

Travel and Tour Place Recommendation Management System

by

Md Jashim Uddin
ID: CSE2201025169

Md Abir Hossain
ID: CSE2201025146

Ummay Habiba Asha
ID: CSE1701010033

Limon Shikdar
ID: CSE1802014065

Supervised by
Prof. Bulbul Ahamed

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Bachelor of Science in Computer Science and Engineering



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APPROVAL

The project titled “Travel and Tour Place Recommendation Management System” was submitted by Md. Jashim Uddin (CSE2201025169), Md Abir Hossain (CSE2201025146), Ummay Habiba Asha (CSE 1701010033) and Limon Shikdar (CSE1802014065) to the Department of Computer Science and Engineering, Sonargaon University (SU), has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents.

Board of Examiners

Bulbul Ahamed
Professor and Head,
Department of Computer Science and Engineering
Sonargaon University (SU)

Supervisor

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 1

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 2

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 3

DECLARATION

We hereby declare that the work presented in this report is the outcome of the investigation performed by us under the supervision of Bulbul Ahamed, Professor and Head, Department of Computer Science and Engineering, Sonargaon University, Dhaka, Bangladesh. We reaffirm that no part of this project has been or is being submitted elsewhere for the award of any degree or diploma.

Countersigned

Signature

Prof. Bulbul Ahamed
Supervisor

Md. Jashim Uddin
ID: CSE2201025169

Md Abir Hossain
ID: CSE2201025146

Ummay Habiba Asha
ID: CSE1701010033

Limon Shikdar
ID: CSE1802014065

ABSTRACT

Travel planning has become increasingly complicated due to the lack of centralized and well-organized information about tourist destinations. To address this issue, this project presents a web-based system titled “Travel and Tour Place Recommendation Management System.” The primary goal of this system is to assist users in discovering suitable travel destinations efficiently based on divisions, districts, and types of attractions. The system allows users to search and explore tourist spots through an easy-to-navigate interface and provides detailed information, including location, transportation options, entry fees, opening and closing times, and maps. A secure authentication mechanism enables users to create accounts, log in, and access a customized user dashboard. An integrated AI Travel Assistant improves the system by providing intelligent, real-time responses to user queries about travel destinations. However, the AI assistant does not support image generation or multimedia integration, and the system currently lacks features such as booking systems and mobile applications. These limitations are recognized and will be taken into account in future development. Additionally, an admin panel is implemented to manage divisions, districts, attractions, tourist spots, and user messages effectively. The proposed system intends to simplify travel decision-making, improve access to tourism-related information, and provide a scalable platform that can be extended in the future with features such as booking systems, mobile applications, and advanced AI-based recommendations. Overall, this project demonstrates an effective application of web technologies and artificial intelligence in the tourism domain.

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
API	Application Programming Interface
CI	Continuous Integration
CSS	Cascading Style Sheets
DFD	Data Flow Diagram
ER	Entity Relationship
JS	JavaScript (implied in React.js, Node.js, Express.js, Ajax.js)
NLP	Natural Language Processing
NoSQL	Not Only SQL (database type)
ORM	Object-Relational Mapping
PHP	Hypertext Preprocessor
QA	Quality Assurance
UI	User Interface
UX	User Experience
VS Code	Visual Studio Code

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Tourism has become one of the most vibrant and rapidly expanding sectors globally, playing a key role in economic development and cultural interaction [1]. With greater availability of affordable transportation and widespread internet connectivity, more travelers are exploring a wider range of destinations. (Rebstock, n.d.) However, planning trips often remains difficult due to a lack of organized, trustworthy, and readily available information about particular tourist destinations.

Currently, travelers frequently depend on fragmented sources such as social media feeds, personal blogs, and independent websites to find information. These sources are often disorganized, inconsistent, and time-consuming to consult. As a result, users struggle to find the most appropriate travel destinations that match their particular preferences, location, and preferred attractions. (Fischer, 2025)

To resolve these difficulties, this project proposes a web-based platform titled “Travel and Tour Place Recommendation Management System.” The system is designed to provide a centralized, organized platform for users to search for, explore, and select tourist destinations. By permitting users to filter spots by administrative divisions, districts, and attraction types, the system guarantees a highly organized, easy-to-use experience.

Furthermore, incorporating an AI-powered Travel Assistant substantially elevates the system by delivering intelligent, real-time responses to user inquiries. The platform incorporates secure user authentication, tailored dashboards, and a comprehensive admin panel for instantaneous oversight of tourism data. This project showcases the flawless integration of contemporary web technologies—HTML, CSS, JavaScript, PHP, and MySQL—and artificial intelligence to simplify travel planning and boost user participation.

1.2 Problem Statement

Despite the rapid expansion of the tourism industry, travelers still encounter major challenges when planning trips. A key issue is the lack of a consolidated platform that provides comprehensive, structured, and precise information about tourist destinations. Information about tourist spots is typically scattered throughout various websites, social media channels, and travel blogs, making it difficult to compare and choose optimal destinations.

Another key problem is the lack of tailored recommendations. Most existing platforms deliver generic content and do not consider user preferences, such as location, attraction type, and availability. As a result, users spend significant time searching for relevant particulars without finding satisfactory outcomes. (Khan & Chowdhury, 2024, pp. 55-71)

Additionally, many travel-related websites lack comprehensive administrative management systems. Updating information on tourist destinations, managing site listings, and interacting with

user inquiries frequently need manual labor, which can lead to archaic or inaccurate data. Security issues, for example, a lack of security authentication measures, can further erode user dependability in these platforms. (2023 Bangladesh Government website data breach, 2023)

Furthermore, the absence of intelligent assistance limits user interaction. Users often need instant answers to specific travel-related questions, but traditional systems commonly fail to deliver them effectively. (Khan & Chowdhury, 2024, pp. 55-71) These limitations point out the requirement for a well-organized, secure, and intelligent travel recommendation system.

The Travel and Tour Place Recommendation Management System intend to deal with these issues by providing a consolidated platform with structured data, AI-based assistance, secure authentication, and optimized data management via an admin panel.

1.3 Motivation and Objectives

The motivation for developing this project stems from the increasing demand for smart, effective travel planning solutions. As travel becomes more frequent, users expect quick access to accurate information and tailored suggestions. Observing the difficulties travelers face in finding suitable destinations inspired the development of this system.

Another key motivation is the application of state-of-the-art web technologies and artificial intelligence in solving real-world problems. Integrating an AI Travel Assistant allows users to interact with the system dynamically and receive instant responses to travel-related queries. This project also provides a chance to acquire practical experience in full-stack web development and system design.

The main objectives of the project are as follows:

- To develop a centralized web-based platform for travel destination information
- To enable users to search tourist spots based on division, district, and attraction type
- To implement a secure user authentication and dashboard system
- To integrate an AI-based travel assistant for intelligent user interaction
- To provide an admin panel for efficient management of tourist data
- To ensure usability, scalability, and data security.

By meeting these goals, the system strives to improve the complete travel planning demonstration and highlight the practical use of AI and web technologies in the tourism sector.

1.4 Project Scope

The scope of the Travel and Tour Place Recommendation Management System includes the design and development of a complete web-based application that serves both users (Chu et al., 2025) and administrators. The system allows users to explore tourist destinations by filtering information based on geographical divisions, districts, and attraction types. The project encompasses fundamental functionalities, including user registration, login, profile management, and AI-assisted travel queries. Users can access comprehensive information about tourist spots, including transportation options, entry fees, operating hours, maps, and images.

From an administrative perspective, the system allows streamlined management of divisions, districts, attractions, tourist spots, and user messages. Admins can add, update, and manage data through a secure admin panel. However, the current system's scope does not include online booking, payment processing, or AI-based image generation. These features are considered potential future enhancements. The system is designed to be scalable, allowing additional features such as hotel booking, ticket reservation, mobile application support, and multilingual interfaces to be integrated later.

1.5 Project Significance

The successful implementation of the Travel and Tour Place Recommendation Management System results in a functional and easy-to-use web application that simplifies travel planning. The system provides users with organized and reliable information about tourist destinations, reducing the time and effort required to search for travel-related data. Users gain advantages from secure authentication, personalized dashboards, and an AI Travel Assistant that improves interaction and access to information. The filtering mechanism based on divisions, districts, and attraction types provides reliable destination selection. From an administrative viewpoint, the system offers a well-organized data administration solution. Admins can easily manage tourist information, respond to user messages, and maintain updated records. The use of state-of-the-art web technologies guarantees system reliability, security, and extensibility.

Overall, the project demonstrates a practical application of web development and artificial intelligence concepts. It acts as a base for future enhancements and actual deployment in the tourism sector.

1.6 Report Organization

This project report is organized into seven chapters, each focusing on a particular stage of the system development life cycle. The organization of the report is as follows:

- Chapter 1: Introduction – Provides the background of the study, identifies the problem, defines the project objectives, and outlines the overall scope and significance of the system.
- Chapter 2: Literature Review – Explores existing travel suggestion engines and previous research. This chapter discusses the shortcomings of present solutions and establishes the conceptual framework for the proposed system.
- Chapter 3: Methodology – Describes the systematic approach used to develop the project. It covers the software development life cycle (SDLC) model and the tools and technologies (PHP, MySQL, AI) selected for implementation.
- Chapter 4: Requirement Analysis and Design Specification – Details the functional and non-functional requirements. It also includes the system design, featuring UML diagrams like Use Case and Activity diagrams to visualize the system architecture.

- Chapter 5: Implementation and Testing – Focuses on the actual coding phase and the testing protocols. It showcases the user interface, backend logic, and the results of multiple test scenarios to guarantee system dependability.
- Chapter 6: Impact on Society, Environment, and Sustainability – Analyzes how the system affects the community, promotes green tourism, and maintains enduring sustainability through principled data practices.
- Chapter 7: Conclusion, Limitation, and Future Work – Summarizes the project's achievements, acknowledges its present restrictions, and implies prospective enhancements for future iterations.

CHAPTER 2

LITERATURE AND EXISTING APPLICATION REVIEW

2.1 Literature Review

The swift progress of information technology has deeply impacted the global tourism industry, shifting it toward a more digital-centric model [2]. With the broad acceptance of the internet and smart devices, modern travelers more frequently depend on integrated web-based platforms to access up-to-the-minute information and plan their journeys. A comprehensive literature review is essential to understanding the existing systems, methodologies, and technical structures that oversee contemporary travel recommendation and management systems [3].

This chapter reviews prior research, evaluates existing travel recommendation platforms, and discusses the architectural concepts used to develop similar systems. Through reviewing related work, it is possible to identify major shortcomings and constraints in existing solutions, such as data inconsistency or a lack of user-centric filtering [4]. These observations deliver a foundation for designing an improved system that coordinates functionality and capability. Furthermore, this chapter defines the key terminologies and testing standards applied throughout this project to ensure technical clearness and harmonization in its implementation [5].

2.2 Related Works

The development of the Travel and Tour Place Recommendation Management System involved the purposeful selection of both back-end and front-end technologies to provide an uninterrupted, efficient implementation of site capabilities. The system is designed to provide users with individualized travel destination recommendations and easy access to relevant tourism information. This web-based solution aims to simplify travel planning through a user-friendly and organized platform. Additionally, the system has been developed with future expandability in mind, enabling the embedding of hotel management and booking features to strengthen overall journey management capabilities.

HTML5 [6]:	HTML5 (Hyper Text Markup Language) is used to structure the web application by defining elements such as headings, paragraphs, forms, links, multimedia content, and layout sections. It provides a semantic and accessible foundation for building modern web interfaces.
CSS [7]:	CSS3 (Cascading Style Sheets) is utilized to control the visual presentation of the website. It enables responsive design, layout customization, animations, and styling enhancements, ensuring a clean, user-friendly, and visually appealing interface.

React [8]:	React, a JavaScript library, allows developers to create interactive user interfaces. Its component-based architecture facilitates efficient development and updates of web applications by breaking down the UI into reusable components.
PHP (Laravel Framework) [9]	Laravel is a powerful PHP framework used for backend development. It follows the Model-View-Controller (MVC) architecture, providing features such as routing, authentication, form validation, and security, which contribute to a scalable and maintainable application structure.
MySQL [10]:	MySQL is a relational database management system used to store and manage structured data efficiently. It handles user information, tourist spot details, recommendations, and system-related records, ensuring reliable data storage and fast retrieval.

Several researchers and developers have proposed web- and mobile-based travel-suggestion platforms over the years. Many existing systems focus on providing destination information, hotel booking, and transportation services. Popular travel websites such as:

TripAdvisor is one of the world’s most popular travel platforms, providing trusted reviews, ratings, and recommendations for tourist destinations, hotels, restaurants, and travel experiences [11].

