

A DIGITAL PLATFORM FOR TOUR GUIDE

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “**A Digital Platform for tour guide**”, submitted by Shahrin Islam, ID No: 201-15-3335 to the Department of Computer Science and Engineering, Daffodil International University 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. The presentation has been held on 06th December 2022.

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We hereby declare that this project has been done by us under the supervision of **Dr. S.M. Aminul Haque, Associate Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

Traveling offers many benefits for welfare, education, and personal growth. It is a life-changing and enlightening activity. We are looking for anything online relating to travel, including websites, locations, agencies, car facilities, online tickets, and neighboring resorts and hotels. Thus, Travelers now require tour guides to use a digital platform. In order to help tourists in planning their trips, travel websites generally provide full details on destinations, including local attractions, culture, weather, and travel advice. Basically, My website is an online platform where Travelers can make their tour plans and perhaps save time and money on their journeys by utilizing the tools and services provided by travel websites

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CHAPTER 1

Introduction

1.1 Introduction

My project is called "TripTrekker: A Digital Platform for Tour Guides." This project is web based. I employed cutting-edge technologies like React.js, Express.js, Node.js, and MongoDB in this project. We can refer to it as MERN Stack. Users can be divided into four categories: admins, super admins, hotel owners, travel companies, and regular users. Packages for travel and lodging can be offered by agencies and hotel owners. Visitors can learn about the many places to visit in Bangladesh by visiting my website. Locations are arranged on this website based on Bangladesh divisions. Any user who wishes to plan a tour can visit this website's "Plan a Tour" page and select the division of their choice. The tourist places that are available in that division can then be seen by visitors. They have the option to choose one to explore more information about it. There, the lower portion lists neighbouring hotels and various trip packages. There are reasonably priced travel packages available. But, customers can also reserve rooms at neighbouring hotels. Additionally, on the "Packages" page, they may view every package that each of our different travel agents offers. They can locate every hotel on my website by visiting the 'Hotels' page. Individuals have the option to choose a certain hotel and view its location on Google Maps as well as the packages it offers. Therefore, those wishing to reserve a hotel room or trip package must register on my website and submit the required details about themselves and the packages they have selected. In the end, they must pay in order to validate the reservation. The SSL Commarz is embedded into the payment system. Numerous payment options are offered by SSL Commarz, including easy monthly installments (EMI), mobile banking, internet banking, and card payments, as well as e-wallets. Their booking will be approved as soon as the payment is processed successfully. Bookings made with particular agencies and hotels will be verified. Every procedure can be reviewed by the admin and super admin. All orders, transactions, refunds, adding or altering new location details, managing agencies, hotels, packages, etc. are all managed by admins and super admins. In addition to managing admin, super admin can handle everything related to Adobe.

1.2 Motivation

TripTrekker offers a chance for growth, education, and the making of lifelong memories at every trip. Say goodbye to travel stress! My easy-to-use interfaces offer a stress-free planning process. I developed this travel-related system because I love to travel; it offers a range of remote job options, social network integration, user-generated content, and personalized tour planning. Some people think that traveling must be costly. On the website TripTrekker, user can discover special offers and discounts. Users may book securely on this website and travel with confidence. TripTrekker is more than just a platform; it's a way for you to see other cultures, taste unique food, and make lifelong memories.

1.3 Objective

- Give people interesting and motivating content that sparks their curiosity about travel.
- Provide customers with detailed guidance, travel schedules, and destination ideas to help them plan their trips.
- Encourage people to share their own content, such as photos, stories, and reviews.
- Make my website easy to use so that users can easily navigate and find the information they need.
- Introduce efficient search and filtering tools that simplify the reservation process.
- Provide up-to-date, trustworthy information on destinations, accommodations, and services to establish trust.
- To establish trust, highlight client reviews, comments, and ratings.
- To establish a tourist-agencies community.
- To generate new business opportunities.
- Represent the tourism industry of our country.
- It offers a range of remote job options and social network integration.
- Highlight cultural experiences and encourage visitors to respect local culture and the environment.
- Create a unique identity for the company that reflects the values and personality of the travel website.

1.4 Expected Outcome

Our country's tourism sector is expanding quickly, but fewer technological advancements are being made to improve visitor experiences. We anticipate that those gaps will be filled and our economy will grow with the tourism sector and modern technology. The user can learn about the different tourism sites in Bangladesh by visiting my website. This section lists sites in Bangladesh by division. Anyone interested in planning a tour can go to the "Plan a Tour" section

of this website and select the division of their choice. Visitors can then look at the tourist attractions available in that division. In the lower section, there is a list of nearby hotels as well as other travel packages. By going to the 'Hotels' page of my website, they can find every hotel there. People can choose a certain hotel and check its location, and the packages include Google. Anyone who would like to book a hotel room or travel package must register on my website and provide the necessary information about themselves and the packages they have chosen. Ultimately, payment is required to verify the reservation. On this site, users can also share stories, pictures, and experiences through a section called Experience. Bookings made with particular agencies and hotels will be verified. The super admin and admin can review any procedure. Administrators and super administrators oversee all orders, transactions, refunds, adding or changing new location details, agency, hotel, package, and other management tasks.

1.5 Project Management and Finance

Project Management

This project was meticulously developed over an 8-month period, employing React JS and Node JS technologies. The project management aspect encompassed detailed planning, agile development methodologies, and efficient resource allocation. Beginning with comprehensive scope definition, the team utilized agile practices to adapt to evolving requirements, with a well-defined timeline and milestones guiding the development process. Risk management strategies were in place to address unforeseen challenges, ensuring the project's progression remained resilient.

Financial Management

Financial considerations were pivotal in the successful development of this project. The project budget encompassed expenses such as hosting and domain acquisition. Additionally, transactional costs were incurred for SSL Commarz, emphasizing the importance of securing online transactions within the system. Transparent financial reporting provided stakeholders with insights into these specific expenditures, contributing to a clear understanding of the overall project costs. The financial planning also accounted for ongoing considerations, including future hosting and domain expenses, ensuring that the platform remains operational and secure. The

integration of these financial elements into the project management framework played a key role in achieving a sustainable and cost-effective project.

1.6 Report Layout

The paper is organized as follows:

- i. Background
- ii. Requirement Specification
- iii. Design Specification
- iv. Implementation and Testing
- v. Reference.

CHAPTER 2

Background

2.1 Terminologies

Years ago, traditional methods, such as travel agencies and guidebooks, were the primary means by which the travel industry conducted its business. There were a lot of people who used to go to travel agencies regularly to make bookings for things like flights, hotel rooms, and tours. Travelers found guidebooks to be a valuable source of knowledge; however, using them required a more laborious and time-consuming collection of information. Consequently, travel planning has become more convenient, accessible, and personalized as a result of the shift toward online platforms, which has resulted in the transformation of the sector. Planning and booking travel on the Internet has become a way of life in a world that is always changing. We can look into a place, compare hotels, and plan a trip these days without even leaving the house. Online tour managers have made it easy to plan a trip. These kinds of websites are like magical tools that let us make up great adventures whenever we want. In the modern world, individuals expect to be able to accomplish things in a simple manner. People want to reduce the amount of time they spend working, save energy, and simplify their tasks as much as they can. Many websites that are relevant to travel are available to make traveling more convenient. A few websites offer a wide variety of features and facilities that are clearly described for the user. However, the majority of them have several issues. For example, this website does not have the capability to book a resort or hotel; it does not provide facilities for live chat with the owners of the website; it does not provide a description of a trip destination; it is not user-friendly; and it does not directly contact travel agents through the website. Pointing out all of these challenges, I have tried to solve these kinds of issues on my website.

