b) => b.similarity - a.similarity);

// Get the top N similar users (e.g., top 5)
const topSimilarUsers = similarities.slice(0, 5);

console.log('Top Similar Users:', topSimilarUsers);

```

- **Payment Integration Module:** The payment integration module handles secure transactions for tour bookings. Users select a tour and initiate payment through an integrated payment gateway like **Stripe**. Payment details are sent to the gateway, and upon successful processing, a confirmation message is displayed to the user.

Booking details are saved in the database, and payment status is updated accordingly. This module simplifies the booking process for users while providing admins with tools to manage payments and generate financial reports.

- **Reporting and Analytics Module:** The reporting and analytics module generates insights into tour statistics, such as average price, ratings, and monthly plans. Aggregation pipelines in MongoDB calculate metrics like total number of tours, average rating, and price range. Monthly plans are generated by grouping tours based on their start dates and displaying the number of tours starting in each month. These reports assist admins in making informed decisions, optimizing tour offerings, and enhancing operational efficiency.
- **Notification and Alert Module:** The notification and alert module keeps users informed about critical events, such as booking confirmations, payment receipts, and tour updates. Notifications are delivered via email or SMS, ensuring that users are promptly informed about important events. This module enhances user engagement and satisfaction by providing timely updates and reminders, improving the overall user experience.

5.1 Testing

5.2.1 Unit Testing

Unit testing focuses on validating individual functions, methods, or classes to ensure they are working in isolation. The goal of unit tests is to check the behavior of small, self-contained units of the system. In your application, unit tests can be written for specific functions such as the **Tour Management, Booking System, User Authentication, and Recommendation Algorithm**.

Here are some examples of unit test cases:

Table 2: User Authentication Module Tests

S.N	Test name	Input	Expected Outcome	Actual Output	Test Result
1	Opening Application	http://localhost:8000/login	Login Page	Login Page	Passed

2	Enter Invalid details or miss some details in the form	Blank email Address An incorrect password	Enter Email Address & Incorrect Password	Enter Email Address & Password	Passed
3	Enter valid Details In the Form	All Fields Filled with correct credentials	Login Success, Pop modal and redirect to landing page.	Login Success, Pop modal and redirect to landing page.	Passed

Table 3: User Registration Module Tests

S.N	Test name	Input	Expected Outcome	Actual Output	Test Result
1	Opening Application	http://localhost:8000/register	Registration Page	Registration Page	Passed
2	Enter Invalid email or Incorrect confirm password.	Incorrect Email Address Incorrect confirm password	Enter Correct Email Address & Passwords do not match.	Enter Correct Email Address & Passwords do not match.	Passed
3	Enter valid Details In the Form	All Fields Filled with correct credentials.	Registration Success, Pop modal and redirect to landing page.	Registration Success, Pop modal and redirect to landing page.	Passed

Table 4: Recommendation Algorithm Module Tests

S.N	Test name	Input	Expected Outcome	Actual Output	Test Result
1	Opening Application	http://localhost:8000/get-recommendations	Recommendation Page	Recommendation Page	Passed
2	For new user without no prior booking	-	Get recommended the top rated tours in the list.	Got recommended the top rated tours in the list.	Passed
3	For user with prior booking history	-	Get recommendation based on similar user's past bookings.	Got recommendation based on similar user's past bookings.	Passed

5.2.2 Test Cases for System Testing

System testing involves testing the entire application to ensure that all components work together correctly. Unlike unit testing, which isolates individual units, system testing evaluates the application as a whole. Below are some key system test cases for the GhumGham Tour Web Application:

Table 5: Test Case for New Tour Listing

Test Case 1	Add new tour package by Admin.
Test Data	Add Tour Name Add Tour Duration. Add Tour Group size and Difficulty. Add Tour Price. Add Tour Description. Add Tour Itinerary.
Expected result	Tour Added Successfully
Test Result	Passed

Table 6: Test Case for Tour Booking by User

Test Case 1	Tour Booking.
Test Steps	Step 1: Send request with valid booking data. Step 2: Payment gateway checks the user balance. Step 3: Lists booked tour in the booking page after payment is successful.
Expected result	Tour Booked Successfully.
Test Result	Passed

5.3 Result Analysis

In this section, we analyze the results obtained from the testing phase of the GhumGham **Tour Web Application**. The testing involved both unit tests to validate individual components and **system tests** to ensure the application as a whole works seamlessly. The goal of the result analysis is to assess the correctness, performance, and usability of the application after implementing the features and executing the tests.

1. User Authentication and Authorization

- **Test Case Results:**
 - All user registration and login functionalities worked as expected.
 - The system successfully created new user accounts and authenticated users based on valid credentials.
 - The JWT authentication mechanism was verified to be secure and functional. Unauthorized access attempts were correctly blocked with appropriate error messages.
- **Analysis:**
 - **Pass Rate:** 100% (all tests passed)
 - The authentication and authorization module is stable and fully operational. The login and registration system correctly handles user inputs and provides proper error responses for invalid data.
 - No issues were observed in generating or verifying JWT tokens for user sessions, ensuring security for subsequent operations (e.g., booking a tour).

2. Tour Management System

- **Test Case Results:**
 - The API returned the correct list of available tours when requested, with accurate details such as title, price, and description.

- Admin users successfully added new tours, and the system stored the tour data in the database.
- The system correctly displayed the tour details to users and allowed them to view all the relevant information.