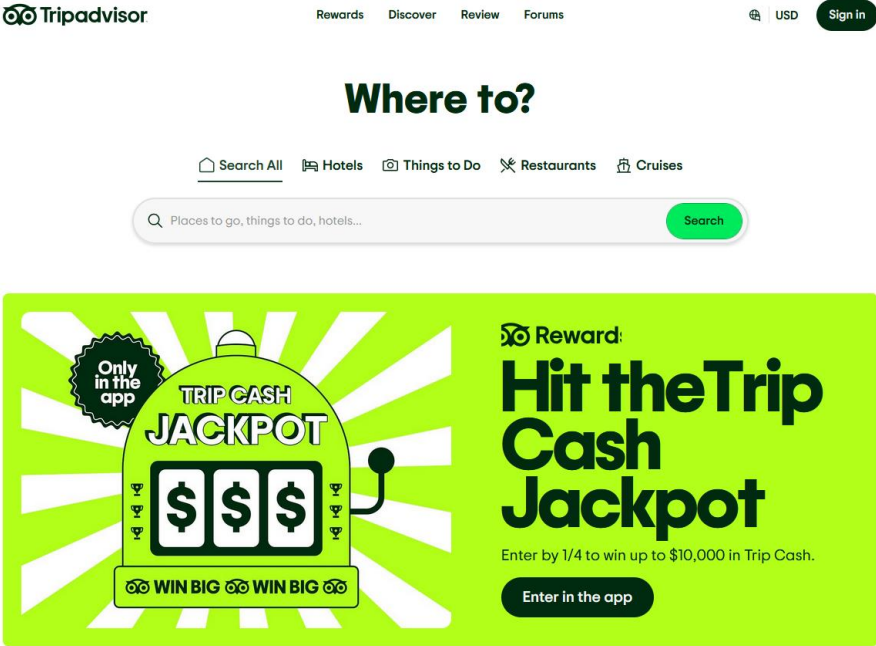


Figure 2.1: TripAdvisor

Booking.com is one of the world's leading online travel platforms, widely used for booking hotels, accommodations, and travel services with ease and reliability [12].

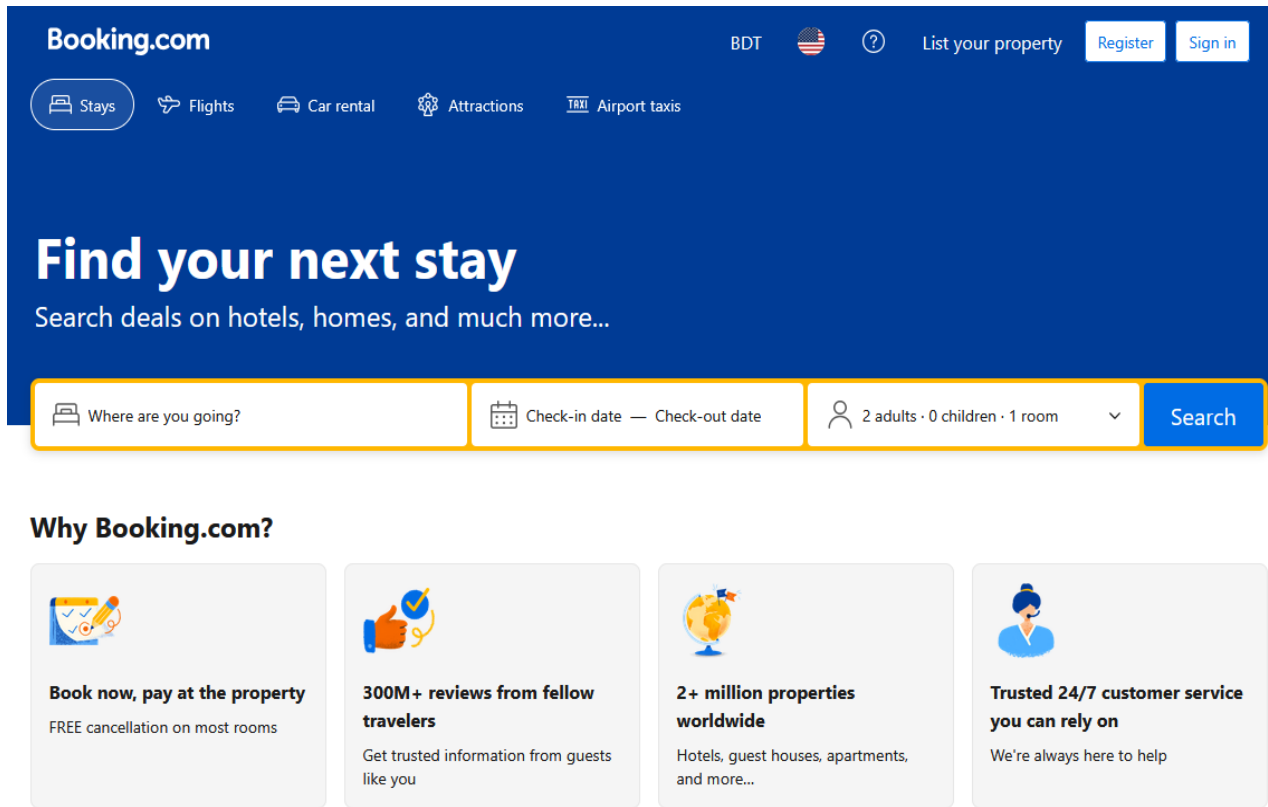


Figure 2.2: Booking.com

Travel with Google is your smart guide to remarkable trips. It is a popular website for travelers. Google Travel offers extensive travel-related data and user reviews [13].

Discover these trending destinations



London

United Kingdom

[Search flights](#) 



San Juan

Puerto Rico

[Search flights](#) 



Puerto Vallarta

Mexico

[Search flights](#) 

Figure 2.3: Travel with Google

Musement Platform for tours, activities, museums & more around the world [14].



Figure 2.4: Musement

Wikivoyage A collaborative travel guide with destination info [15].

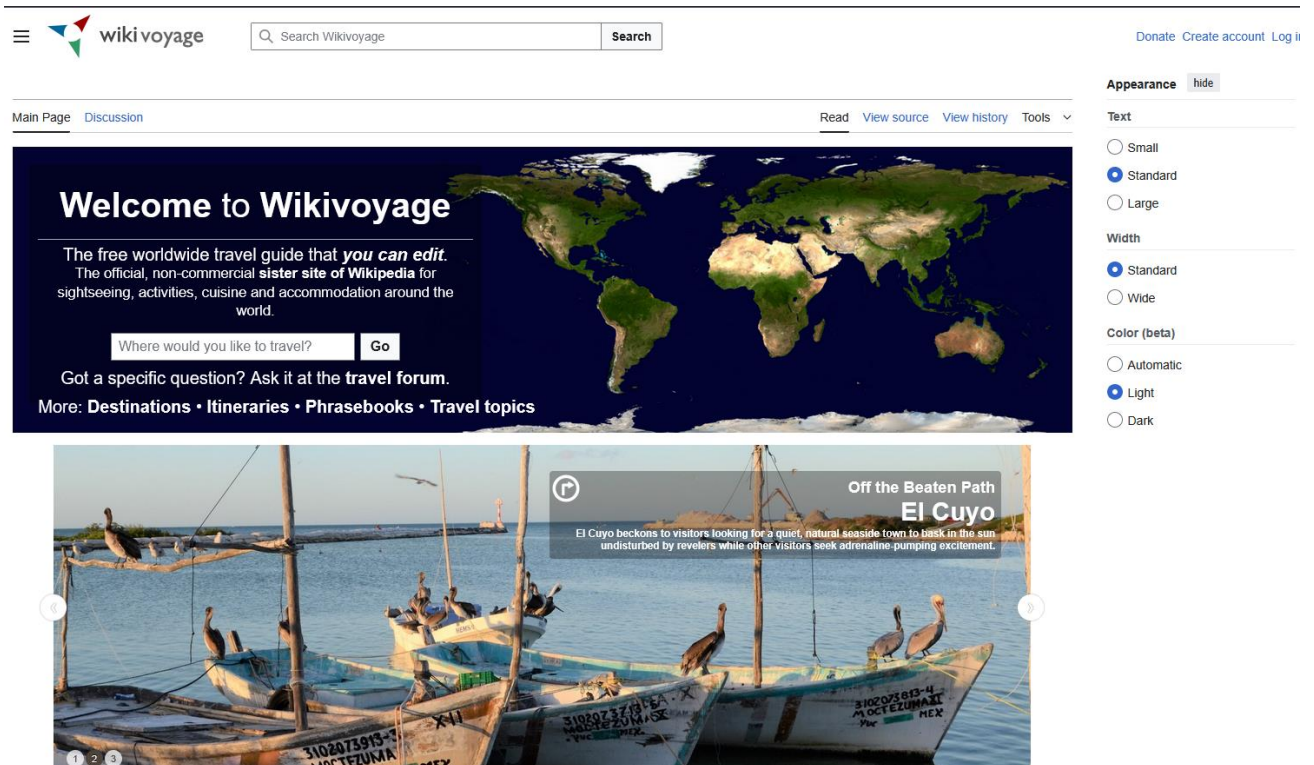


Figure 2.5: Wikivoyage

Lonely planet A huge platform for any kind of trip [16].

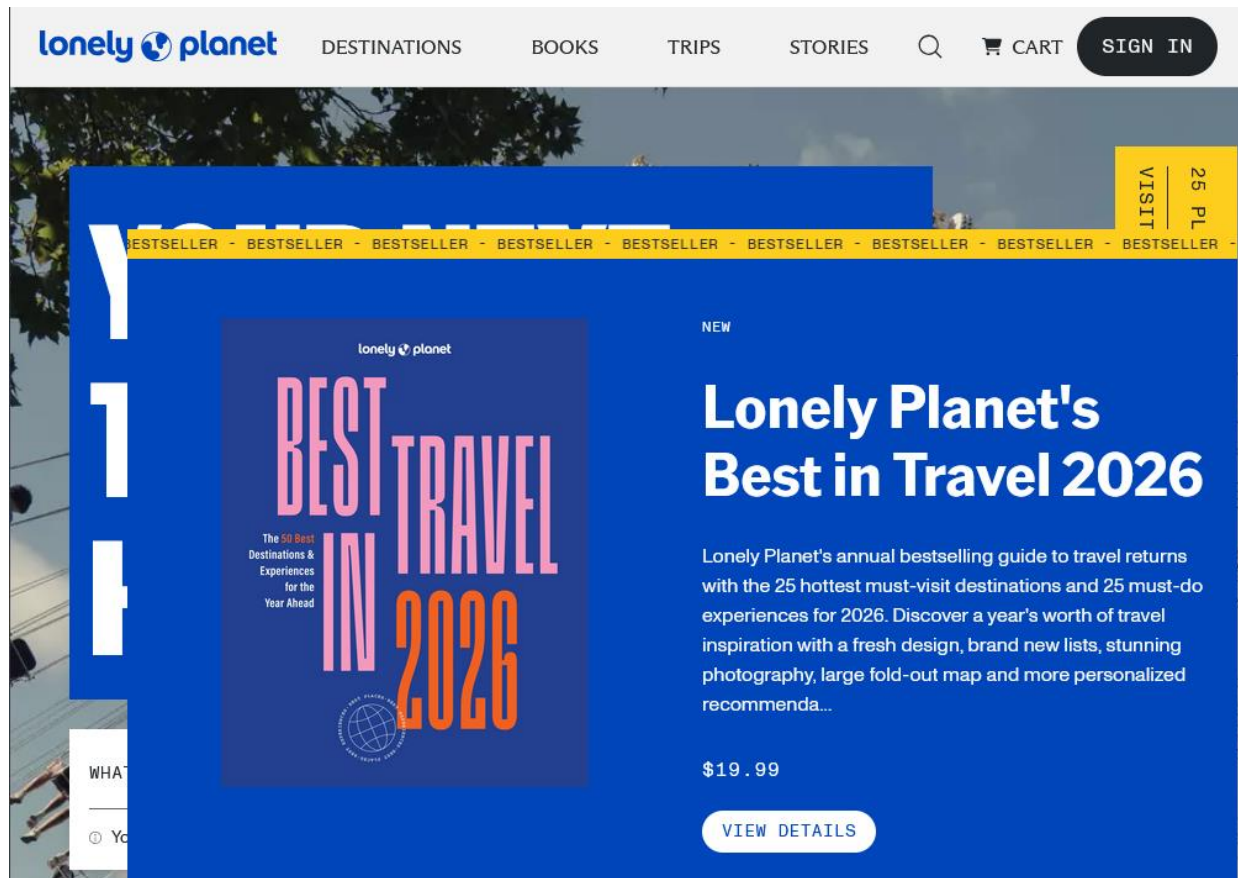


Figure 2.6: Lonely planet

World Travel Guide: The World Travel Guide (WTG) is the flagship digital consumer brand within the Columbus Travel Media portfolio. Available in English, German, and Spanish, the WTG provides detailed, accurate travel content designed to motivate worldwide travellers. It covers all aspects, from cities to airports, cruise ports to ski and beach resorts, attractions to events, and it also includes offbeat travel news, stories, quizzes, and guides for adventurous travellers [17].