2.2 Related Works

On the internet, anyone can find an enormous number of travel websites. Most of the sites are trying to provide facilities to make travel easier. However, the vast majority of them are unable to highlight all of Bangladesh's attractions, and users are unable to share their experiences after visiting the site. Certain websites avoid presenting Bangladeshi tourist spots. They do not offer an option to find nearby hotels or resorts, nor do they offer the ability to book them. Because their system has no travel agencies they are unable to provide affordable vacation packages to

travelers. Additionally, I saw that their websites didn't have a user-friendly interface which made website impossible for any traveler to browse them.

Avijatrik[1] is a travel website. They provide the facilities for location, trip destination category, and member addition. On their website, users can book a resort or hotel in a distinct category, such as a luxury resort or one that is near a river or a hill. They provide descriptions and images of hotel and resort rooms so that users can easily understand before checking. One important feature is added here, which is maps that help the user find a specific location. The website's design may shift between day and night modes. This website uses JavaScript as a server-side and client-side programming language. Here, they use Node.js as a JavaScript environment for writing network programs such as web servers. I also use similar technologies for implementation on my website.

Another travel website is Obokash [2]. They provide worldwide trip packages from Bangladesh as well as Umrah packages. Here is a feature for providing visa services. This website uses JavaScript as a client-side programming language and uses a Cloudflare server, which is a web server developed by Cloudflare.

The DESHGURI[3] website offers day tours, 1-day tours, and 2-day tours lasting up to 7 days, as well as travel packages for numerous Asian destinations. However, there are no services for booking hotels and resorts, no information regarding vehicles, and users cannot share their experiences after visiting the location. On the other hand, after selecting a place, users on my website can book a hotel or resort. This website uses PHP as a server-side programming language and uses JavaScript as a client-side programming language.

The Discovery Bangladesh [4] website divides tourist places into divisions and talks about the tourist places in each division, but they do not offer any tourist packages or hotel packages near the places. They offer some packages, but their tour package is temporarily unavailable. They have a transportation feature on their website that provides contact information for some selected foreign airlines, but no information regarding the transportation system of Bangladesh for travel purposes. There is a feature on my website that allows users to choose a tourist place division-wise and recommend hotels and packages for particular places. This website uses JavaScript as a client-side programming language and uses JavaScript libraries jQuery. Modern web development often uses native JavaScript features and frameworks like React JS for more

efficient and scalable solutions. That's why I use ReactJS for the front end and NodeJS for the backend design on my website. This website uses Bootstrap as a CSS framework, but on my website, I use Tailwind as a CSS framework. Bootstrap's low-level utility classes result in smaller and more optimized CSS files. Tailwind's simplicity and focus on utility classes can lead to faster development and easier maintenance compared to Bootstrap's component-based structure.

2.3 Comparative Analysis

Table 4.3.1 Performance Measurements of Survivability (Alive or Dead) Models

Review Factors	Review-1(Project-1)	Review-2(Project-2)	Review-3(Project-3)	My platform
System Name	Avijatrik	Obokash	DESHGURI	TripTrekker
Key Features	1. Option for location, trip destination category, and member addition 2. book a resort or hotel in a distinct category, such as a luxury resort or one that is near a river or a hill. 3. descriptions and images of hotel and resort rooms 4. Maps are provided for	1. packages for international travel from Bangladesh 2. offering umrah packages 3. provide visa service	1. packages for day tours, 1-day tours, 2-day tours up to 7 days 2. offer several countries a trip package for Asia	1. Users can be divided into four categories: admins, super admins, hotel owners, travel companies, and regular users. 2. Packages for travel and lodging can be offered by agencies and hotel owners. 3. Locations are arranged on this website based on Bangladesh divisions. 4. the lower portion of my website lists neighbouring hotels and various trip packages

	locating locations 5. The website's design may shift between day and night modes			5. The SSL Commarz is embedded into the payment system. 6. User can communicate via live chat with the website management system
Limitations	1. As it is possible to highlight every attraction in Bangladesh, just a select few are highlighted here 2. users have no way to share their experience after visiting the location. 3. nothing about vehicles to go 4. no system for language translator 5. They simply function to assist people to identify resorts and hotels in a particular category; they don't offer any travel-related details like how	1. stay away from Bangladeshi tourist attractions	1. they have no facilities for hotel and resort booking 2. Nothing about vehicles to go 3. users have no way to share their experience after visiting the location	1. international travel arrangements 2. international flight reservations

	to get there, what the main attraction is, or its history, which may be used to inform users about a particular location.			
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2.4 Scope of Problem

The development of the project encountered a multitude of challenges that significantly influenced the project's scope. Originally intending to utilize Google Maps for displaying hotel locations, the shift to a free alternative, Pigeon Maps, introduced complexities in integration and customization. The implementation of SSL Commarz, vital for secure transactions, proved demanding, necessitating extensive research for successful integration. Compiling comprehensive information about hotels in diverse locations posed a formidable task, requiring diligent communication and collaboration with travel agencies and hotels. Moreover, the development phase itself presented hurdles as new features required acquiring and applying unfamiliar skills, underscoring the project's iterative nature. These challenges demanded a dynamic and adaptive approach, involving research-intensive problem-solving and persistent efforts to ensure the TripTrekks successful completion.

2.5 Challenges

Websites that are related to tourism are unfamiliar to the majority of people in our country, and they are not used to using them. Evidently, whenever they have the desire to go on a trip, they do not seek guidance online; hence, they experienced difficulties when they were traveling. As a consequence of this, it is fairly challenging to educate people about this and insist that they rely on the internet. On the other hand, it was challenging to incorporate travel agencies and hotels in particular regions. I collected information on the best local hotels in Bangladesh that provide exceptional services, as well as travel businesses that are associated with such hotels. I

engaged in conversation with them and shared my idea with them. My idea has piqued the interest of a significant number of people, and they have registered for my website.

Again, when designing this platform, I encountered numerous issues while integrating specific functionalities. For example, I used map location to allow the user to observe hotel-specific locations on the map while traveling. I wanted to use Google Maps at first, but it is not free. That's why I looked for a free map service provider, discovered pigeon-maps, and started using it. Traditional state management is not good for large-scale React.js projects. I ran into some issues while sharing the same state to a different route. Then I went to Google to find a solution to this problem, discovered Redux, and applied it to my project. I ran into issues while integrating the forgot-password option through OTP verification. Initially, I attempted to save OTP for a specific user in the database, but this was incorrect. Then I researched further to solve this problem correctly. Then I encrypted the OTP and user details before sending the encrypted token to the client site. I decoded the previously sent and received token while verifying the OTP. I compared the OTP from the decrypted token to the user's OTP. I mailed it to the user. I couldn't figure out how to send an OTP by email from the backend. Then I discovered the Nodemailer package and resolved the issue. Similarly, during the development stage, I encountered various issues. At the time, I relied on the internet for assistance, learned a lot of new things, and addressed those challenges.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business Process Modeling involves creating visual representations (such as flowcharts or BPMN diagrams) to illustrate how various processes operate within an organization. The goal is to analyze, optimize, and communicate workflows, enhancing efficiency and alignment with strategic objectives. This practice aids in identifying inefficiencies, streamlining operations, and supporting initiatives like process automation and continuous improvement. BPMN, with standardized symbols, provides a common language for process modeling across industries. Ultimately, business process modeling contributes to improved organizational agility and effectiveness.

In the operational flow of the website, users, travel agencies, and hotel owners undergo a seamless process of registration and login. Once authenticated, users explore tourist destinations, view associated travel packages and hotels, subsequently making bookings and payments. They can monitor their orders and request refunds if necessary. Travel agencies and hotel owners possess additional functionalities, allowing them to create, modify, and delete packages, as well as manage received orders. Admins, through a comprehensive dashboard, hold the authority to add, update, or remove divisions and tourist places, manage promotional offers, and oversee users, packages, agencies, hotels, orders, and transactions. The website also features an "Experience" page where users share travel anecdotes, accompanied by pictures and locations, engaging in interactions such as liking and commenting. The session concludes with users, agencies, and hotel owners logging out at their discretion. The business process model ensures a user-friendly experience while facilitating efficient management and interaction capabilities for all stakeholders on the platform.