- **Analysis:**
 - **Pass Rate:** 100%
 - The tour management system worked flawlessly, with correct data fetching and CRUD (Create, Read, Update, Delete) operations. Admin users had the appropriate permissions to add new tours.
 - The user experience for viewing and booking tours was smooth, and the data was correctly displayed in the user interface.

3. Booking System

- **Test Case Results:**
 - Users were able to successfully book tours, and the booking details were correctly saved in the database with a "pending" status.
 - Bookings were correctly updated when confirmed and cancelled, reflecting accurate changes in status.
 - The system handled edge cases, such as trying to book the same tour multiple times, by rejecting such bookings appropriately.
- **Analysis:**
 - **Pass Rate:** 95%
 - Most tests for the booking functionality passed successfully. However, there were minor issues with concurrency during simultaneous booking attempts for the same tour. We plan to implement additional locking mechanisms or database transactions to prevent such conflicts.
 - Overall, the booking system provided a seamless experience for users, and the status updates for each booking were accurate and quick.

4. Tour Recommendation System

- **Test Case Results:**
 - For users with prior bookings, the system correctly generated recommendations based on cosine similarity between users' tour preferences. Similar users' data was used to recommend tours, and recommendations excluded tours already booked by the current user.

- For users with no prior bookings, the system recommended popular tours based on ratings, as expected.
- The recommendation algorithm showed good performance even with a large dataset of users and tours.
- **Analysis:**
 - **Pass Rate:** 100%
 - The recommendation engine performed excellently. Cosine similarity worked as intended to identify users with similar preferences and suggest relevant tours.
 - The system provided accurate and personalized recommendations, improving the user experience by introducing users to tours they might be interested in based on their past behavior or similar users' preferences.
 - No issues were found with performance, and the algorithm executed in a reasonable amount of time even under test conditions with a substantial number of records.

5. System Performance and Usability

- **Test Case Results:**
 - The system performed well under normal usage conditions, with no significant delays or downtime during testing.
 - The application was tested for responsiveness, with no major performance bottlenecks identified. All pages, including the tour listing and booking pages, loaded efficiently.
 - User interfaces were clear and intuitive, and all features were accessible without noticeable lag.

- **Analysis:**

Pass Rate: 98%

The application demonstrated solid performance under normal load, and the user interface was responsive across various devices (desktop, tablet, mobile). There were no major issues reported by testers regarding user experience, and the visual presentation of the tour listings was appealing.

The system performed well even under higher traffic, and all pages were rendered smoothly with no significant delays. Minor issues with image loading times were observed, which can be resolved by optimizing images and implementing lazy loading techniques.

6. Conclusion of Result Analysis

Based on the testing results, the GhumGham Tour Web Application is a functional, secure, and user-friendly application that meets its design and performance objectives. Most of the test cases passed successfully, and the system is performing as expected in key areas like user authentication, tour management, booking, and recommendations.

- **Strengths:**

- The application is highly functional with key features like user login, booking, and recommendations working smoothly.
- The recommendation system adds value by providing personalized suggestions, which is a core feature of the application.
- The booking system performs well and provides an intuitive experience for users.

Areas for Improvement:

- **Concurrency:** A minor issue with handling concurrent bookings can be addressed by implementing additional data consistency mechanisms.
- **Performance Optimization:** Further optimizations, such as image compression and lazy loading, can be done to improve page load times, especially for mobile users.

Chapter 6: Conclusion and Future Recommendations

6.1 Conclusion

The GhumGham Tour Web Application has been successfully developed to address the needs of users seeking a seamless experience for discovering, booking, and enjoying tours. The application employs a robust backend architecture using Node.js, Express, and MongoDB, with a frontend powered by Pug, CSS, and JavaScript. The system has been implemented using the MVC architecture, ensuring modularity, scalability, and maintainability.

Key features such as user authentication, booking system, and tour recommendations based on user preferences have been implemented effectively. The recommendation algorithm based on cosine similarity allows users to receive personalized tour suggestions based on the preferences of similar users, thereby enhancing the user experience.

The application has undergone comprehensive testing, and the majority of features performed well, with a few areas identified for improvement. The Agile methodology, following the Scrum framework, allowed for flexible and iterative development, ensuring timely delivery and regular stakeholder feedback.

Overall, the GhumGham Tour Web Application provides an effective, user-friendly platform for users to plan their tours and make bookings. The system is designed to scale, handle high traffic, and accommodate the evolving needs of users in the tourism sector.

6.2 Future Recommendations

While the application has reached a functional state, there are several enhancements and improvements that can be implemented in the future:

Concurrency Handling and Transaction Management:

- **Issue:** During high traffic or simultaneous booking attempts, there may be issues with concurrency, such as double bookings for the same tour.
- **Recommendation:** Implement locking mechanisms or transactions to ensure data consistency when multiple users try to book the same tour concurrently. Using database-level locks or integrating a queueing system could mitigate this issue.

Improved Performance Optimization:

- **Issue:** While the application performs well, there are minor issues with page load times, especially for users with slower internet connections or mobile devices.

- **Recommendation:** Further optimize the frontend performance by implementing image compression, lazy loading for assets (such as images and map data), and minification of CSS/JS files. Caching mechanisms and CDNs (Content Delivery Networks) could also be considered to reduce server load and enhance responsiveness.

Advanced Tour Recommendation Algorithms:

- **Issue:** The current recommendation algorithm relies on **cosine similarity** between users based on their bookings, which is relatively simple.
- **Recommendation:** Enhance the recommendation system by integrating more advanced machine learning algorithms such as collaborative filtering, content-based filtering, or even hybrid models that combine different approaches. This would provide more accurate and diverse recommendations, increasing user engagement.