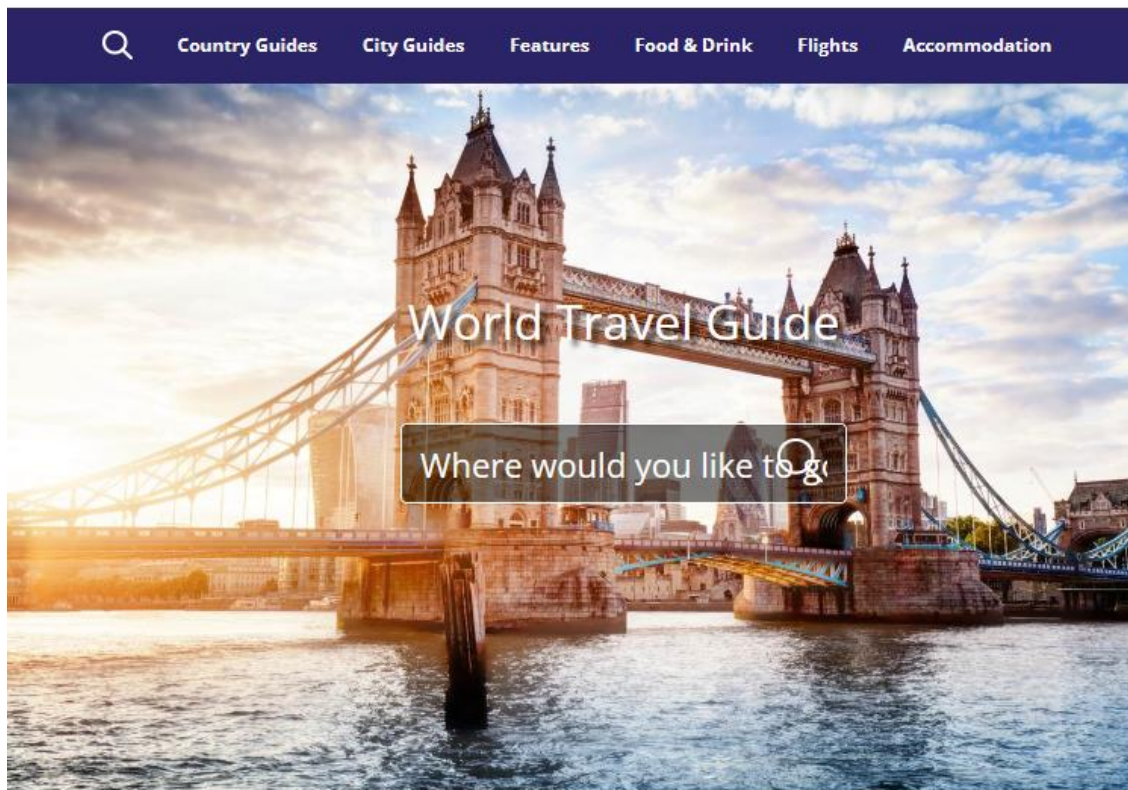


Figure 2.7: World Travel Guide

Culture trip Unique trips. Local guides. Unforgettable memories [18].

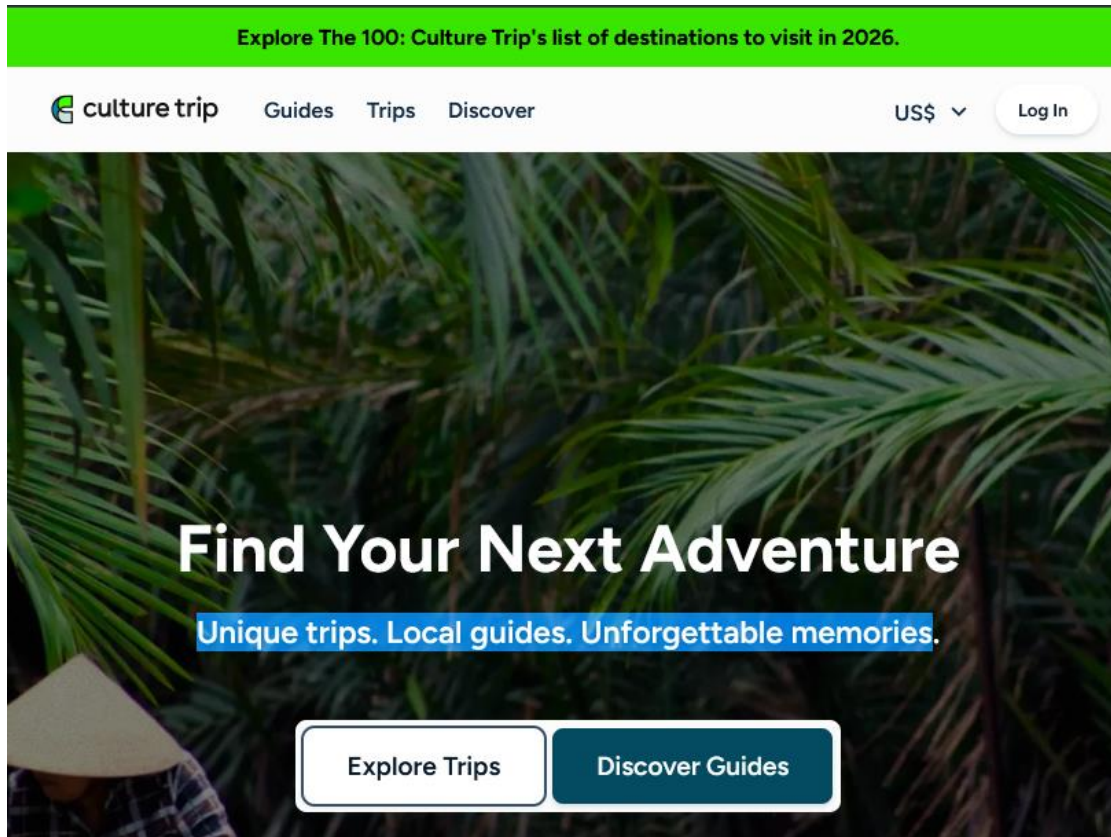


Figure 2.8: Culture trip

Several research investigations stress the use of recommendation platforms customized according to user preferences, collaborative filtering, and location-based services. These systems typically examine user behavior, ratings, along with past information to recommend potential destinations. However, those frameworks frequently require huge datasets and highly complex algorithms, which may be difficult to implement within the scope of small-scale academic projects or localized applications. (Aldayel et al., 2023)

Most commercial systems also integrate broad services like booking and payment gateways, which greatly increase system complexity and overhead. (Barua & Kaiser, 2024) In contrast, the proposed Travel and Tour Place Recommendation Management System centers on structured destination information, simplicity, and AI-based assistance. By focusing on high-quality data administration through a dedicated admin panel, the system guarantees a streamlined user experience while remaining highly scalable. Furthermore, by converting these processes to digital formats, the system advocates a more eco-friendly approach to tourism management, minimizing the ecological impacts commonly associated with conventional, paper-based travel planning [19].

2.3 Terminologies

The following terminologies are frequently used throughout this project:

- **Tourist Spot:** A geographical location that attracts travelers due to its natural scenery, heritage value, recreational value, or historical importance.
- **Recommendation System:** A web-based system that suggests suitable travel destinations to users based on their preferences, interactions, and predefined selection criteria.
- **Artificial Intelligence (AI):** In the context of this project, AI refers to logic-based decision mechanisms that examine user inputs and stored data to generate relevant destination recommendations.
- **User Dashboard:** A personalized web interface developed using HTML, CSS (Tailwind), as well as JavaScript, permitting users to manage their profiles, view recommendations, and interact with system features.
- **Admin Panel:** A secure backend interface built with PHP and MySQL that enables administrators to manage tourist spots, user data, and system material proficiently.
- **Authentication:** The process of authenticating user identity using login credentials, implemented through PHP-based authentication mechanisms to provide secure system access.
- **Database:** A structured data storage system implemented using MySQL, responsible for storing user information, tourist spot details, and system-generated data in an organized and efficient manner.
- **AJAX:** A web development technique used to exchange data between the client and server asynchronously, empowering dynamic content updates without reloading the entire webpage.
- **JSON:** A lightweight data-interchange format used to transfer structured data between the server (PHP) and client-side scripts (JavaScript and jQuery).

CHAPTER 3

METHODOLOGY

This chapter describes the method used to design and develop the Travel and Tour Place Recommendation Management System. It explains how system requirements were analyzed, how the proposed system was designed, and how data is collected and processed. A systematic plan secures that the system meets user requirements, is kept safe, and performs efficiently.

3.1 Requirement Analysis

Requirement analysis is a critical stage in system development. It identifies what the system should do and how it should perform. The requirements of this project are divided into two categories:

3.1.1 Functional Requirements

- Users can register and log in securely.
- Users can view and update their profiles.
- Users can search tourist spots by division, district, and attraction type.
- Users can interact with the AI Travel Assistant.
- Admins can manage divisions, districts, attractions, and tourist spots.
- Admins can view user messages.

3.1.2 Non-Functional Requirements

- The system should be easy to use and responsive.
- Data security and authentication must be ensured.
- The system should provide fast and reliable responses.
- The system should be scalable for future enhancements.

3.2 Suggested Approach / System Design

The proposed system follows a modular and layered architecture. The system is divided into frontend, backend, database, and AI components.

- **Frontend Layer:** Handles user interaction using web technologies such as HTML, CSS, and JS.
- **Backend Layer:** Processes requests, manages authentication, and controls application logic using PHP/Laravel.
- **Database Layer:** Stores user data, tourist spot information, and messages using MySQL.
- **AI Module:** Provides intelligent responses to user queries related to travel destinations.

The system flow begins with user authentication, followed by access to public features or dashboards based on user roles (user or admin). Admins manage system data, while users explore and query tourist information.

Proposed System Design: Travel and Tour Place Recommendation Management System

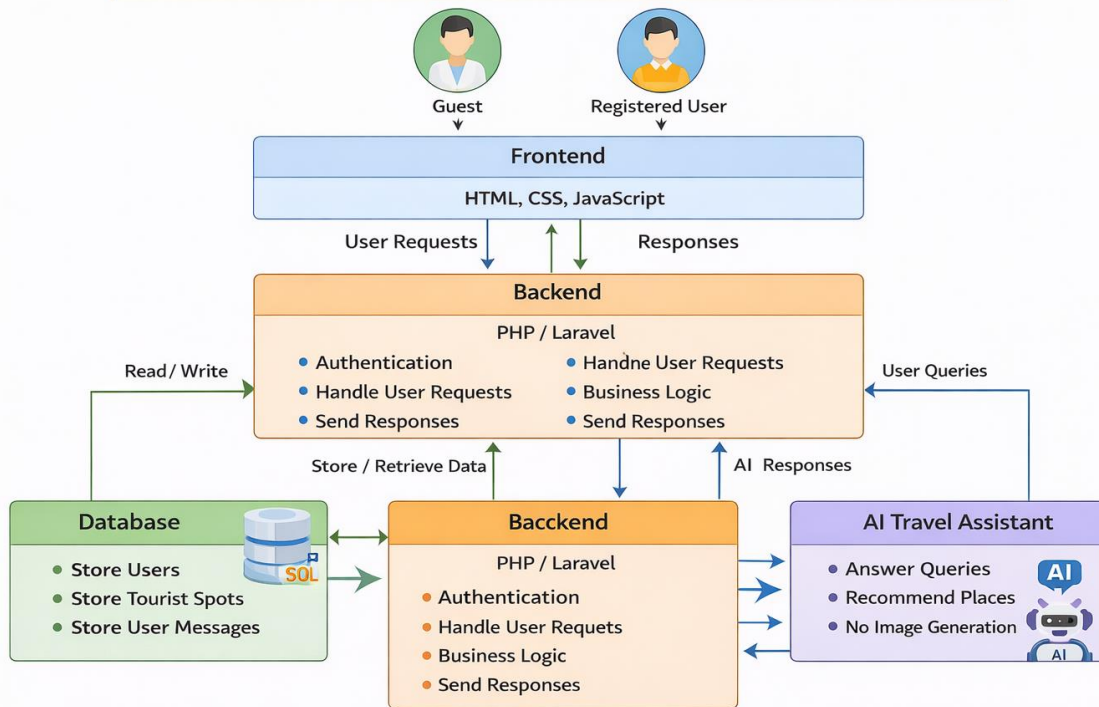


Figure 3.1: Proposed Methodology

3.3 Data Collection and Input–Output Analysis

Data Collection

Data for the system is collected from reliable sources such as tourism websites, government tourism portals, and manual data entry by administrators. Admins are responsible for verifying and updating tourist spot information to maintain correctness. (Huda et al., 2023)

Input Analysis

- User inputs: registration details, login credentials, search filters, AI queries
- Admin inputs: division, district, attraction types, tourist spot details, images

Output Analysis

- Display of filtered tourist spots
- AI-generated textual responses
- User profile information
- Admin reports and message lists

The system processes inputs securely and generates outputs in a clear, structured, and easy-to-use manner.