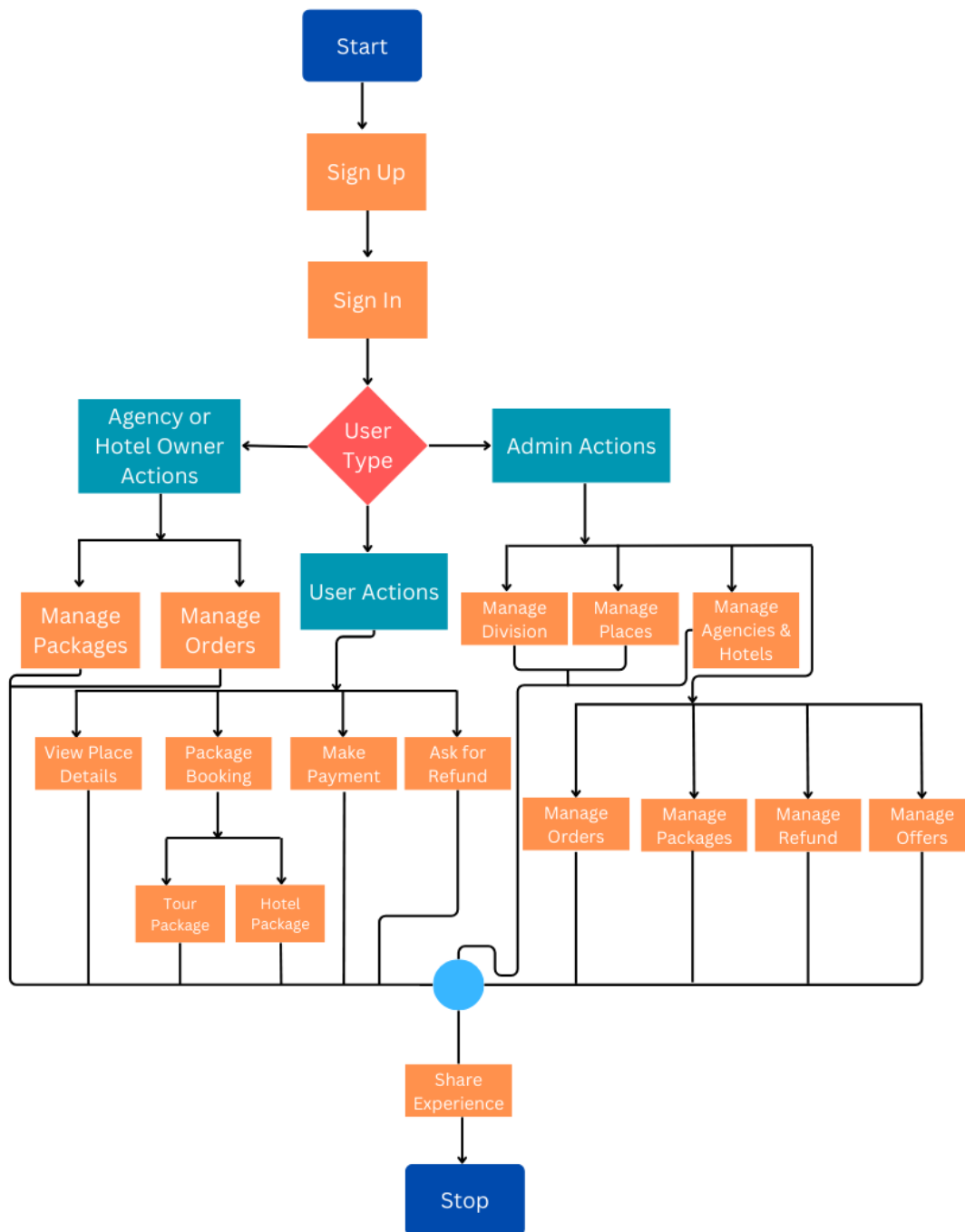


Figure 3.1.1: Flow Chart of TripTrekker

3.2 Requirement Collection and Analysis

System requirements are the technical standards that a customer must achieve in order to successfully operate our web application. These requirements are referred to as "system requirements." For your convenience, we also provide a desktop application. Users have the choice of accessing it using a web browser or by using our desktop program. Both solutions are available to them. It is necessary for the client to fulfill the minimum hardware requirements in order to make use of this online application or to run a desktop program. In the course of the implementation phase, I carried out a thorough examination of the entire system in order to ascertain the requirements that must be met in order to carry out the execution successfully. These requirements must be satisfied in order for the project to be considered finished.

3.3 Use Case Modeling and Description

User

The platform empowers users with a seamless experience, offering essential functionalities such as registration, login, and profile updates. Users can explore various tourist destinations, effortlessly book travel or hotel packages, and share their unique experiences within the community. The system provides a comprehensive overview, allowing users to view their orders, track payment history, and submit refund requests when needed. Additionally, a convenient chat feature connects users directly with the support team for prompt assistance, ensuring a user-centric and efficient interaction throughout their journey on the platform.

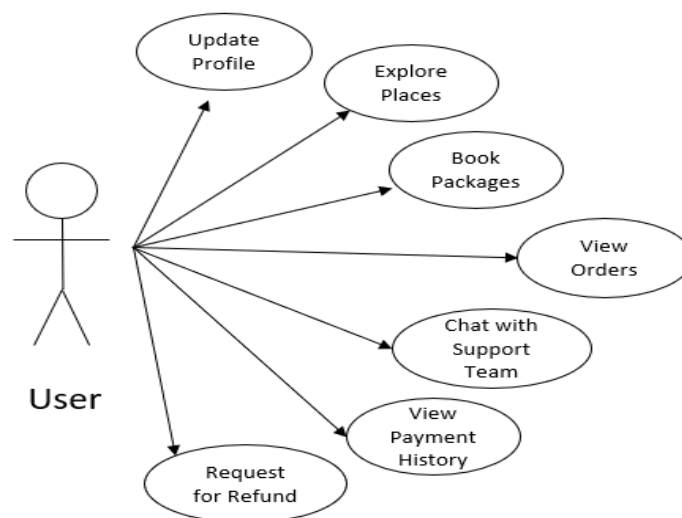


Figure 3.3.1: Use Case Diagram for User

Admin

The administrative capabilities encompass a range of functionalities, including the management of divisions and places, oversight of agencies and hotels, and a comprehensive view of all user-placed orders. Admins have the capability to monitor transactions closely, facilitating a robust oversight of the platform's financial activities. Additionally, they can efficiently handle the refund process, ensuring a streamlined resolution. The administrative control extends to the incorporation of promotional offers, providing a dynamic tool to enhance user engagement and facilitate strategic marketing initiatives. In essence, the admin features are designed to empower efficient control and strategic enhancement of the platform's operational landscape.