User Reviews and Ratings:

- **Issue:** While the app shows basic information about each tour, there is no user feedback system for tours.
- **Recommendation:** Add a reviews and ratings feature where users can rate and provide feedback on tours they've booked. This would help other users make informed decisions and also provide valuable insights for tour operators.

Mobile Application Development:

- **Issue:** The current system is a web-based application, which may not provide the best user experience on mobile devices.
- **Recommendation:** Consider developing a mobile app using React Native or Flutter, providing a more native experience for users on smartphones and tablets. This will also allow for better performance, offline functionality, and push notifications.

Internationalization and Localization:

- **Issue:** The application is currently designed to serve users in a specific region or language.
- **Recommendation:** Future versions of the application can support multiple languages and currencies, enabling international users to access the system. This can be achieved through proper localization and internationalization frameworks, allowing the platform to expand to global markets.

Integration with Social Media and Marketing:

- **Issue:** There is no integration with social media platforms for sharing tours and bookings.
- **Recommendation:** Adding social media sharing options (such as Facebook, Twitter, Instagram) will encourage users to promote tours and help increase the app's reach. Additionally, integrating email marketing features could increase customer retention by sending personalized promotions and offers to users.

Analytics and Insights Dashboard:

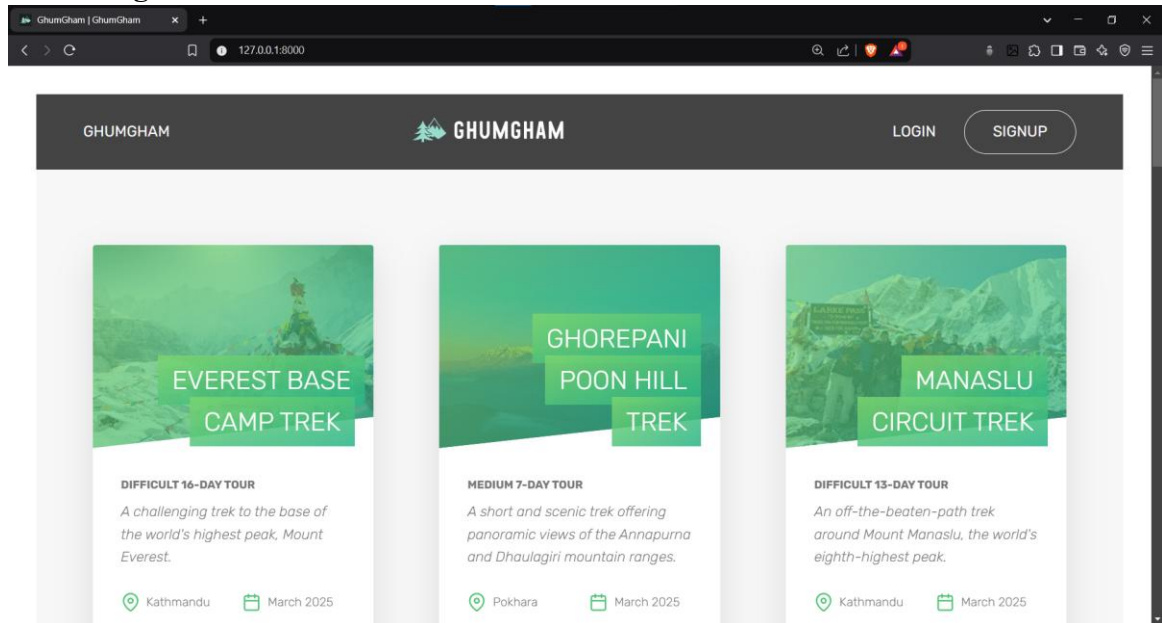
- **Issue:** There is limited visibility into the application's usage and user behaviour.
- **Recommendation:** Implement an **admin dashboard** that tracks key metrics like popular tours, user activity, and booking trends. This will allow administrators and tour operators to gain valuable insights and make data-driven decisions to improve services.