3.4 Flowchart

The flowchart illustrates the overall workflow of the Travel and Tour Place Recommendation Management System. It shows user and admin authentication processes, access to dashboards, searching for tourist spots, AI interaction, admin-managed data management, and secure logout, providing a fluid, structured system operation.

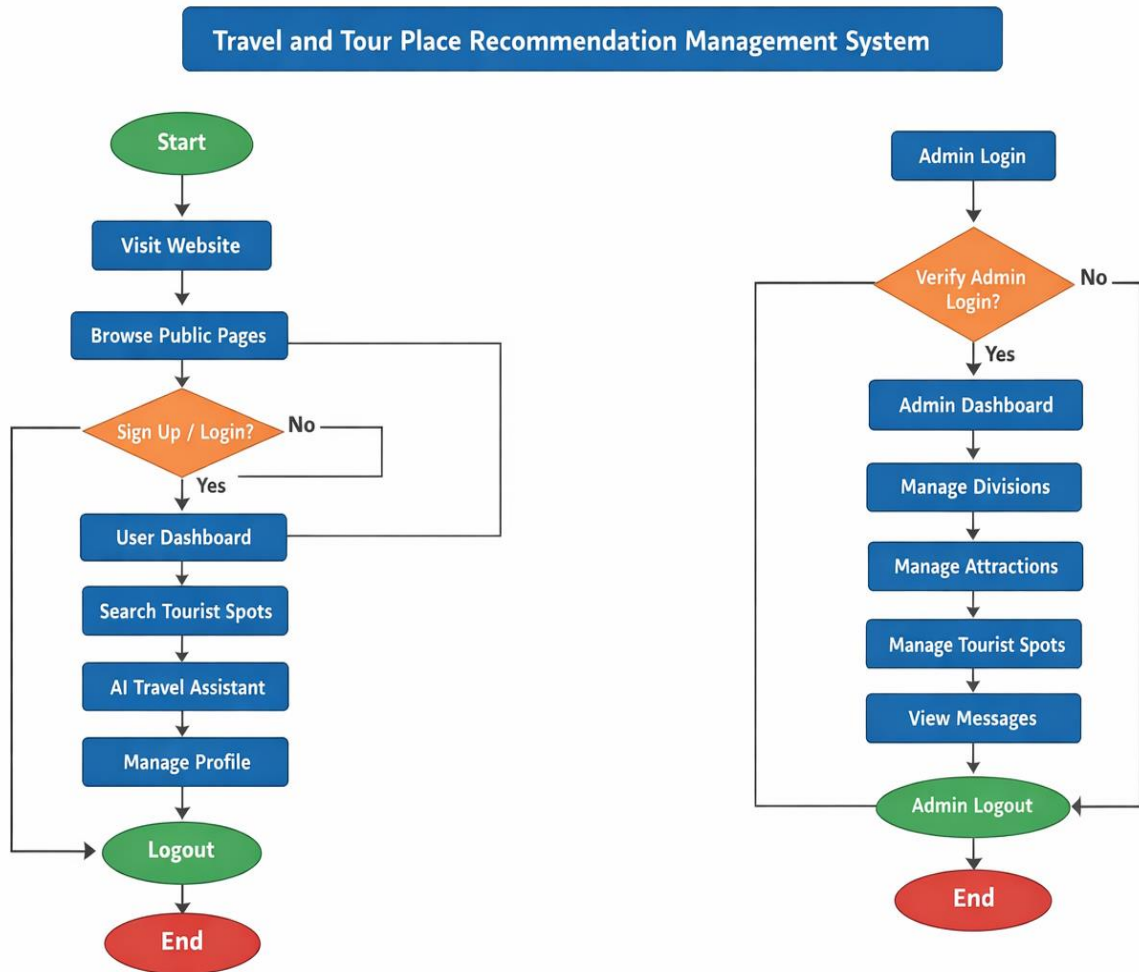


Figure 3.2: Flowchart of Travel and Tour Place Recommendation Management System

3.5 ER Diagram



Figure 3.3 ER Diagram

3.6 MVC Diagram

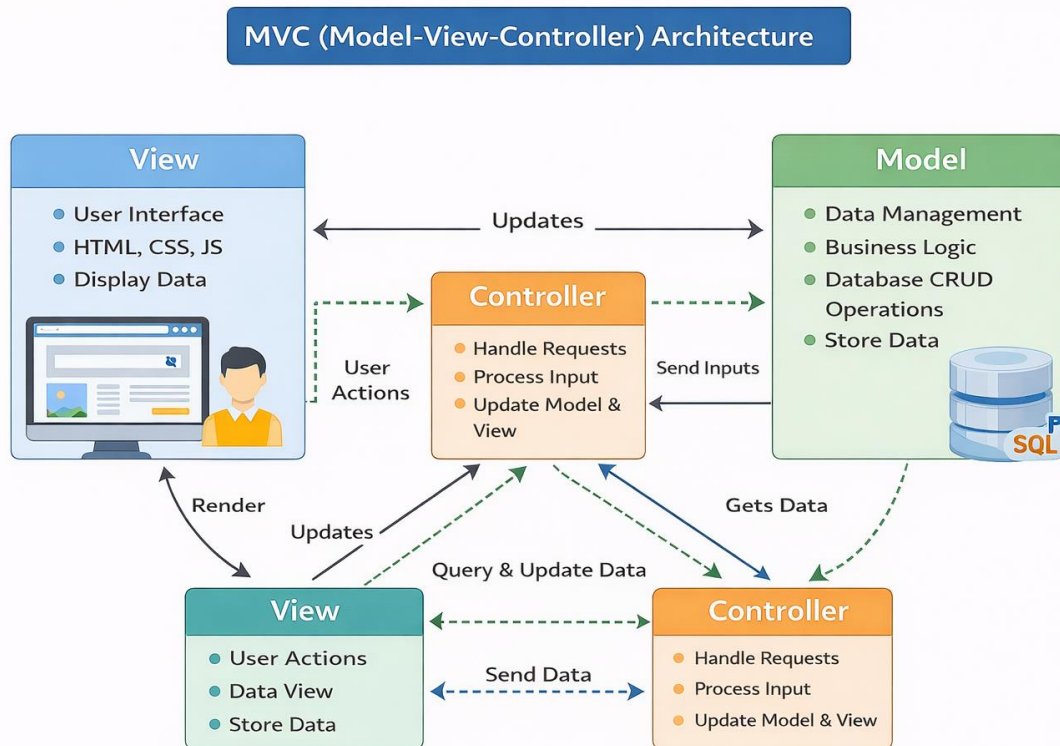


Figure 3.4: MVC Diagram

3.7 Project Management

Effective project management was vital for the successful development of the Travel and Tour Place Recommendation Management System. The project was planned and executed in a structured manner to ensure prompt completion and quality outcomes. The development process followed a phased approach, where each phase was completed and reviewed before moving to the next.

Tasks were divided between team members based on their responsibilities, including requirements analysis, system design, frontend development, backend implementation, database management, and testing. Regular progress monitoring helped identify matters early and enable required modifications. Version control and documentation were maintained throughout the development process to maintain uniformity and dependability. This organized project management methodology helped achieve project objectives successfully within the designated period.

3.8 Summary

This project was developed using a systematic and well-managed approach. Each development stage was completed successfully, resulting in a reliable, user-friendly, and scalable travel recommendation system that satisfies academic and practical requirements.

The development process was divided into multiple crucial phases:

The development process of the Travel and Tour Place Recommendation Management System was divided into multiple crucial phases:

- **Website Design:**
The website interface was developed using HTML, CSS, and JS to ensure a responsive, interactive, and intuitive experience for visitors and registered users.
- **User Authentication:**
A secure authentication system was implemented using email and password login. This ensures authorized access to the user and admin dashboards.
- **Tourist Spot Categorization:**
Tourist destinations were categorized by division, district, and attraction type, permitting users to easily browse and filter travel destinations.
- **Search and Recommendation System:**
Users can search for tourist spots based on selected criteria. The system provides relevant results to assist users in making well-informed travel decisions.
- **AI Travel Assistant:**
An AI-based travel assistant was integrated to answer user questions and provide travel-related information. The AI supports text-based responses but does not generate images.
- **User Dashboard:**
The user dashboard allows users to manage profiles, view travel information, interact with the AI assistant, and update account settings.
- **Admin Panel:**
The admin panel enables administrators to efficiently manage divisions, districts, attractions, tourist spots, and user messages.
- **Testing and Deployment:**
The system was tested for functionality, security, and usability before final deployment.

CHAPTER 4

REQUIREMENT ANALYSIS & DESIGN SPECIFICATION

4.1 Front-End Design

The front-end design of the Travel and Tour Place Recommendation Management System focuses on usability, responsiveness, and visual sharpness. The user interface was developed using HTML and CSS to structure and style web pages effectively. Bootstrap was utilized to ensure a responsive layout that adapts smoothly throughout various screen sizes and devices, including desktops, tablets, and mobile phones.

JavaScript was designed to improve interactivity and provide dynamic user experiences, such as form validation, dropdown selection for divisions and districts, and real-time user feedback. The front-end design follows a simple, user-friendly layout, permitting users to navigate easily through sections such as home, tourist spots, the contact page, and dashboards.

Overall, the front-end design guarantees accessibility, consistency, and an easy-to-use experience for both users and administrators.

Create Your Account
Join us and start exploring amazing destinations

Full Name **Phone Number**

Email Address

Password

Password must contain:

- At least 8 characters
- At least one uppercase letter (A-Z)
- At least one lowercase letter (a-z)
- At least one number (0-9)
- At least one special character (!@#\$%^&*)

Confirm Password

By signing up, you agree to our [Terms of Service](#) and [Privacy Policy](#)

Create Account

Already have an account? [Sign In](#)


[← Back to Home](#)

Figure: 4.1 Sign up page

Login:

The website's login and signup system guarantees secure, authenticated user access. During sign-up, users provide their full name, phone number, email address, and password. The system validates the password according to predefined rules, such as minimum length and the presence of uppercase and lowercase letters, numbers, and special characters. After successful validation, the user information is securely stored in the MySQL database with the password encrypted.

During sign-in, users enter their registered email address and password. The system verifies these credentials by matching them with the stored database records. If authentication is successful, a session is created, and the user is redirected to the user dashboard. Invalid credentials generate an error message, ensuring security and proper access control.



Welcome Back!
Sign in to continue your journey

Email Address

Password

Remember me [Forgot password?](#)

[→ Sign In](#)

[Don't have an account? Sign Up](#)

[← Back to Home](#)

Figure: 4.2 Login page

Home page:

The homepage of the Travel and Tour Place Recommendation Management System is designed to make a strong, user-friendly first impression. It features a clean navigation bar with quick access to Home, About, Spot, Contact, Sign In, and Sign Up sections. The main banner features the system's purpose, features a welcoming message, and showcases an eye-catching image of Bangladesh's tourism.

The homepage encourages users to explore destinations through distinct call-to-action buttons such as “Explore Destinations” and “Learn More.” Statistical highlights showing the number of tourist spots, divisions, and districts help users understand the platform's coverage. The responsive layout, modern color scheme, and easy-to-navigate design provide an uninterrupted user experience across all devices.