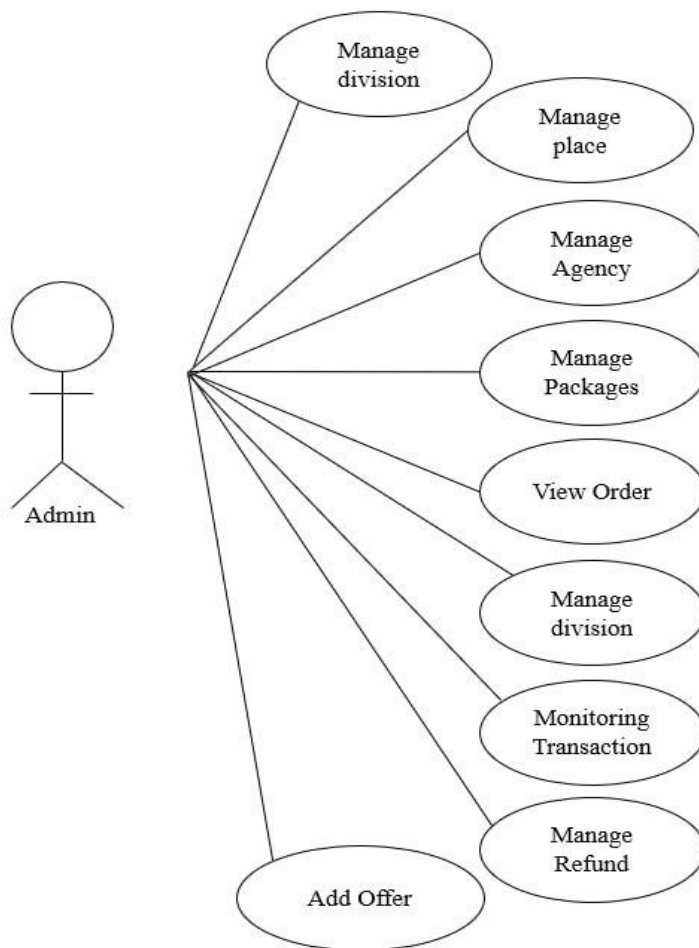


Figure 3.3.2: Use Case Diagram for Admin

Travel Agency

Travel agencies enjoy a range of self-management capabilities within the platform, enabling them to maintain their agency profile with ease. This includes the ability to create, update, and delete travel packages, allowing for dynamic adjustments to offerings. Furthermore, agencies can actively participate in order management by updating the status of orders they receive. Additionally, they have the opportunity to engage with the user community by posting updates and statuses on the experience page, fostering a direct connection with users and enhancing their visibility within the platform. These features collectively empower travel agencies to efficiently showcase their services, manage their profile, and actively contribute to the user experience on the platform.

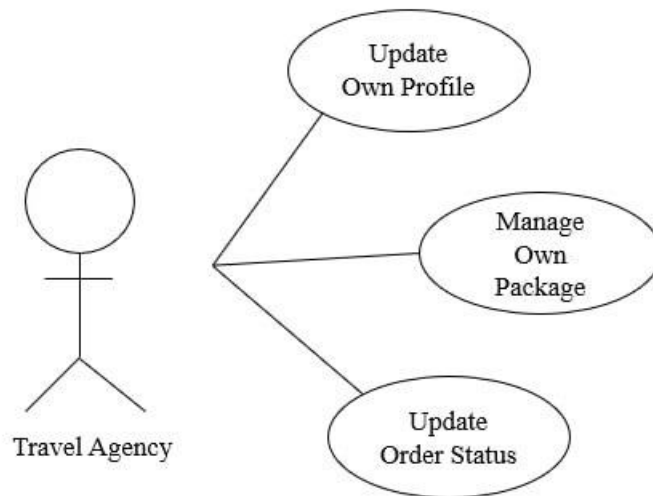


Figure 3.3.3: Use Case Diagram for Travel Agency

Hotel

Hotel owners benefit from a suite of self-management capabilities within the platform, enabling them to effortlessly update their hotel profiles. This includes the flexibility to create, modify, and remove hotel packages, facilitating real-time adjustments to their offerings. Moreover, hotel owners can actively participate in order management by updating the status of received orders. Additionally, they have the opportunity to engage with the user community by sharing updates

and statuses on the experience page, thereby establishing a direct connection with users and enhancing their visibility within the platform. These features collectively empower hotel owners to efficiently showcase their services, manage their profiles, and actively contribute to the overall user experience on the platform.

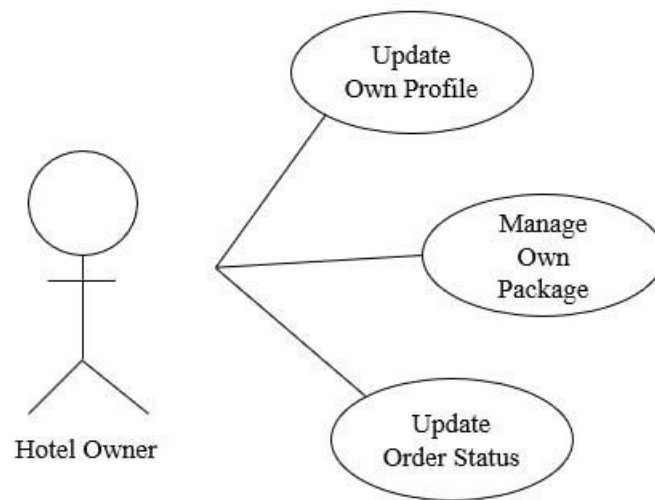


Figure 3.3.4: Use Case Diagram for Hotel

3.4 Logical Data Model

A logical data model provides an abstract representation of an organization's data, emphasizing entities, attributes, relationships, and integrity constraints. It acts as a bridge between business requirements and database design, guiding developers in creating an efficient and accurate database. This model, created during analysis and design, ensures alignment with organizational needs by focusing on the logical structure rather than specific implementation details.



Figure 3.4.1: Logical Data Model

3.5 Design Requirement

Hardware Requirements

To utilize this system effectively, certain hardware and software specifications must be met. A stable internet connection, a moderate central processing unit (CPU) such as an Intel Pentium 4, a comparable AMD or ARM Cortex-A Series, a minimum of 2 gigabytes of random-access memory (RAM), and at least 200 megabytes of storage capacity are essential. Additionally, an

operating system such as Windows, Linux, Android, or iOS is required for proper functionality. For running design software like Figma, VS Code, and Adobe XD, specific hardware requirements should be considered. Optimal performance is achieved with a quad-core processor, preferably an Intel Core i5 or AMD Ryzen 5, and a minimum of 8 GB RAM (preferably 16 GB). To ensure smooth operation, a Solid State Drive (SSD) with at least 256 GB of storage and a dedicated GPU such as NVIDIA GeForce GTX 1050 or AMD Radeon RX 560 are recommended, particularly for graphic-intensive tasks. The screen resolution should be at least 1280 x 800 pixels, although 1920 x 1080 pixels or higher is advisable. Figma necessitates a stable internet connection, while VS Code benefits from a faster processor for coding tasks. Adobe XD, tailored for intricate design work, benefits from a dedicated GPU and recommends touch-enabled devices for an optimal user experience. Regularly updating software and drivers is crucial for maintaining the best performance and compatibility, and it is advised to check official websites for the latest requirements.

Software Requirements

Designing a website with React involves utilizing a specific set of software tools tailored to the React framework. A robust text editor or integrated development environment (IDE), such as Visual Studio Code, is crucial for coding in React. Graphic design software like Adobe Creative Cloud remains valuable for crafting and refining visual elements. Wireframing and prototyping tools, like Figma or Adobe XD, assist in conceptualizing the website's structure, aligning with React's component-based approach. Git, in conjunction with platforms like GitHub, is essential for version control and collaborative development within the React ecosystem. Testing across browsers, especially those supporting React applications, remains critical, with tools like Chrome and Firefox. Our system requires the installation of Node.js. While React itself serves as a JavaScript library for building user interfaces, other tools like npm for package management and webpack for bundling are integral to the React development process. The testing of Rest APIs requires the use of Postman or other applications of a similar nature.

CHAPTER 4

Design Specification

4.1 Front End Design

Front-end development is the process of creating and implementing the visual and interactive components of a website or web application that users engage with directly. This process is responsible for the production of the website or application. The design and development of user interfaces are included in its scope, which guarantees that visitors will have an experience that is both seamless and engaging. Front-end developers employ a selection of markup languages, including HTML, CSS, and JavaScript, to structure and style web content, as well as to add features that are dynamic and interactive. They are accountable for optimizing the user interface for a variety of browsers and devices, maintaining a consistent and responsive design, and guaranteeing that the design is responsive. Since it has a direct impact on how customers perceive and interact with digital products, front-end development is an essential component of web development. As a result of the fact that it requires ongoing development to stay up with design trends, user experience principles, and developing technologies, it is a dynamic and innovative field within the larger domain of software development. I use React.js and Tailwind CSS, and Redux Toolkit to develop the front-end of my project.