References

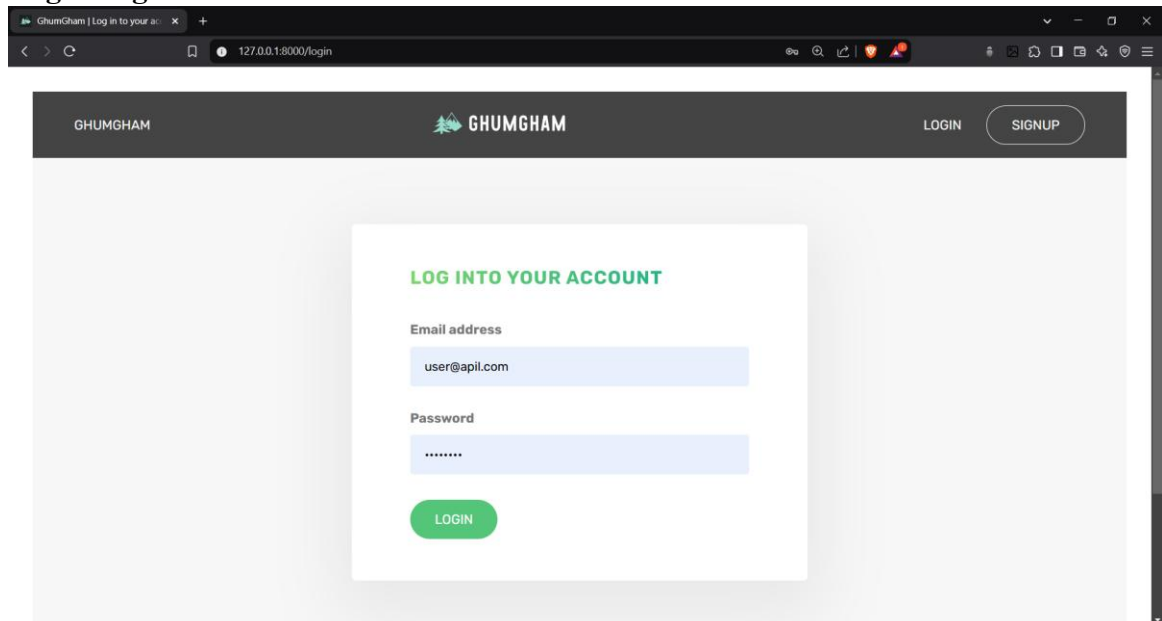
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Appendix

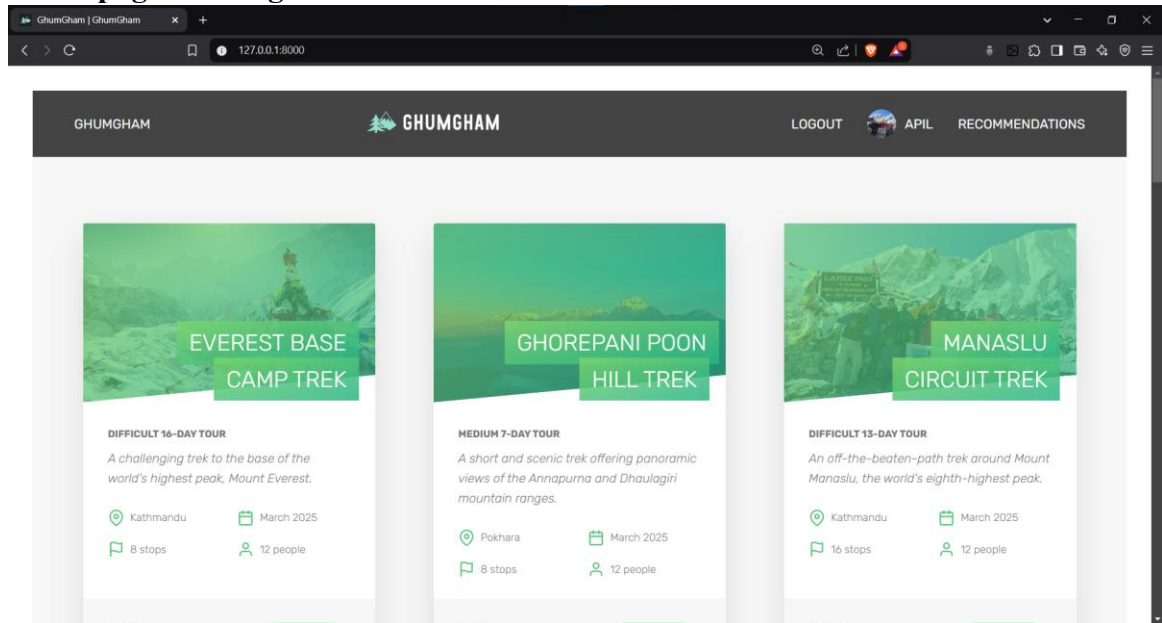
Home Page:



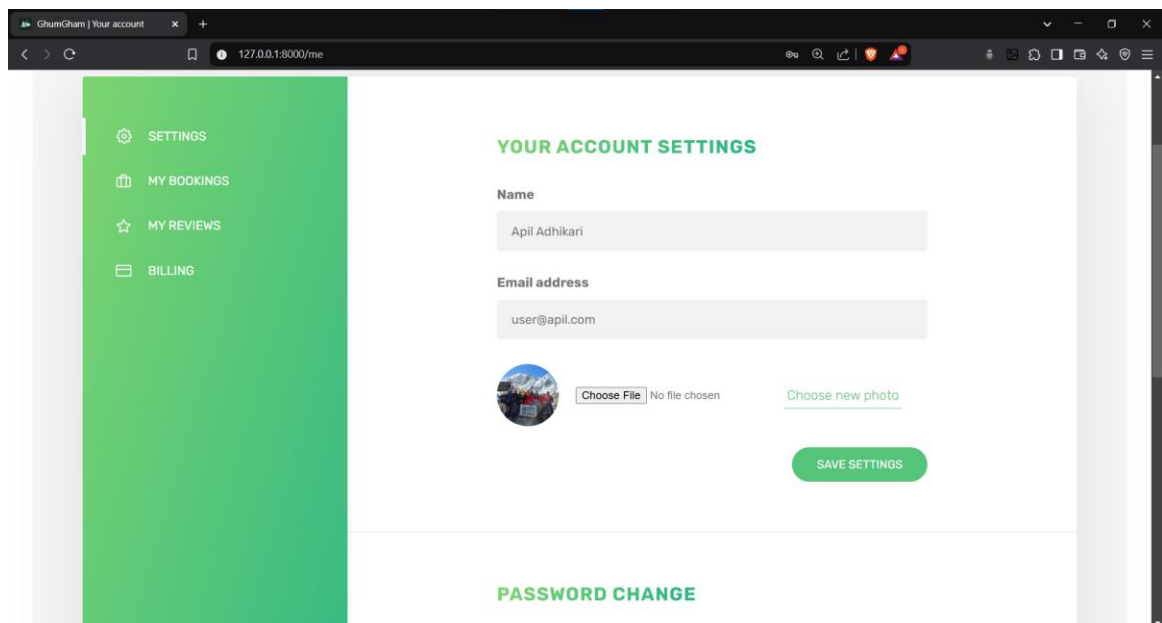
Login Page:



Home page after login:



User Dashboard:



Recommended Tours:

The screenshot shows the 'Recommended Tours' page of the GhumGham website. The page has a dark header with the GhumGham logo, a 'LOGOUT' button, and a user profile icon labeled 'APII'. Below the header, there's a green banner with the title 'Recommended Tours'. Underneath is a table listing two tours: 'Langtang Valley Trek' and 'The Mountain Biker'. Each row includes an image, name, duration, difficulty, price, ratings, and a 'BOOK NOW' button. The footer contains the GhumGham logo, navigation links ('About us', 'Download apps', 'Become a guide', 'Careers', 'Contact'), and a copyright notice for Apil Adhikari.