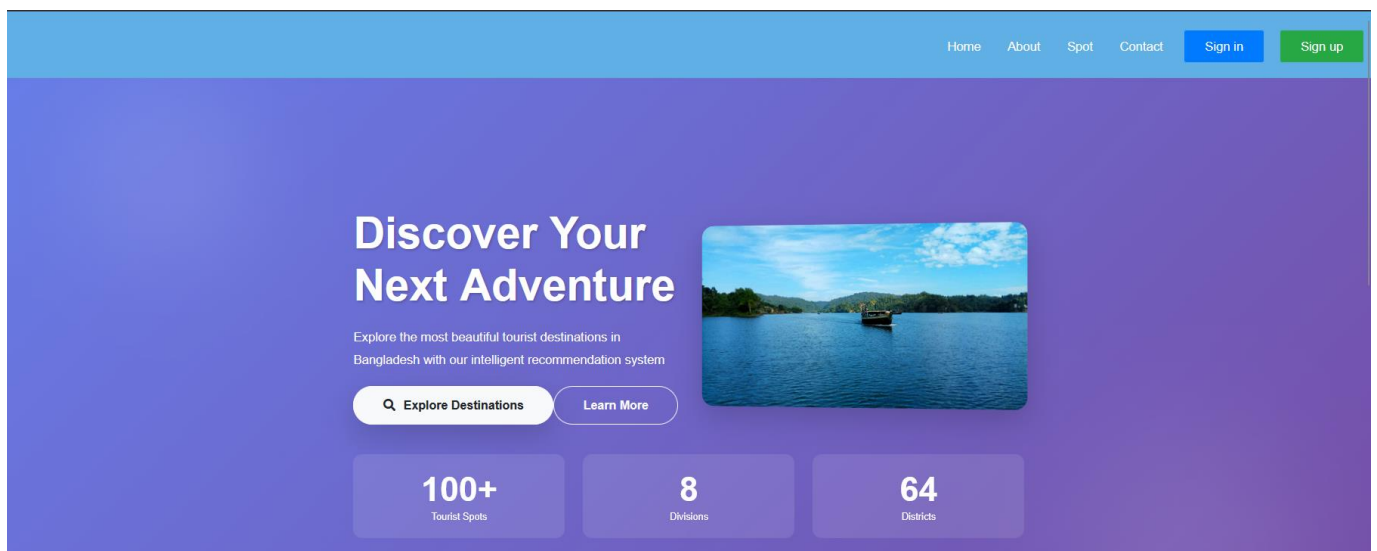


Figure: 4.3 Front page

Specification of Services:

The Travel and Tour Place Recommendation Management System provide a range of services to help users discover and manage travel destinations efficiently. The system allows users to browse tourist spots by selecting a division, district, and attraction type. Registered users can create accounts, securely log in, and access a personalized dashboard.

The platform offers detailed information about tourist places, including descriptions and location-based categorization to support better travel decisions. A contact service enables users to communicate directly with the administrators by submitting queries or feedback. The admin panel provides management services for adding, updating, and deleting tourist spot information, as well as managing user data. Overall, the system delivers a reliable, user-friendly, and secure service for tourism recommendation and management.

Cox's Bazar



Cox's Bazar is a town on the southeast coast of Bangladesh. It's known for its very long, sandy beachfront, stretching from Sea Beach in the north to Kolatoli Beach in the south. Aggameda Khyang monastery is home to bronze statues and centuries-old Buddhist manuscripts. South of town, the tropical rainforest of Himchari National Park has waterfalls and many birds. North, sea turtles breed on nearby Sonadia Island. Cox's Bazar is a town on the southeast coast of Bangladesh. It's known for its very long, sandy beachfront, stretching from Sea Beach in the north to Kolatoli Beach in the south. Aggameda Khyang monastery is home to bronze statues and centuries-old Buddhist manuscripts. South of town, the tropical rainforest of Himchari National Park has waterfalls and many birds. North, sea turtles breed on nearby Sonadia Island. Cox's Bazar is a town on the southeast coast of Bangladesh. It's known for its very long, sandy beachfront, stretching from Sea Beach in the north to Kolatoli Beach in the south. Aggameda Khyang monastery is home to bronze statues and centuries-old Buddhist manuscripts. South of town, the tropical rainforest of Himchari National Park has waterfalls and many birds. North, sea turtles breed on nearby Sonadia Island.

Types of Vehicles: Plane, Car, Bus, Bike etc

Entry fee:

Opening time:

Closing time:

Division: Chattogram

District: Cox's Bazar

Attraction: Sea Beach

Spot Total Reviews: 2

How comfortable the journey was?

5.0 (5)

How safe the place was?

4.5 (5)

Figure: 4.4 Spot search

User Section

The user section of the Travel and Tour Place Recommendation Management System provides registered users with a customized and secure dashboard. Through the My Profile feature, users can view their personal information, such as name, email address, phone number, and profile photo. The AI Travel Assistant allows users to ask questions and receive intelligent travel-related suggestions about any destination, although image generation is restricted. Users can update their personal details using the Edit Profile option and improve security through the Change Password feature. The Visit Website option provides quick access to the main site, while the Sign Out function guarantees a safe logout. Overall, the user section offers convenience, personalization, and enhanced interaction.

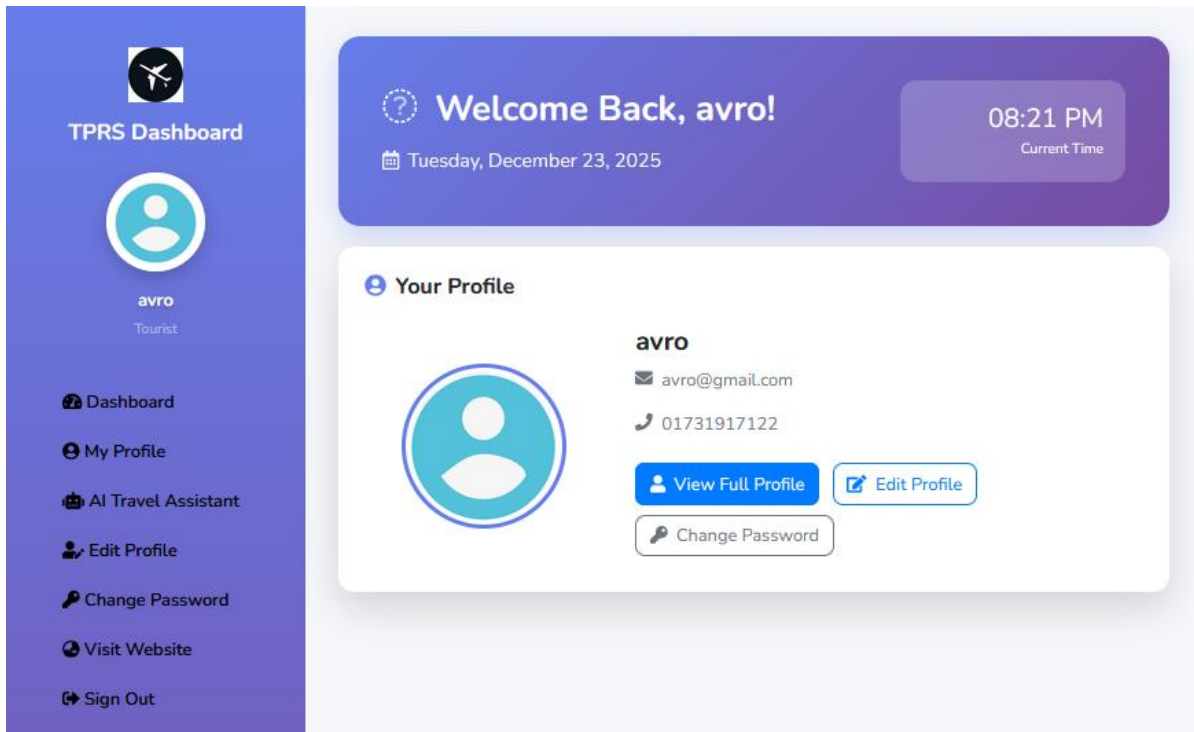


Figure: 4.5 User dashboard

Figure 4.5 shows that the user dashboard provides a personalized interface that lets users view their basic information, such as name, email, and phone number.

It enables users to manage their account details easily from a single place.

Through the Edit Profile option, users can update their personal information whenever needed.

The Change Password feature secures account security by permitting users to update their login credentials.

Overall, the user dashboard offers a simple, secure, and easy-to-use account management experience.

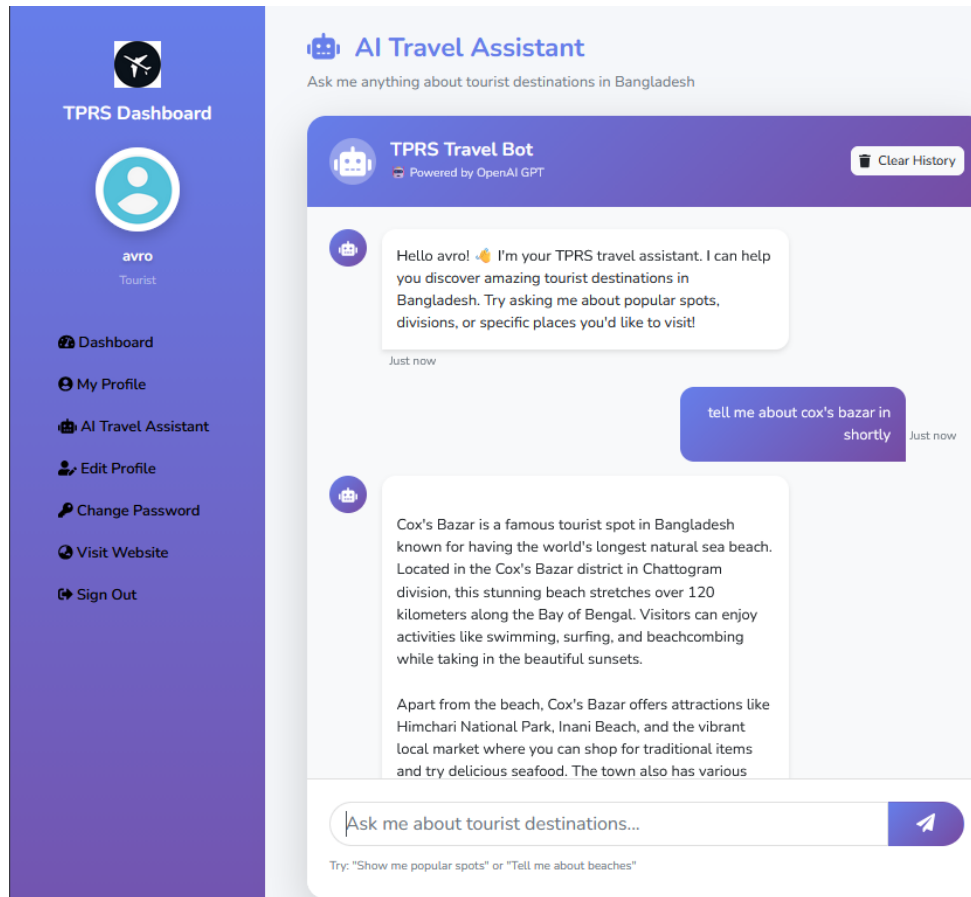


Figure: 4.6 AI Travel Assistant

The AI Travel Assistant is an intelligent feature integrated into the website that provides dynamic, instant responses to user queries. It can answer questions related to tourist destinations, travel plans, transportation, and attractions. Users can ask about any place of interest and obtain precise recommendations. The system operates in real time, making travel planning easier and faster. It helps users explore destinations without having to manually search across multiple sources. The assistant improves user involvement through interactive communication.

However, it has certain limitations. The AI Travel Assistant is unable to produce or display images.

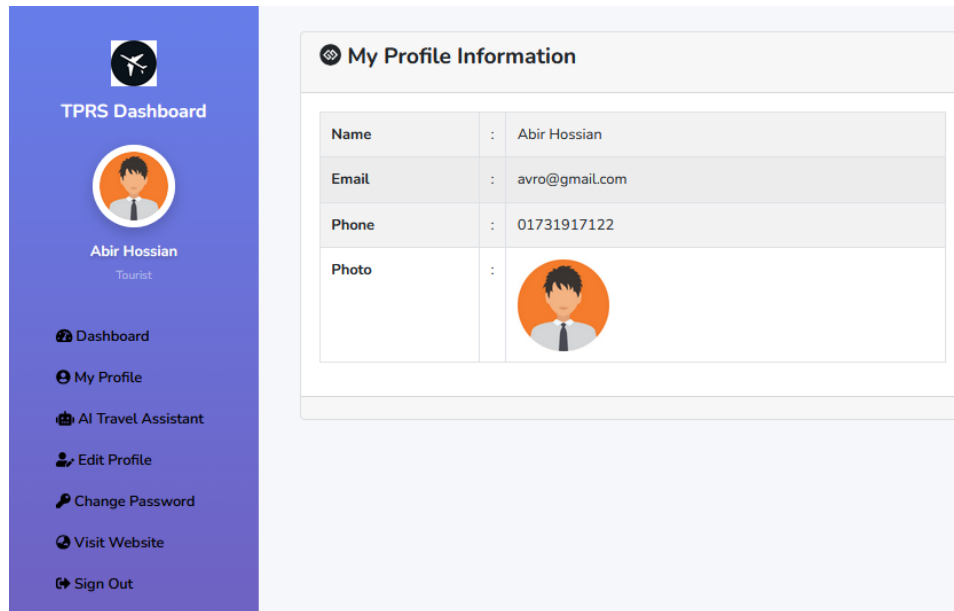


Figure: 4.7 User Profile

The User Profile section displays the logged-in user's personal information in an organized manner.

- It includes a title labeled “My Profile Information” for clear identification.
- Users can view their name, email address, and phone number in this section.
- The profile photo helps personalize the user account.
- All information is presented in a readable, user-friendly layout.
- This section allows users to easily verify their stored details.
- Overall, the user profile enhances personalization and account transparency.