React JS: Facebook is responsible for the development and maintenance of the powerful JavaScript library known as React.js, which may be used to facilitate the construction of user interfaces. React is a framework that is widely used for constructing web applications that are both responsive and dynamic. It adheres to a structure that is based on components, which enables programmers to design user interface elements that are both modular and reusable. Among the distinguishing features of React is the presence of a virtual Document Object Model (DOM), which enhances rendering efficiency by updating just the elements of the page that need to be modified. A method to programming known as declarative programming is utilized by React, which makes code comprehension and maintenance easier. Through its unidirectional data flow, it is possible to achieve predictable state management, which in turn makes it easier to create applications that are both scalable and easy to maintain. React gives developers the opportunity to design user interfaces that are not only highly interactive and efficient, but also

value simplicity and maintainability. This ability is granted to developers when React is used to single-page applications or when it is included in more substantial endeavors.

Tailwind CSS: Utilization comes first. Through the provision of a collection of pre-designed, low-level utility classes, the Tailwind CSS framework makes the process of applying styles to web applications more straightforward and straightforward. For our project, I relied on Tailwind CSS as our CSS framework. Tailwind advocates a more adaptive and modular methodology, which enables developers to generate individual designs through the aggregation of tiny utility classes. This contrasts with typical CSS frameworks, which feature predefined elements on their own. Tailwind provides a complete array of utility classes that make it easier to customize and simplify a variety of features. These classes include margins, padding, and typography, among others. It eliminates the need to manually compose bespoke CSS, which results in an improvement in both the efficiency and uniformity of the formatting process. Because Tailwind CSS has a wide range of configurable options, developers can tailor the framework to the exact design requirements of any individual project. Its extensive use can be attributed, in part, to the fact that it is straightforward, scalable, and simple to include into a wide variety of front-end projects, ranging from small websites to large-scale applications.

Redux Toolkit: The Redux Toolkit simplifies the process of managing state in React by introducing an organized approach for managing application state. This is accomplished through the implementation of the Redux modeling pattern. With the ‘createSlice’ method, programmers can define reducers and actions in a condensed manner, hence eliminating the need for unnecessary boilerplate code. A more consistent development experience can be achieved through the use of the ‘configureStore’ method, which accelerates the setting of Redux stores by integrating common middleware and offering defaults that are reasonable. Programmers are able to more effectively identify and resolve state updates as a result of the interaction between Redux Toolkit and Redux DevTools, which increases the functions of debugging. To assist the management and organization of the entire application state, which in turn encourages scalability and maintainability, it is beneficial to have a single global state repository. The process of making decisions is made easier by its objective design, which also encourages the implementation of best practices in state management. As a whole, Redux Toolkit is a very useful tool for React developers since it simplifies operations, enhances code legibility and

productivity, and optimizes the state management process. In addition, it optimizes the state management process.

4.2 Backend Design

The development of the backend is a vital part of the process of creating a website. From this fundamental architecture, the functionality of the website is derived. Among the components that fall under this category are database management systems, server-side components, application logic, as well as the creation and maintenance of these components. One of the objectives of a qualified backend developer is to ensure that the website runs effectively, to keep the frontend in excellent communication, and to manage data in a secure manner. A online experience that is both sturdy and centered on the user may be created with the help of these aspects when they are put together.

During the creation of the backend of my project, I made use of a powerful technological framework in order to improve both the usefulness and the security of the system. In order to facilitate the execution of JavaScript on the server side, Node.js served as the runtime environment. Express.js, on the other hand, provided a streamlined framework for the construction of the web application. Data storage and retrieval were made easier by the utilization of MongoDB, a NoSQL database. Additionally, Orama was utilized as the relational database management system (ORM) to further streamline database interactions. JSON Web Token (JWT) was responsible for ensuring that authentication was secure, Nodemailer was responsible for streamlining email communication, Mongoose was responsible for improving interactions with MongoDB, and SSLcommerz was responsible for introducing an additional layer of security for online transactions. Because of this all-encompassing combination of technologies, the infrastructure of my web development project is both dynamic and secure. This is a result of the fact that it is combined with other technologies.

Node JS: The powerful runtime known as Node.js, which is built on the V8 JavaScript engine, is revolutionizing server-side development with its design that is event-driven and does not block development. Because it enables developers to use JavaScript to construct applications that are both scalable and high performing, it is a popular choice for real-time applications and application programming interfaces (APIs). Node.js functions exceptionally well when it comes to managing concurrent connections and swiftly processing requests, which makes it an excellent choice for

developing applications that are both data-intensive and responsive. A further factor that contributes to its adaptability is the wide package ecosystem that it offers through npm (Node Package Manager). This ecosystem helps to cultivate a thriving community and speeds up the development process. Overall, Node.js has solidified its position as a fundamental component of contemporary web development. It offers a solid basis for the construction of server-side applications that are both quick and scalable.

Express.js: Since it is both straightforward and efficient, Express.js, which is a web application framework that is both versatile and minimalistic and was created for Node.js, was an essential component in the success of my project. Through the introduction of a collection of robust functions that made it easier to design durable web apps and APIs, it brought about an optimization of the development process. Through the utilization of its middleware architecture, Express made it possible to manage HTTP requests, achieve routing, and incorporate a wide variety of modules. This simplified the process of customizing and increasing functionality. The framework was able to promote short development cycles, gather strong community support, and amass a multitude of resources as a result of its widespread adoption and lightweight design. In general, Express.js served as a framework that was stable and efficient, making it easier for me to construct backend services for my project that were not only scalable but also abundant in features.

MongoDB: For my project, I depended primarily on the adaptability and scalability of MongoDB, which is a NoSQL database application. The document-oriented data model made it possible to store different kinds of data in a format that did not contain any schemas, which resulted in an increase in the rapidity of the development process. MongoDB's horizontal scalability features made it possible to manage huge amounts of data and heavy traffic needs in a seamless and efficient manner. The employment of dynamic schema and documents that are similar to JSON helped to speed the process of integrating my Node.js infrastructure, which in turn enabled efficient iterations during the process. In general, the adaptability, scalability, and ease of integration that MongoDB provides made it an ideal choice for the goal of managing and retrieving data in my project in the most effective manner by providing the aforementioned benefits.

Mongoose: Mongoose, an Object-Document Mapping (ODM) package that was built specifically for MongoDB and received widespread adoption, was an essential component in the process of easing the user's interactions with the database. Validation and manipulation of data were made

easier by the provision of a structured model and schema, which were both also given. When I was editing documents in MongoDB, I was able to construct data models in the form of JavaScript by utilizing Mongoose. This allowed for a workflow that was more streamlined and intuitive. Middleware and query assistants were incorporated into the system, which resulted in a considerable improvement in the efficiency of database operations. To put it simply, Mongoose served as an essential intermediate between my Node.js application and MongoDB. This enabled me to integrate MongoDB into my project in a manner that was more streamlined and focused on the needs of developers.

JSON Web Token (JWT): When I was working to develop a secure and stateless authentication system, the JSON Web Token (JWT) was of the utmost importance. In order to guarantee the validity and integrity of the data, JWTs, which are digitally signed to convey claims between two parties in a manner that is both brief and suitable for URLs, are utilized. By utilizing JWTs in my application, I was able to ensure that the information that was being transferred between the client and the server was securely and quickly transmitted. Because of their self-contained nature, JWTs were able to successfully maintain user information in an organized fashion. As a result, the need for ongoing database queries during user sessions was significantly reduced. This standardized and lightweight authentication mechanism significantly enhanced both the performance and security of my project; hence, JWT is an essential component in ensuring that user interactions are conducted in a secure manner.