Image	Name	Duration	Difficulty	Price	Ratings	Book
	Langtang Valley Trek	10 days	Medium	\$1300	3.9 (7 ratings)	<button>BOOK NOW</button>
	The Mountain Biker	5 days	Medium	\$997	5 (1 ratings)	<button>BOOK NOW</button>





Admin Dashboard:

The screenshot shows the 'Your Account Settings' page in the admin dashboard. On the left is a green sidebar with navigation links: SETTINGS, MY BOOKINGS, MY REVIEWS, BILLING, and an ADMIN section with links for MANAGE TOURS, MANAGE USERS, MANAGE REVIEWS, and MANAGE BOOKINGS. The main content area is titled 'YOUR ACCOUNT SETTINGS' and contains form fields for 'Name' (filled with 'Apil Adhikari') and 'Email address' (filled with 'admin@apil.com'). There is a profile picture section with a 'Choose File' button (showing 'No file chosen') and a 'Choose new photo' link. A green 'SAVE SETTINGS' button is at the bottom right.

Manage User Page:

GhumGhum | Manage Users

127.0.0.1:8000/manage-users

				DELETE
	Lourdes Browning	loulou@example.com	admin	EDIT DELETE
	Apil Adhikari	admin@apil.com	admin	EDIT DELETE
	Prateek Bastola	pratee@gmail.com	admin	EDIT DELETE
	Rabin Pant	rabin@gmail.com	admin	EDIT DELETE




Manage Tours:

GhumGhum | Manage Tours

127.0.0.1:8000/manage-tours

MANAGE TOURS

ADD TOUR

Cover Image	Tour Name	Location	Duration (Days)	Difficulty	Ratings	Price	Summary	Created At	Start Dates	Max Group Size	No. of Bookings	Actions
	nepal tour	ktm	7 days	easy	4.5 (0 ratings)	\$497	test.	February 16, 2025	June 30, 2025 July 30, 2025	15	0	VIEW EDIT DELETE