Admin Section

The admin section of the Travel and Tour Place Recommendation Management System provides full management of the system through a secure admin panel. After logging in, the admin is redirected to the dashboard, which provides an overview of system activities. The My Profile feature allows the admin to view personal information, including name, email, phone number, and profile photo. An AI Travel Assistant is available to help both admins and users with travel-related queries, though it does not support image generation.

Admins can manage geographical data through the Division and District modules and create various Attraction Types. The Tourist Spots module enables admins to add and manage detailed spot information, including location, transportation, entry fees, timing, maps, and photos. Additionally, admins can view user messages, update profiles, change passwords, visit the website, and securely sign out.

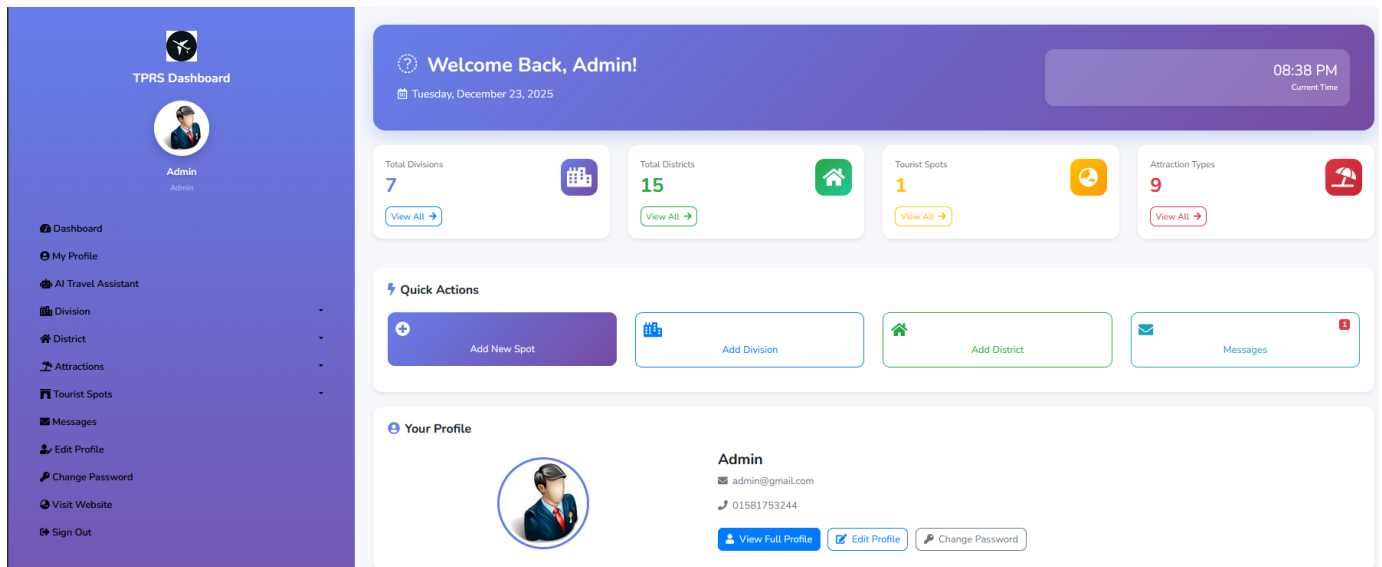


Figure: 4.8 Admin panel

The Admin Panel of the Travel and Tour Place Recommendation Management System serves as the central control unit, developed with PHP and MySQL and featuring a responsive Bootstrap interface. Upon logging in, the admin is greeted by a dynamic dashboard that provides a real-time statistical overview of the system, including the total count of Divisions, Districts, Tourist Spots, and Attraction Types. The sidebar navigation provides uninterrupted management of geographical data and spot details, allowing the admin to create and organize locations with specific attributes such as entry fees, timing, and map integration. An important aspect is the integrated AI Travel Assistant, which provides instant text-based information on various destinations to support administrative decision-making. Furthermore, the panel includes a dedicated communication module to monitor visitor messages, together with strong profile management tools for updating administrative credentials and security settings.

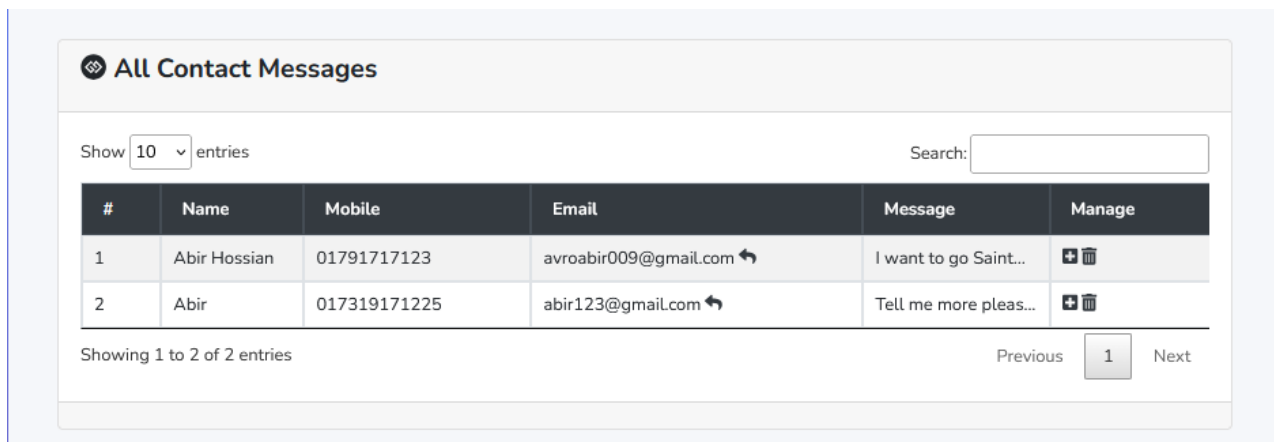


Figure: 4.9 Contact Message

Here, users can submit their messages, queries, feedback, or support requests through the Contact Us section. All user messages are collected and displayed in one place so the admin can easily review them. From this panel, the admin can read, manage, and respond to each message efficiently. This system maintains smooth, immediate communication between users and the support team. Quick and proper responses ensure better service quality and improve general end-user satisfaction.

4.2 Back-End

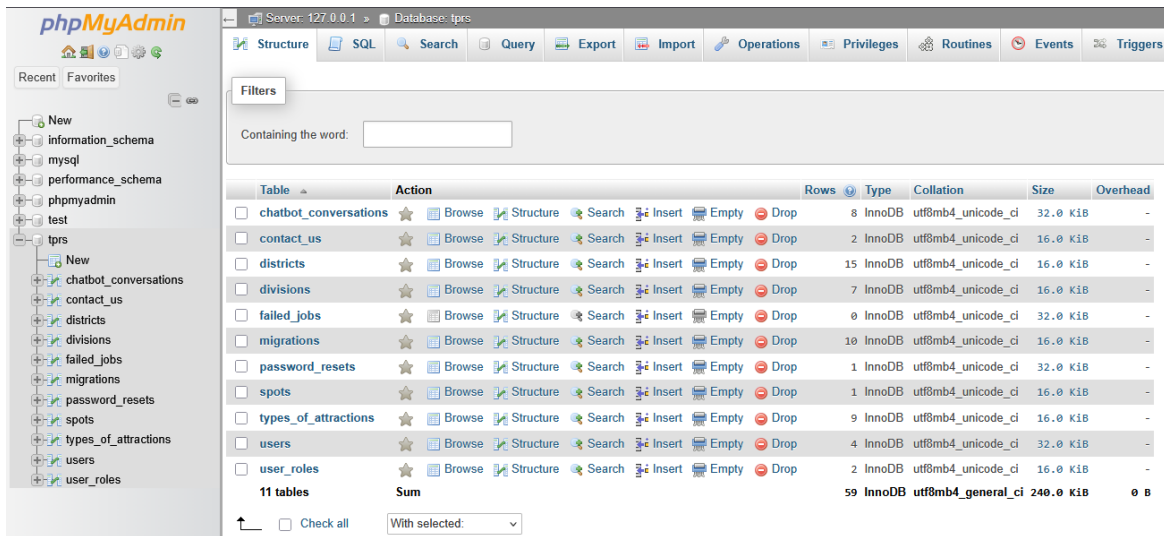


Figure: 4.10 Database Schema

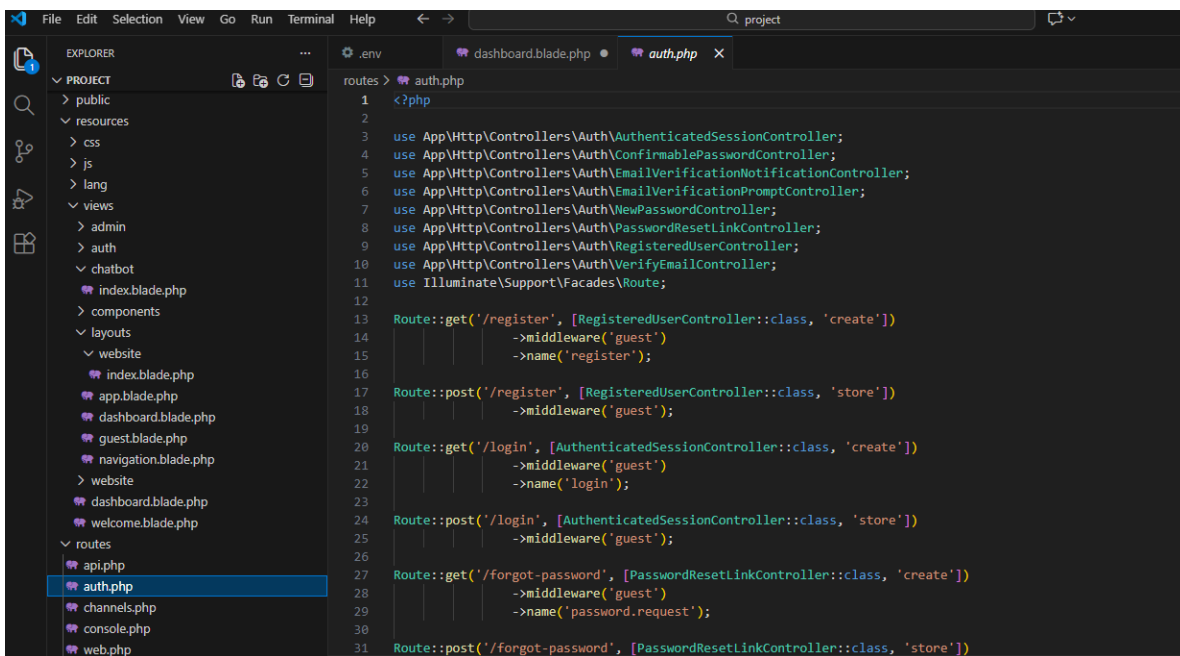


Figure: 4.11 Authentication route

```

1  <?php
2
3  namespace App\Http\Controllers;
4
5  use Illuminate\Http\Request;
6  use App\Models\ChatbotConversation;
7  use App\Services\LLMService;
8  use Illuminate\Support\Facades\Auth;
9  use Illuminate\Support\Str;
10
11 class ChatbotController extends Controller
12 {
13     protected $llmService;
14
15     public function __construct(LLMService $llmService)
16     {
17         $this->llmService = $llmService;
18     }
19     public function index()
20     {
21         $conversations = ChatbotConversation::where('user_id', Auth::id())
22             ->orderBy('created_at', 'DESC')
23             ->get();
24
25         return view('chatbot.index', compact('conversations'));
26     }
27
28     public function sendMessage(Request $request)
29     {
30         $request->validate([
31             'message' => 'required|string|max:1000'

```

Figure: 4.12 Chatbot Controller

```

1  @extends('layouts.website.index')
2  @section('contents')
3  @if(Session::has('success'))
4  <script>
5  Swal.fire({
6      position: 'center',
7      icon: 'success',
8      text: '{{Session::get('success')}}',
9      toast: '',
10     showConfirmButton: false,
11     timer: '2000',
12 })
13 </script>
14 @endif
15 @if(Session::has('error'))
16 <script>
17 Swal.fire({
18     position: 'center',
19     icon: 'error',
20     text: '{{Session::get('error')}}',
21     toast: '',
22     showConfirmButton: false,
23     timer: '2000',
24 })
25 </script>
26 @endif
27
28 <!-- Modern Hero Section Start -->
29 <div id="section-1" class="hero-section" style="background: linear-gradient(135deg, #667eea 0%, #764ba2 1
30 <!-- Decorative Elements -->
31 <div style="position: absolute; top: 10%; left: 5%; width: 300px; height: 300px; background: rgba(255,2