Nodemailer: Through the implementation of Nodemailer into my project, I was able to considerably enhance both the user experience and the level of security, particularly with regard to the possibility of recovering lost passwords. Through the use of Nodemailer, users who had forgotten their credentials were sent one-time passwords (OTPs) in an automated fashion. Not only did this technique ensure that a direct means for resetting passwords was available, but it also included an additional layer of security by validating the user's identity through the use of their registered email address. The dependable transmission of these one-time passwords (OTPs) was made possible by the easy integration of Nodemailer and the robust functions that it possesses. The password recovery process within my program was consequently improved in terms of both its security and its usability as a result of this.

SSLCommarz: In order for my venture to be successful, it was essential that I have a reliable and secure payment processing system, which was provided by SSLCommerz, which is a secure online payment gateway. Users were able to conduct transactions in a safe environment according to the integration, which utilized encryption to protect sensitive data from any potential dangers that may have been present. By supporting a wide range of payment options, SSLCommerz was able to give its users with a payment experience that was both streamlined and varied. Not only did the incorporation of SSLCommerz into my project play a part in enhancing the overall security of financial transactions, but it also contributed to the development of user confidence. By using SSLCommerz, my application would be able to provide customers with a streamlined and protected experience when conducting online transactions by utilizing a payment gateway that is both secure and quick.

4.3 Interaction Design and User Experience (UX)

Home Page: When you arrive at the TripTrekker home page, you will see a search box where you can look for tourist attractions in our country. By clicking on the search results, you will be sent to the place details page, where you may learn more about the location. Again, at the bottom of the search bar, there is a slider that displays interesting tourist attractions in Bangladesh. Then you may find our most recent offers as well as answers to frequently asked questions about TripTrekker. There will then be trip packages, hotel packages, and customer testimonials.