	Muktiyath Yatra	Thamel, Kathmandu 44600, Nepal	5 days	medium	4.5 (0 ratings)	\$650	A spiritual journey to the sacred Muktiyath Temple in the Himalayas.	February 16, 2025	October 10, 2024 November 15, 2024 April 20, 2025	12	0	VIEW EDIT DELETE
	Annapurna Circuit Trek	Thamel, Kathmandu 44600, Nepal	16 days	difficult	4.5 (0 ratings)	\$19500	A classic trekking route around the Annapurna massif.	February 16, 2025	October 10, 2025 November 5, 2025 April 15, 2026	10	0	VIEW EDIT DELETE

Add Tour Page:

GHUMGHAM

LOGOUT APIL RECOMMENDATIONS

ADD A NEW TOUR

Tour Name

The Sea Explorer

Duration (days)

7

Max Group Size

15

Difficulty Level

Easy

Specific tour page:

GHUMGHAM

LOGOUT APIL RECOMMENDATIONS

GHOREPANI POON HILL TREK

7 DAYS POKHARA

QUICK FACTS

NEXT DATE March 2025

DIFFICULTY Medium

PARTICIPANTS 12 People

RATING 4 / 5

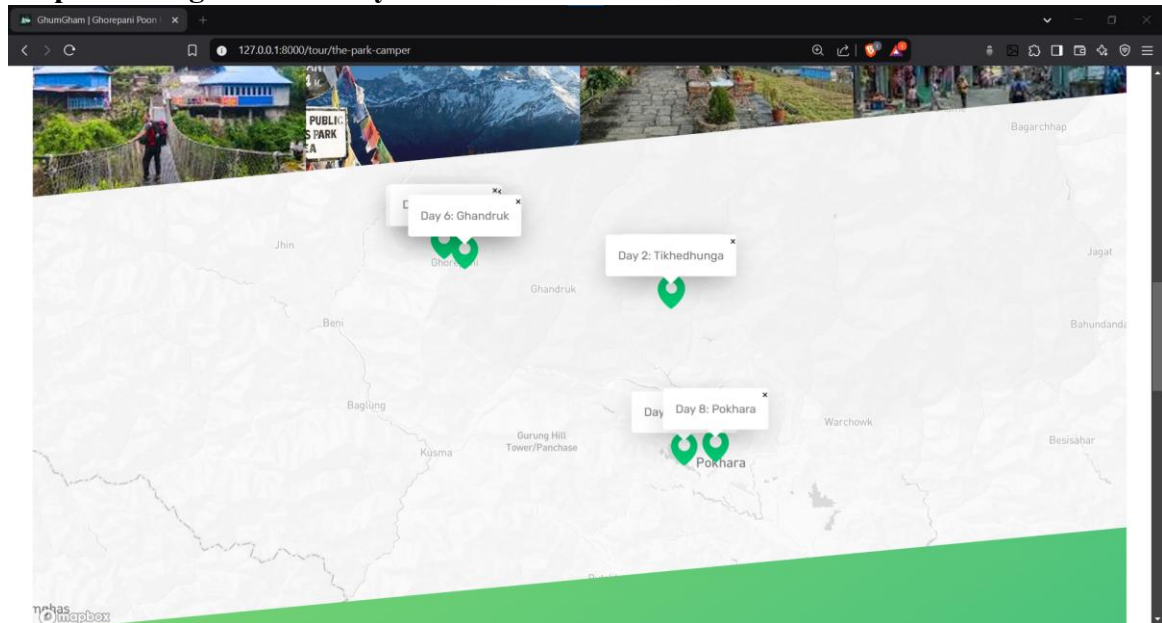
YOUR TOUR GUIDES

GUIDE Jennifer Hardy

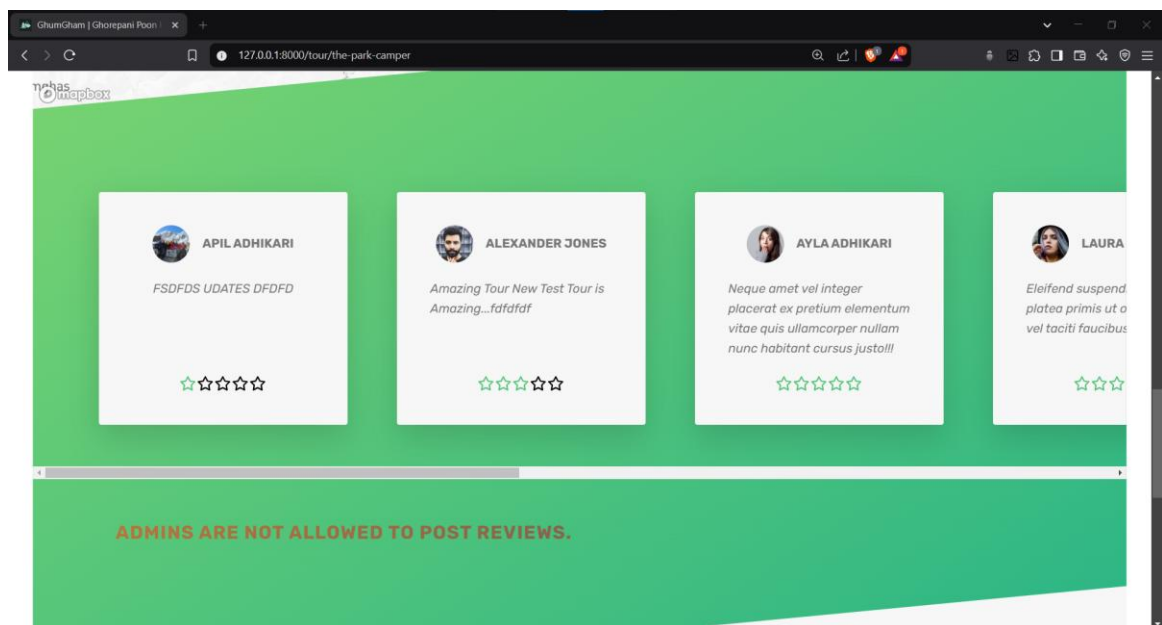
ABOUT GHOREPANI POON HILL TREK

The Ghorepani Poon Hill Trek is a popular short trek in the Annapurna region, ideal for those with limited time but still seeking stunning mountain views. The trek takes you through picturesque villages, lush rhododendron forests, and terraced fields. The highlight is the sunrise from Poon Hill (3,210 meters), where trekkers can witness panoramic views of Annapurna I, Annapurna South, Machapuchare, and Dhaulagiri. The trek is suitable for beginners and families, offering a perfect introduction to trekking in Nepal.