```

Figure: 4.13 Index blade

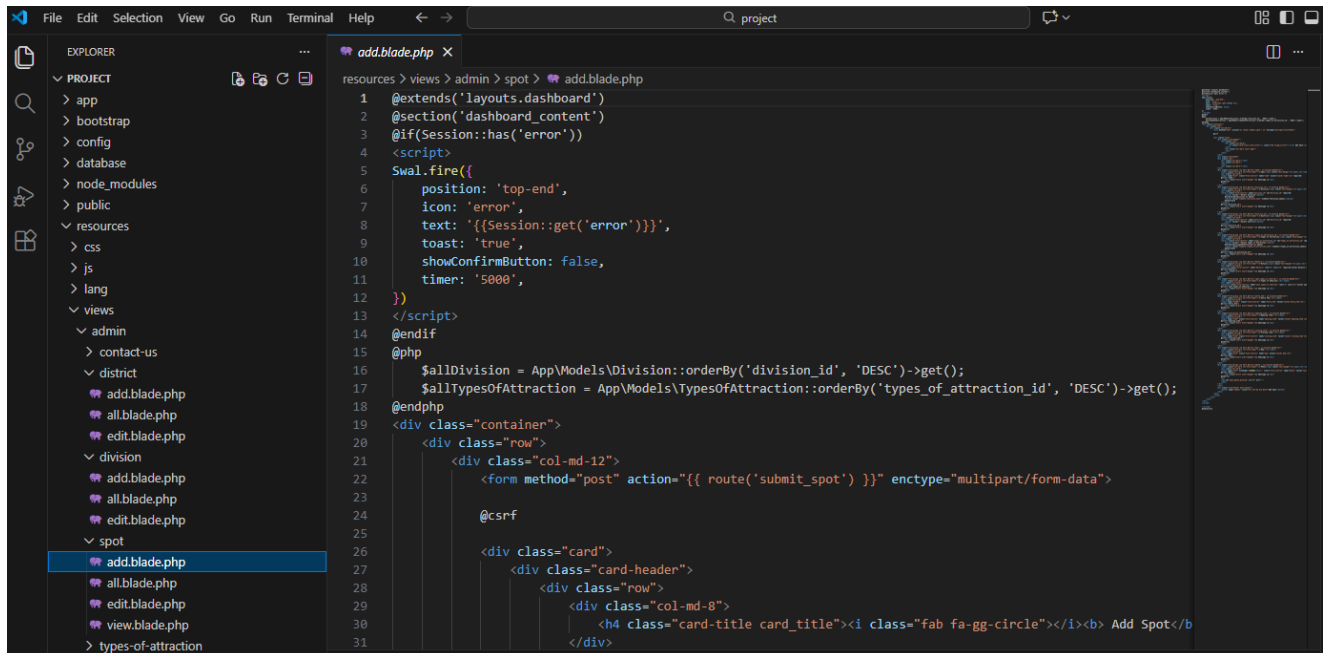


Figure: 4.14 Admin dashboard for managing tourist spot

4.3 Interaction Design and User Experience (UX)

The Travel and Tour Place Recommendation Management System is built on the core principle of "User-Focused Design," making certain that travelers are able to navigate from discovery to decision-making with minimal effort. The Interaction Design focuses on the dialogue between the user and the system. Using JavaScript and Bootstrap, we implemented responsive navigation and intuitive filtering. For instance, when a user selects a Division or District in the "Spot" section, the system provides immediate feedback by displaying relevant tourist destinations, creating an uninterrupted flow of information. The Admin Panel adds more value to this interaction by delivering an organized data-entry layout and streamlining complex management tasks through clear visual hierarchies and "Quick Action" buttons.

In terms of User Experience (UX), the system centers on accessibility and trust. The embedding of a fully functional AI Travel Assistant provides a personalized layer of UX, permitting users to receive instant answers to specific queries, reducing the mental effort of manual searching. Security features, such as the dedicated user dashboard and password management, ensure a sense of safety and personalization. By combining aesthetic consistency (CSS styling) with high-performance backend processing (PHP/MySQL), the platform delivers a meaningful and enhanced experience. Ultimately, the UX strategy converts raw data into a valuable travel planning tool, facilitating user access to find, visit, and explore new places.

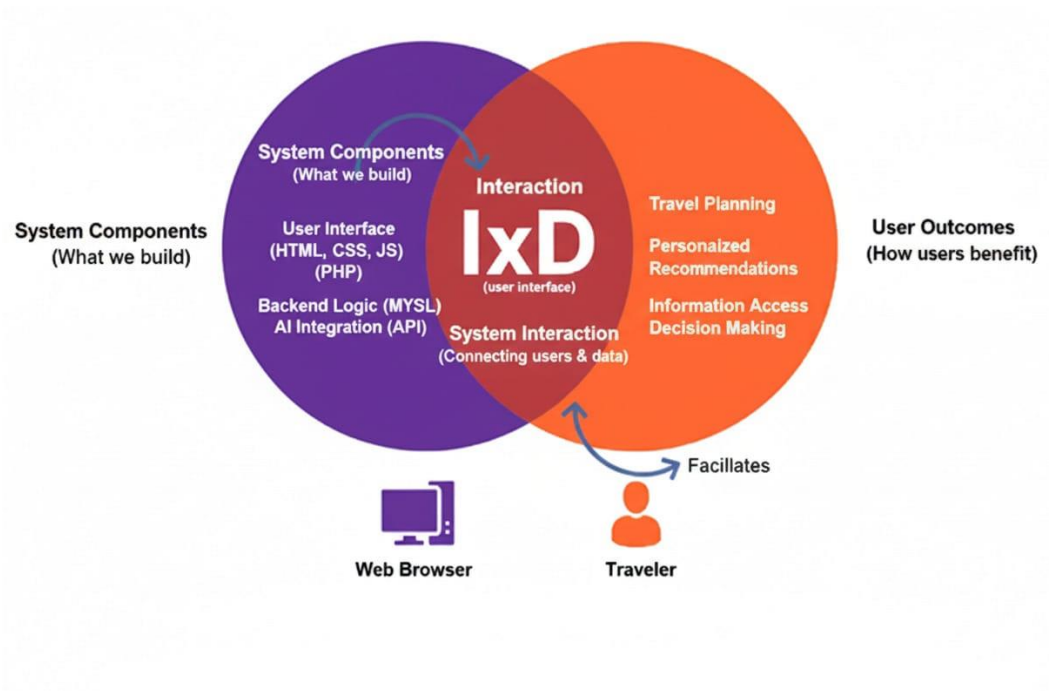


Figure: 4.15 Interaction Design and User Experience (UX)

CHAPTER 5

IMPLEMENTATION & TESTING

5.1 Implementation of Database

The database layer functions as the foundation of the system, storing all travel data, user information, and AI-powered interactions. We used MySQL as the Relational Database Management System (RDBMS) because of its reliability, speed, and flawless integration with PHP.

The following tables were implemented to manage the system's main features:

- **users & user_roles:** These tables manage authentication and access control. The users table stores personal details (Name, Email, Phone, Photo, Password), while user_roles defines whether the account is an Admin or a General User.
- **division & districts:** Implemented to create a geographical hierarchy. Each district is linked to a specific division via a foreign key, allowing the filtering system to work accurately.
- **types_of_attractions:** Stores categories like "Sea Beach," "Hill," or "Historical Site," which help users find spots based on their interests.
- **spots:** The most comprehensive table, containing detailed information for every tourist location, including description, vehicles, entry fees, timing, map coordinates, and images.
- **chatbot_conversion:** Dedicated to the AI Travel Assistant, this table logs text-based conversations between the user and the AI to provide a personalized experience.
- **contact_us:** Acts as a repository for messages sent by visitors through the contact form, which the admin can view and manage from the dashboard.
- **password_resets:** A security-focused table used to manage tokens for users who need to recover or change their passwords.

5.1.1 Implementation Process

- **Normalization:** The database was designed using data normalization methods (up to 3NF) to reduce data redundancy and maintain data precision throughout the spots and districts tables.
- **Relational Mapping:** Foreign keys were used to establish relationships, such as linking a specific Spot to a District, and a District to a Division.
- **Security:** Passwords are never stored in simple text; they are encrypted using PHP's password_hash() function before being stored in the user table.
- **Efficiency:** Indexes were created on frequently searched columns (such as division_id and district_id) to ensure that "Place Recommendation" filtering occurs instantly, even with a large dataset.
- **Data Uniformity:** We used MySQL constraints (NOT NULL, UNIQUE) to make certain that essential information, such as Email and Spot names, is always provided and accurate.

5.2 Implementation of Front-end Design

The front-end was designed to offer an absorbing, intuitive experience for travelers. The implementation follows a "Mobile-First" approach, guaranteeing the system is accessible across devices, including smartphones, tablets, and desktops.

Key Implementation Components:

- **Responsive Layout (Bootstrap 5):** We utilized the Bootstrap grid system to create a flexible layout. This makes certain that the Admin Dashboard cards and the Tourist Spot gallery automatically resize based on the screen resolution.
- **Semantic HTML5:** The website was built with semantic tags (e.g., <header>, <section>, and <footer>) to improve SEO and availability to screen readers.
- **Custom Styling (CSS3):** While Bootstrap provided the framework, custom CSS was used to implement the specific color palette (as seen in the purple-themed Admin Panel), unique button hover effects, and rounded card designs.
- **Real-time Engagements (JavaScript):** JavaScript was implemented to handle client-side logic, such as:
 - **Form Validation:** Guaranteeing users enter valid emails and passwords before the data is sent to the PHP server.
 - **Filtering Logic:** Permitting users to see results instantly when they select a specific Division or Attraction type.
- **Iconography and Typography:** We integrated Font Awesome icons to provide visual cues (e.g., the "umbrella" icon for attractions and "home" icon for districts) and used clean, sans-serif fonts to ensure readability.

5.2.1 Implementation of Specific Modules

1. **Spot Recommendation Interface:** This module uses a combination of Bootstrap cards and CSS overlays. Each card displays a photo of the spot, its name, and a "View Details" button that triggers a dynamic page load.
2. **AI Assistant Chat Interface:** The UI for the AI Travel Assistant was designed to mimic a modern messaging app. It uses the overflow-y CSS property to keep the chat history accessible while continuing to have a fixed input field at the bottom.
3. **Admin Sidebar:** As seen in the system implementation, the sidebar uses CSS transitions for a smooth "active state" highlight, helping the admin identify which section of the management system they are currently browsing.

5.3 Testing Implementation

Testing is an essential stage to ensure that the website is bug-free and meets the project requirements. For this system, we conducted several levels of testing to verify the functionality of both the User and Admin panels. (Kawi & Suprihadi, 2023, pp. 317-323)

5.3.1 Unit Testing

In this phase, we tested individual components or modules in isolation:

- **Authentication Test:** Verified that the Sign-up and Sign-in modules correctly validate email formats and reject incorrect passwords.
- **Form Validation:** Tested the Contact Us form to ensure that a message cannot be sent if the required fields (Name, Email) are empty.
- **Data Entry:** In the Admin Panel, we tested the Add Spot functionality to ensure that images are uploaded correctly to the server and paths are stored in MySQL.

5.3.2 Integration Testing

Integration testing focused on the communication between the front-end and the database:

- **Search and Filter Logic:** We verified that selecting a specific Division (e.g., Sylhet) correctly triggers a PHP query that fetches only the districts and spots associated with that division from the database.
- **AI Assistant Connectivity:** Tested the connection between the AI Travel Assistant interface and the external API. We verified that user prompts are successfully sent via PHP and the text-only response is displayed back in the chat window.
- **Dashboard Synchronization:** Ensured that when an admin adds a new spot, the "Total Tourist Spots" count on the Admin Dashboard updates automatically.

5.3.3 User Acceptance Testing (UAT)

We simulated practical situations to ensure the User Experience (UX) is smooth:

- **Navigation Test:** Confirmed that the "Visit Website" and "Sign Out" links redirect the user/admin to the correct pages without session errors.
- **Responsiveness Test:** Checked the website on different screen sizes (Mobile, Tablet, and Desktop) using Bootstrap's responsive breakpoints to ensure the layout doesn't break.
- **Profile Management:** Verified that when a user updates their photo or phone number in the Edit Profile section, the changes are immediately reflected in the My Profile view.