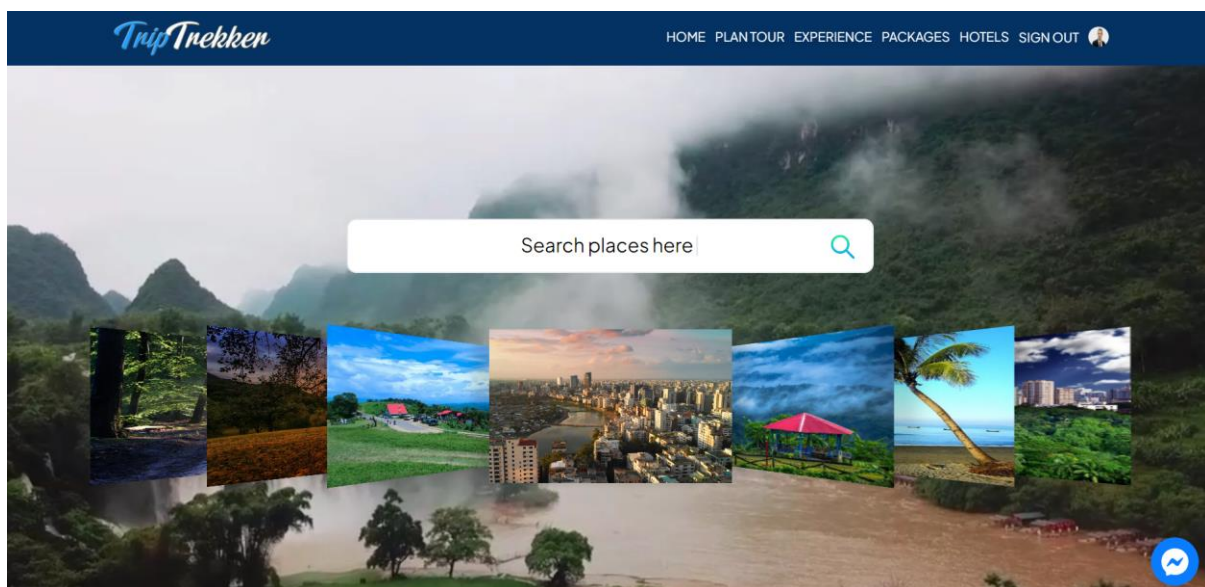


Figure 4.3.1: Search box on home page

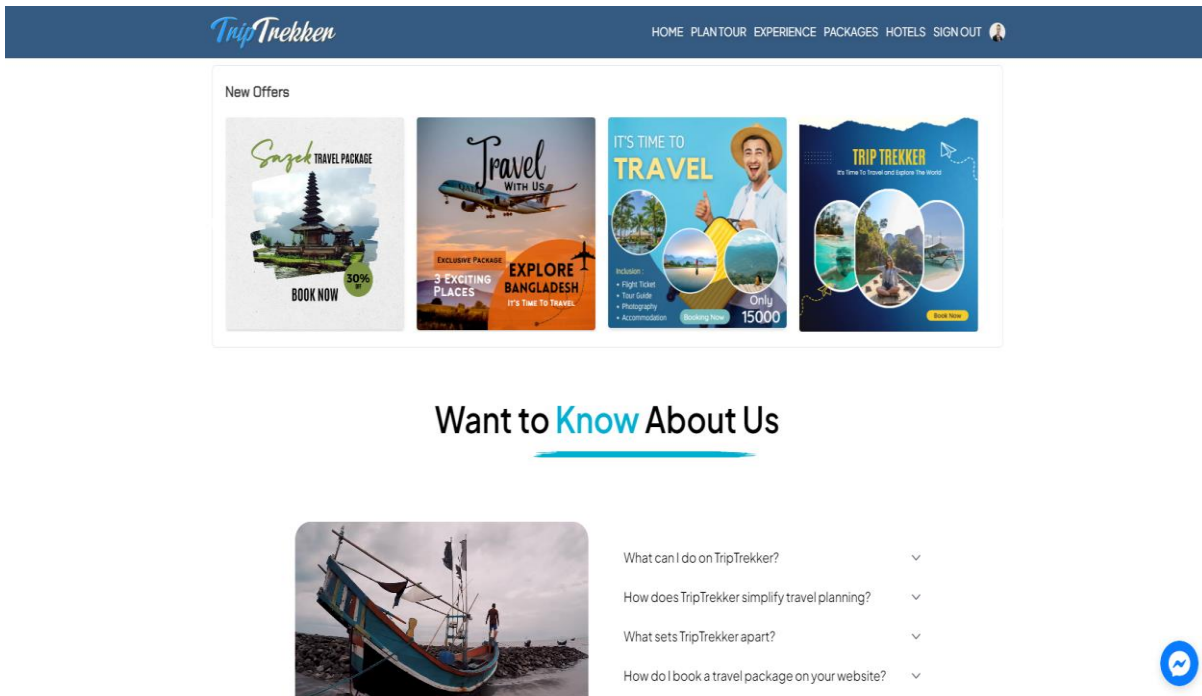


Figure 4.3.2: Latest offers on home page

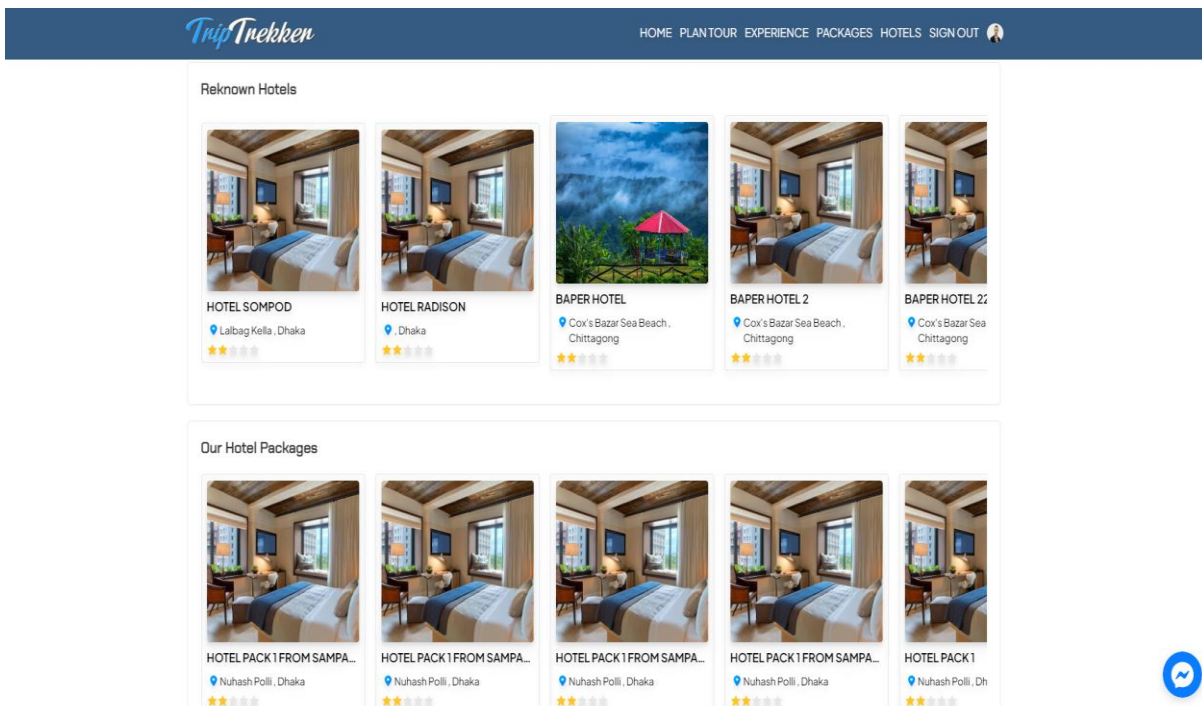


Figure 4.3.3: Hotel Packages on home page

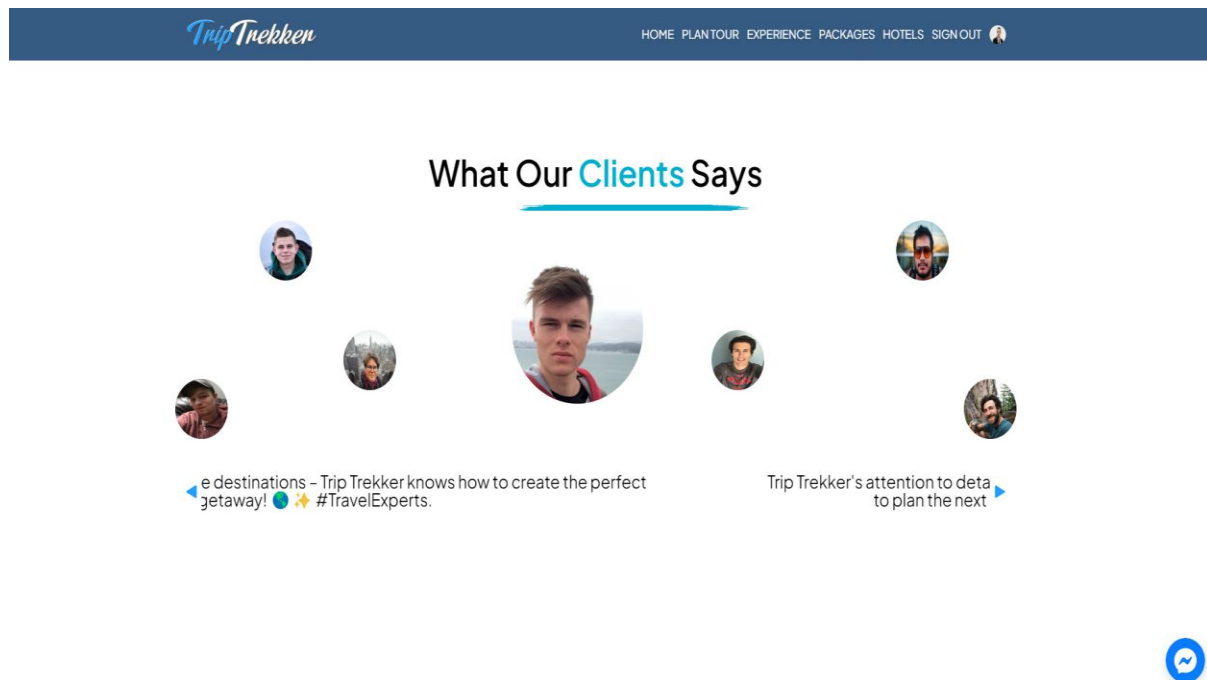


Figure 4.3.4: Client review on home page

Plan Tour Page: Users are able to locate and choose from all of Bangladesh's divisions on the plan Tour page.

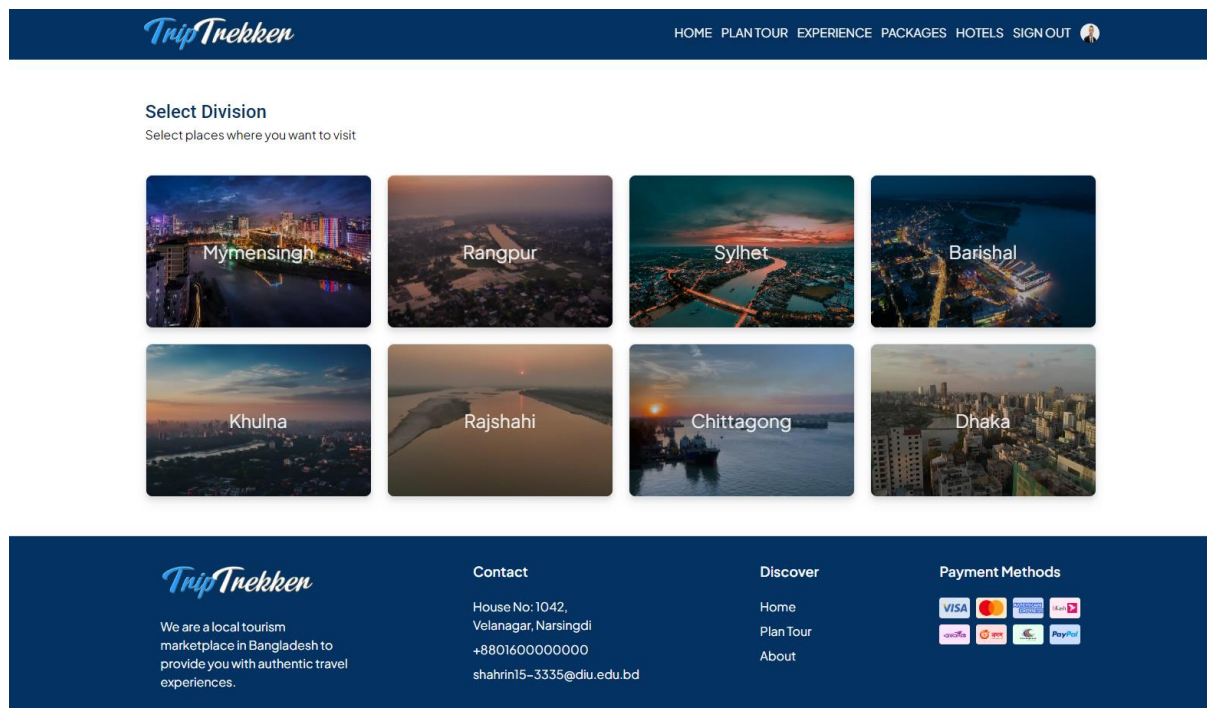


Figure 4.3.5: Plan a Tour Page

Select Place Page: On this page, the user has the ability to select the location of a division.