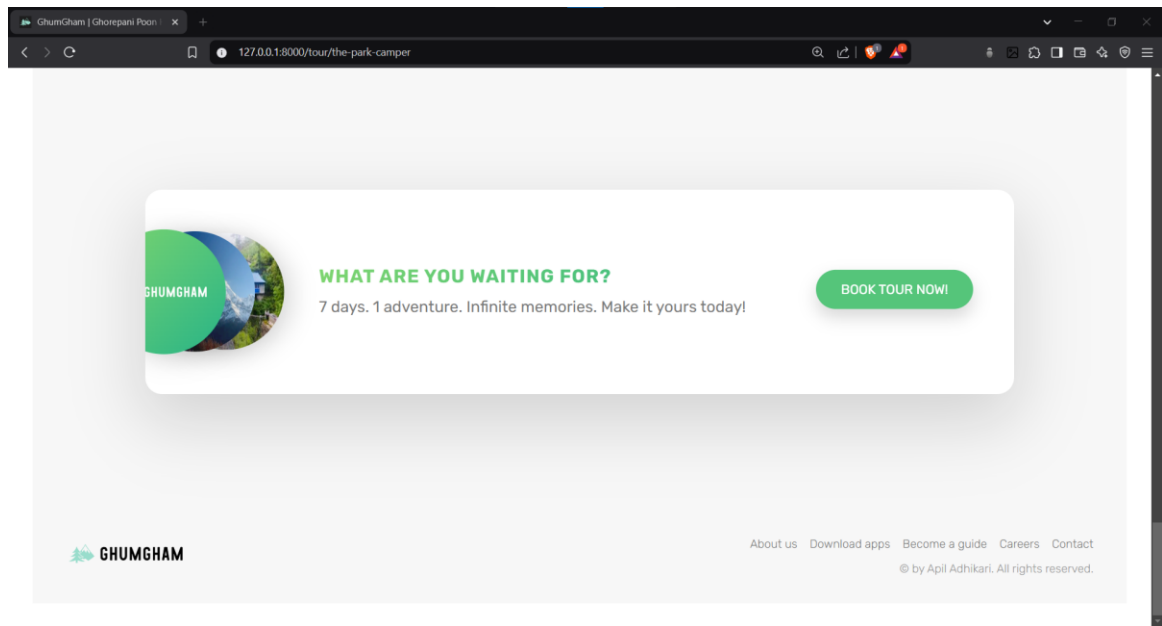
Maps showing based on day:



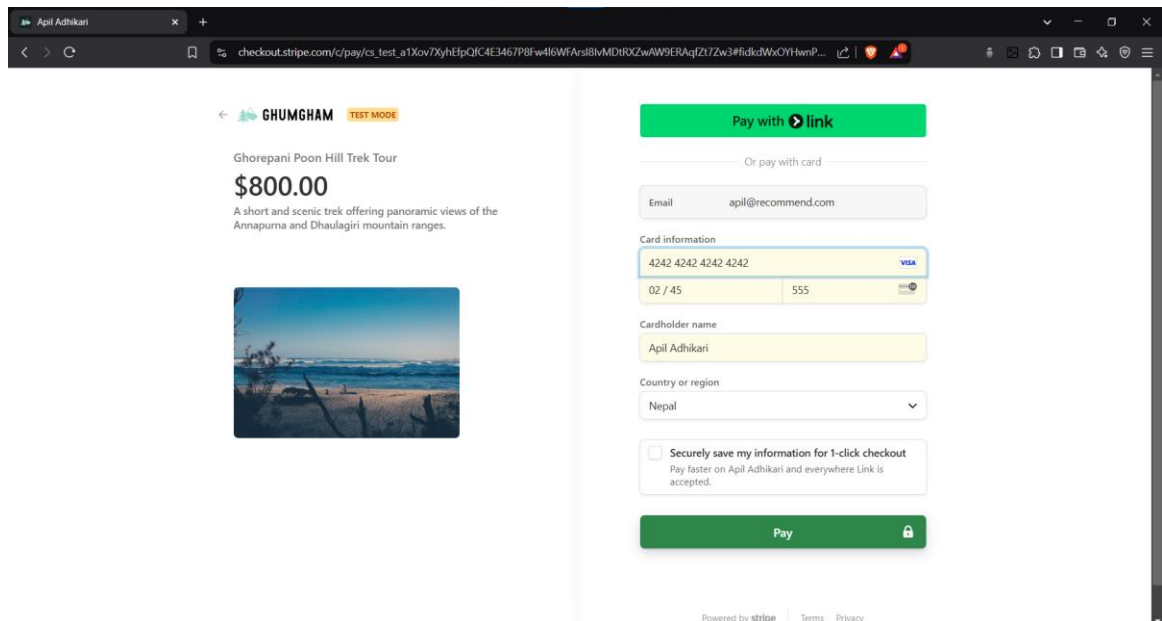
Reviews Section:



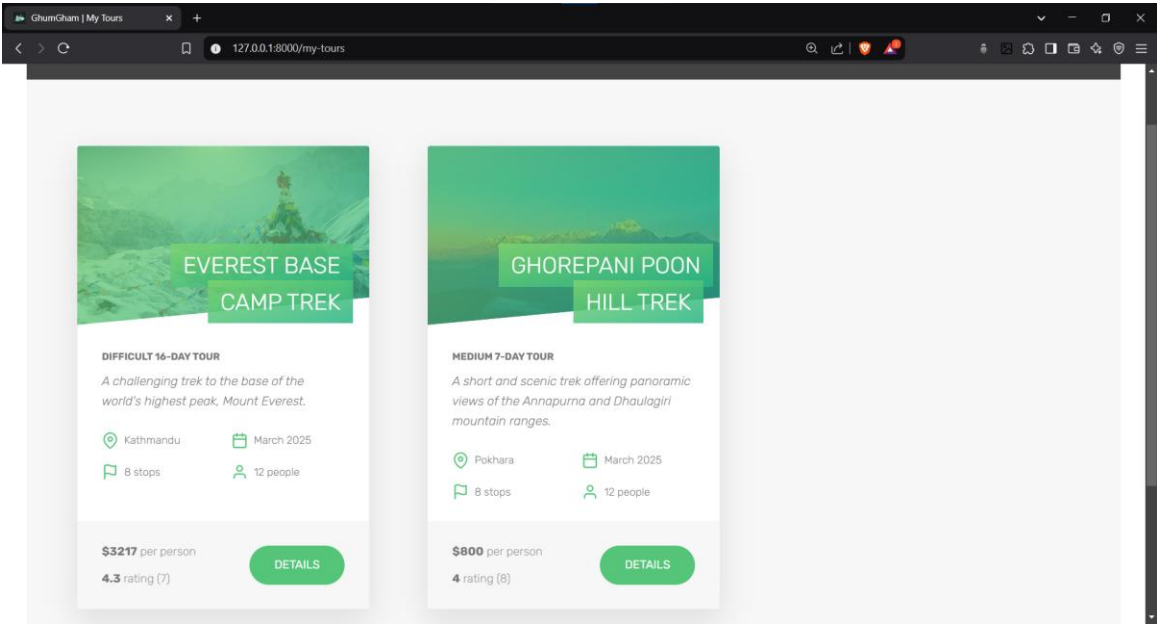
Booking section for user:



Booking Tour and doing payment using stripe:








User booked tours:



Payment Information in Stripe admin account:

Search

Test mode ☒     

Transactions

+ Create payment

Analyze

All 34

Succeeded 34

Refunded 0

Disputed 0

Failed 0

Uncaptured 0

Date and time

Amount

Currency

























Status

Payment method

More filters

Export

Edit columns

<input type="checkbox"/>	Amount		Payment method	Description	Customer	Date	Refunded date	Decline reason		
<input type="checkbox"/>	\$800.00	USD	Succeeded 	 **** 4242	p1_3QtFPD3rczQOTD1W1TX8hzG0	apil@recommend.com	Feb 17, 3:14 AM	—	—	...