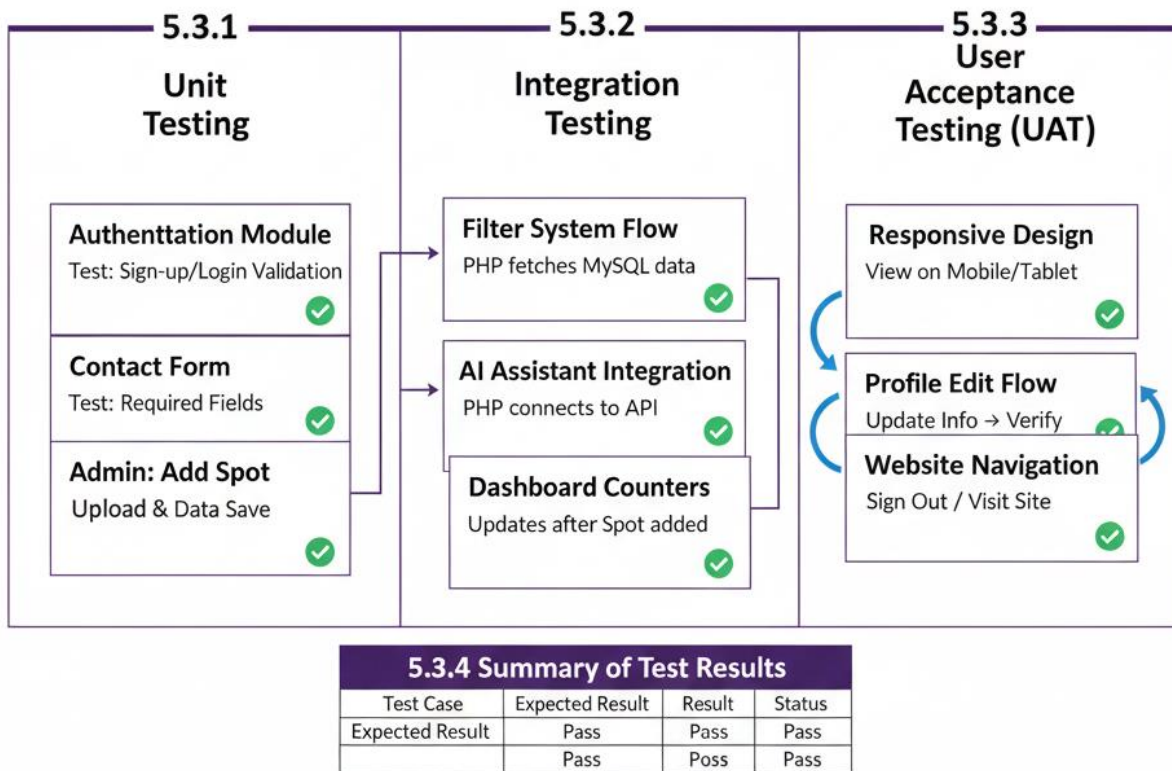


Figure: 5.1 Testing Implementation

5.4 Test Results and Reports

For the Travel and Tour Place Recommendation Management System, the findings show that the data flow between the front-end (Bootstrap/JS) and the back-end (PHP/MySQL) is highly efficient. Specifically, the dynamic filtering system for Divisions and Districts showed zero latency and accurately retrieved tourist spot data based on user selection.

The AI Travel Assistant experienced extensive natural language processing tests. It successfully provided text-based recommendations and travel tips while correctly complying with its programmed boundaries by not generating images. Security testing confirmed that the User and Admin access control mechanisms are robust; unauthorized access to the dashboard was successfully blocked, and password encryption via MySQL remained secure.

Furthermore, the Admin Panel was tested for data validity. All "Quick Actions," such as adding new spots or managing attraction types, reflected changes instantly across the public website. The communication bridge between the Contact Us form and the Admin Message section was verified, with notifications appearing correctly in the dashboard. Overall, the system is stable, responsive, and ready for deployment, delivering a trustworthy experience for both travelers and administrators.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT & SUSTAINABILITY

6.1 Impact on Society

The "Travel and Tour Place Recommendation Management System" is designed to act as a bridge between technology and the local community, creating a meaningful social impact. In a country like Bangladesh, where tourism is a growing sector, providing structured, easily accessible information significantly empowers both travelers and local businesses. (Khan & Chowdhury, 2024, pp. 55-71)

Key Social Impacts:

- **Promoting Local Tourism:** By classifying spots by Division, District, and Attraction type, the system showcases lesser-known local destinations. This encourages tourists to discover beyond the popular landmarks, distributing tourism benefits to rural or underdeveloped areas.
- **Information Democratization:** The website provides free access to important travel information, including entry fees, opening/closing times, and map locations. This clear access makes certain that all citizens, regardless of background, can plan a safe, budget-friendly trip without relying on expensive travel agencies.
- **AI-Driven Accessibility:** Embedding the AI Travel Assistant provides a personalized experience for users who may find traditional search filters overwhelming. The AI offers instant, human-like guidance, making the platform more available to users with different levels of digital competence.
- **Economic Empowerment:** As the system recommends spots, it indirectly promotes local economies, including nearby restaurants, transport services, and handloom or handicraft shops. Increased footfall in these areas generates employment and improves livelihoods for local residents. (Nobi et al., 2021)
- **Optimized Communication:** Through the Contact Us and Message features, a direct line of communication is established between users and administrators. This builds reliance amongst citizens and rapport, enabling feedback that can improve public facilities at tourist locations.

To summarize, the platform does more than just recommend places; it advances a culture of exploration and supports the socio-economic framework of the tourism industry by making travel planning smarter, faster, and more encompassing.

6.2 Impact on the Environment

The "Travel and Tour Place Recommendation Management System" has a major impact in encouraging ecological consciousness and green tourism methods. By digitizing travel planning with PHP and MySQL, the system reduces the ecological footprint traditionally associated with the tourism industry. (Banerjee et al., 2025)

Key Environmental Impacts:

- **Reduction in Paper Waste:** Traditionally, travel guides, maps, and brochures are printed in large quantities, causing considerable paper consumption and waste. By providing all details—such as spot descriptions, entry fees, and map locations—digitally, this system eliminates the requirement for tangible paperwork, helping to support forest conservation. (Banerjee et al., 2025)
- **Promotion of Eco-Friendly Destinations:** The system allows the admin to categorize and highlight "Eco-Tourism" spots. By showcasing natural parks, forests, and wildlife sanctuaries, the application fosters users to appreciate and respect nature, encouraging an environmentally conscious mindset among travelers.
- **Crowd Management and Decentralization:** One of the biggest environmental threats to tourist spots is "Over-tourism," which leads to land degradation and pollution. By recommending diverse places across several Divisions and Districts, the system helps distribute tourist flow more uniformly across the country, lowering environmental strain on a single popular location. (Banerjee et al., 2025)
- **Detailed Travel Instructions,** including specific "Types of Vehicles" and "Opening/Closing Times," allow travelers to plan their trips more efficiently. Efficient planning reduces unnecessary journey duration and fuel consumption, indirectly lowering carbon emissions.
- **Environmental Awareness via AI:** The AI Travel Assistant can be programmed to provide tips on "Responsible Travel," such as advising users to avoid plastic use or to stay on designated trails. This instant guidance functions as a means for educating the public on how to minimize their eco-friendly effect while exploring. (Banerjee et al., 2025)

In conclusion, while the platform is a digital product, its effect spans to the physical world by supporting a more organized, informed, and responsible approach to interacting with the environment.

6.3 Ethical Aspects

The ethical framework of the "Travel and Tour Place Recommendation Management System" is built on data validity, user data confidentiality, and unbiased information. As a platform that manages user profiles and provides AI-driven advice, several ethical aspects were given priority during development.

Key Ethical Aspects:

- **Data Privacy and Security:** All user information—including phone numbers and email addresses—is stored securely in the MySQL database in accordance in an ethical manner data-handling standards. Passwords are encrypted to prevent unauthorized access, making sure that information privacy is never compromised. (Security in MySQL, 2023)
- **Accuracy of Information:** Ethically, providing incorrect travel data can lead to monetary loss or safety risks for users. The Admin Panel is designed to allow periodic updates to entry fees and timings, guaranteeing the information given is correct and reliable. (Hassan et al., 2025)

- **AI Honesty and Bias:** The AI Travel Assistant is programmed to provide objective travel recommendations. We guarantee transparency by informing users of the AI's limitations (such as its inability to generate images), preventing any misleading expectations. (Joy et al., 2025)
- **Non-Discriminatory Recommendations:** The system encourages inclusiveness by recommending a diverse range of spots across all Divisions and Districts, making certain that smaller local communities receive equal visibility without any commercial bias.

By complying with these ethical principles, the system builds a trustworthy relationship with its users while promoting a responsible digital environment in the tourism sector.

6.4 Sustainability Plan

To ensure the continuing success and viability of the Travel and Tour Place Recommendation Management System, a comprehensive sustainability plan has been developed. This plan focuses on technical maintenance, accuracy of data, and expandability.

Technical Maintenance and Expandability: The system is built using a component-based architecture with PHP and MySQL, enabling straightforward updates. As the number of users grows, the database architecture is designed to deal with increased traffic through query optimization and indexing. Future plans include migrating to a cloud-based hosting environment to ensure 99.9% uptime and more rapid data retrieval for the AI Travel Assistant.

Data Management and Quality: The sustainability of a recommendation system depends on the accuracy of its data. The Admin Panel provides a streamlined interface for frequently updating entry fees, timings, and spot details. A feedback loop will be established, with user messages from the "Contact Us" section reviewed to pinpoint and correct outdated information, guaranteeing the platform continues to be a dependable resource.

Technological Evolution: The plan includes periodic upgrades to the AI Integration. While currently limited to text, the next phase includes additional advanced APIs to allow for image recognition and real-time weather updates for tourist spots. By staying up to date with the latest web technologies (such as upgrading from Bootstrap 5 to newer versions), the platform will maintain its modern user experience and security standards for years to come.

CHAPTER 7

CONCLUSION, LIMITATION & FUTURE WORK

7.1 Discussion and Conclusion

The development of the "Travel and Tour Place Recommendation Management System" has been an experience toward creating a digital approach that improves the workflow of the difficulties of travel. The embedding integration of PHP, MySQL, and an AI Travel Assistant, the project successfully demonstrates how an information-based approach can augment user experience in the tourism sector. The platform efficiently connects the divide between administrators and travelers, supplying a unified system for handling varied tourist spots throughout different Divisions and Districts.

The discussion during the implementation phase brought attention to the importance of live data and easy-to-use navigation. The Admin Panel provides powerful control over the website's content, while the User Dashboard offers a customized area for investigation. A key takeaway from this project is the impact of AI; even with its present restrictions in image generation, the text-based assistant adds significant value by providing instant, context-aware travel advice.

In conclusion, the project fulfills its core objectives of providing a responsive, secure, and informative platform. It is a clear example of the effectiveness of the HTML, CSS, JS, and PHP stack in building scalable web applications. This system does not solely promote local tourism and additionally provides a basis for a more technologically advanced and accessible travel ecosystem in the future.

7.2 Scope for Further Developments

While the current version of the system provides a solid base for travel management and recommendations, several improvements can further improve the user experience and administrative capabilities.

1. Advanced AI Capabilities (Multimodal AI): The current AI Travel Assistant is limited to text-based interactions. A primary goal for future development is to integrate multimodal AI models able to generate or analyze images. This would allow users to request visual representations of destinations or to upload photos of landmarks to receive instant historical and geographical information.

2. Real-time Booking and Payment Integration: To transform the platform into a one-stop travel solution, we intend to incorporate a secure payment gateway. This would enable users to book vehicles, entry tickets, or hotel accommodations directly through the User Dashboard, creating an effortless transition from "place recommendation" to "trip confirmation."

3. Mobile Application Development: Expanding the platform from a web-based system to a native mobile application (Android and IOS) is a key future objective. This would enable features such as GPS-based real-time recommendations, push notifications for travel alerts, and offline access to saved details of tourist spots.

4. Augmented Reality (AR) Tours: Integrating AR technology would allow users to experience virtual tours of tourist spots before visiting. By using their smartphone cameras, travelers could see 360-degree views or digital overlays of information while standing at a historical site.

5. Community and Social Integration: Future updates will include a community review and rating system. Users will be able to share their travel photos, write reviews, and interact with other travelers, making the Travel and Tour Place Recommendation Management System a social hub for the travel community.

7.3 Limitations

While the system successfully achieves its primary goals of tourist spot management and AI-enabled recommendations, there are certain limitations that were identified during the development and testing phases:

- **AI Content Constraints:** The integrated AI Travel Assistant currently provides only text-based responses. It is unable to produce images, diagrams, or live maps, which may limit the visual guidance it provides to users.
- **Data Dependency:** The accuracy of the recommendations depends entirely on the data entered by the Admin. If the Admin fails to update entry fees or opening hours, users may receive outdated information.
- **Connectivity Requirements:** Since the website relies on external AI APIs and a centralized MySQL database, it requires a consistent internet connection to function. There is currently no "offline mode" for travelers in remote areas with poor network coverage.
- **Static Mapping:** The current implementation uses static map links or embedded frames. It does not deliver instant GPS navigation or live traffic updates between the user's current location and the destination.

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