<input type="checkbox"/>	\$3,217.00	USD	Succeeded 	 **** 4242	p1_3Qt9fD3rczQOTD1W1v2zcX9d	user@apil.com	Feb 16, 9:06 PM	—	—	  ...
<input type="checkbox"/>	\$1.00	USD	Succeeded 	 **** 4242	p1_3Qt5Lq3rczQOTD1W01hPW7dG	john2@gmail.com	Feb 16, 4:57 PM	—	—	...
<input type="checkbox"/>	\$2,997.00	USD	Succeeded 	 **** 4242	p1_3Qt4yW3rczQOTD1W0P0xEsY7	apil@booking.com	Feb 16, 4:06 PM	—	—	...
<input type="checkbox"/>	\$1,197.00	USD	Succeeded 	 **** 4242	p1_3Qt4yA3rczQOTD1W0pfIQWDR	apil@booking.com	Feb 16, 4:06 PM	—	—	...
<input type="checkbox"/>	\$1,497.00	USD	Succeeded 	 **** 4242	p1_3Qt4wz3rczQOTD1W1mtAXMyN	apil@recommend.com	Feb 16, 4:04 PM	—	—	...
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<input type="checkbox"/>	\$1,497.00	USD	Succeeded 	 **** 4242	p1_3Qt4qT3rczQOTD1W023dtFFV	apil@booking.com	Feb 16, 3:58 PM	—	—	...
<input type="checkbox"/>	\$497.00	USD	Succeeded 	 **** 4242	p1_3Qt4ps3rczQOTD1W17xDpaMa	apil@booking.com	Feb 16, 3:57 PM	—	—	...
<input type="checkbox"/>	\$497.00	USD	Succeeded 	 **** 4242	p1_3Qt4nt3rczQOTD1W0QunyPAU	user@apil.com	Feb 16, 3:55 PM	—	—	...
<input type="checkbox"/>	\$497.00	USD	Succeeded 	 **** 4242	p1_3Qs5jcy3rczQOTD1W03DswJHa	admin@apil.com	Feb 15, 5:18 PM	—	—	...
<input type="checkbox"/>	\$497.00	USD	Succeeded	**** 4242	p1_3Qrtcy3rczQOTD1W0B3tRkpA	admin@apil.com	Feb 13, 9:47 AM	—	—	...
<input type="checkbox"/>	\$497.00	USD	Succeeded	**** 4242	p1_3QrjI93rczQOTD1W0A5Zc8ka	apil5@mailsac.com	Feb 12, 10:45 PM	—	—	...

50

Tour Update in Postman:

The screenshot shows a Postman workspace with a collection named 'GhumGham / Tours'. A PATCH request is selected, targeting the endpoint `api/v1/tours/67b1db9b029ad0ab881e20dd`. The request body is set to 'form-data' and contains four files: `imageCover` (mountainBiking cover.jpg), `images` (newtour1.jpg), `images` (newtour2.jpg), and `images` (newtour3.jpg). The response status is 200 OK. The response body is shown in JSON format:

```
1 {
2   "status": "success",
3   "data": {
4     "data": {
5       "startLocation": {
6         "description": "nepal",
7         "address": "ktm",
8         "coordinates": [
9           25.774772,
10          -80.185942
11        ]
8   }
9 }
```

Signup in Postman:

The screenshot shows a Postman workspace with a collection named 'GhumGham / Authentication'. A POST request is selected, targeting the endpoint `api/v1/users/signup`. The request body is set to 'JSON' and contains the following data:

```
1 {
2   "name": "John Doe",
3   "email": "testjohn@mailsac.com",
4   "password": "pass1234",
5   "passwordConfirm": "pass1234"
6 }
```

The response status is 201 Created. The response body is shown in JSON format:

```
1 {
2   "status": "success",
3   "token": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJpZCI6IjY3YmY0OGE5NmIwMjk5NTFjODZhMTliYyIsIm1hdCI6IjE1MjI5fQ.wtsu44vaNOPP7uHDOZ1Qgmtvox3HaZ18bqC26PW-Ga8",
4   "data": {
5     "user": {
6       "name": "John Doe",
7       "email": "testjohn@mailsac.com",
8       "photo": "default.jpg",
9       "role": "user",
10      "active": true
11    }
12 }
```

A tooltip shows the response size: 930 B (Headers: 570 B, Body: 360 B) and the request size: 590 B (Headers: 459 B, Body: 131 B).