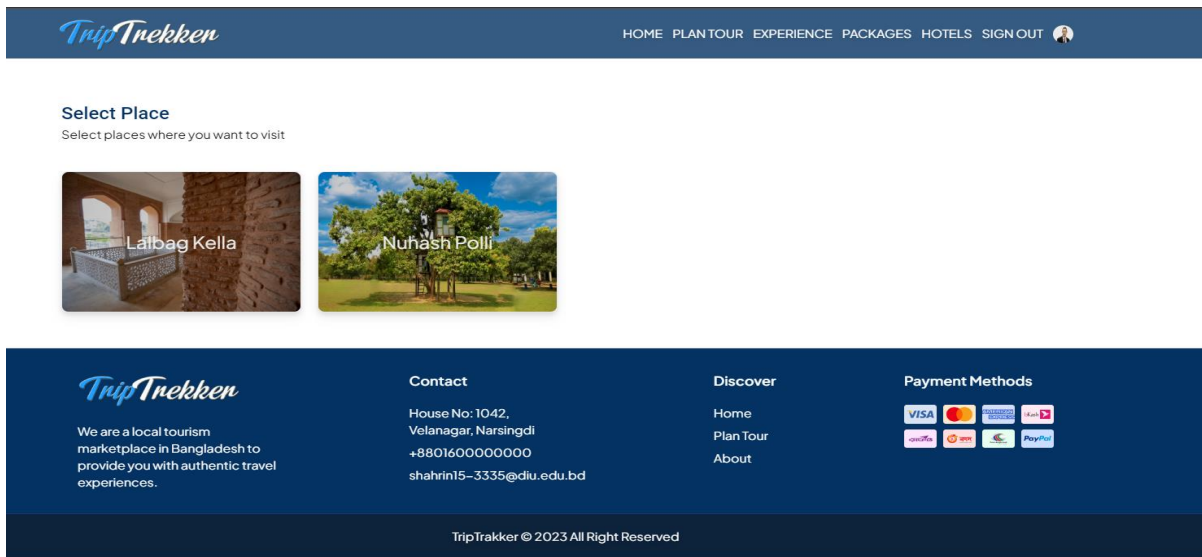


Figure 4.3.6: Select Place Page

Place Details Page: The page provides users with the opportunity to browse images of the area that they have selected and to acquire additional information regarding it. At the bottom of that page, users have the opportunity to locate travel packages and adjacent hotel packages for the place that they have picked.

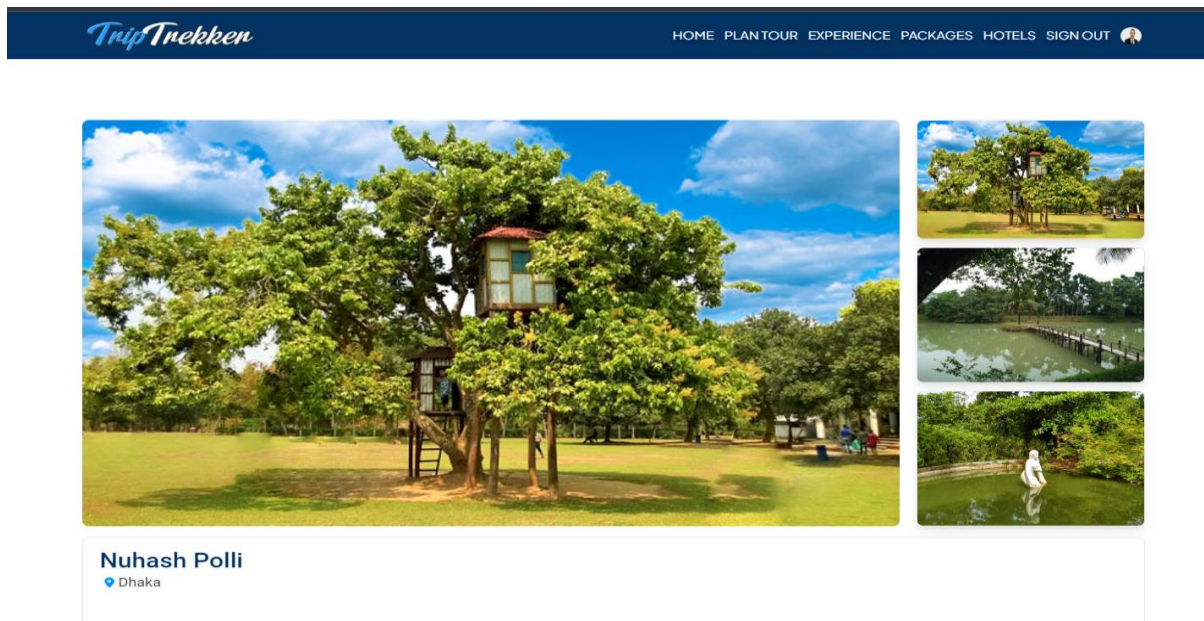


Figure 4.3.7: Place Details Page

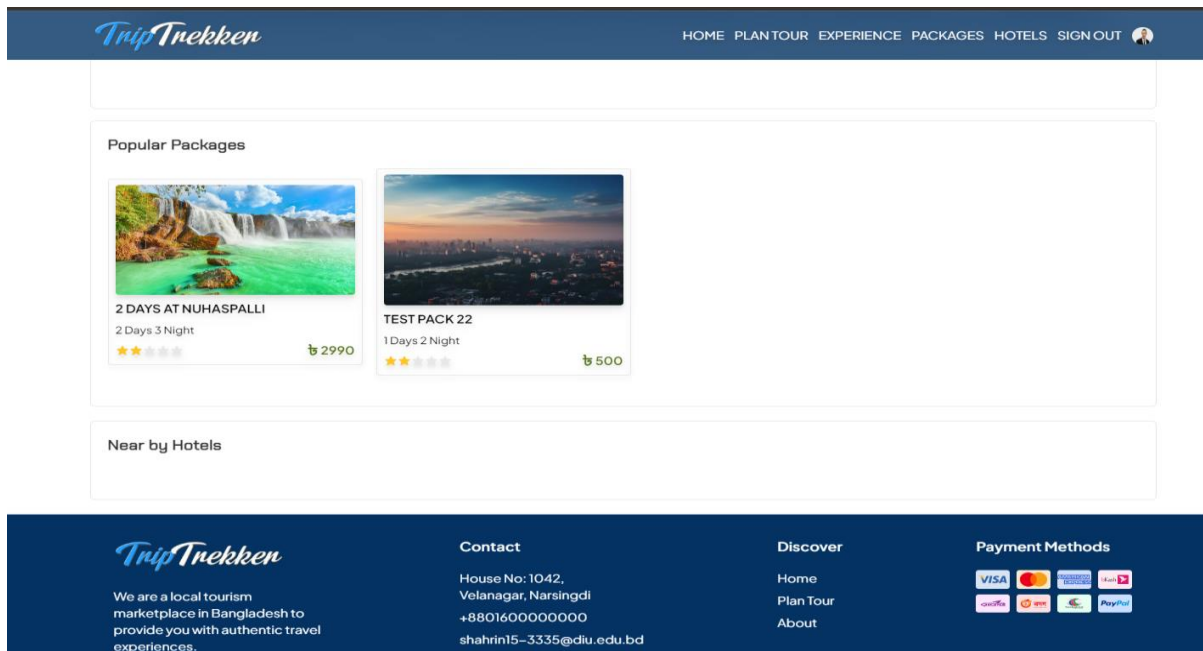


Figure 4.3.8: Popular Package List

Packages Page: Users have access to a wide variety of hotel and vacation packages to choose from when they visit this page that is dedicated to packages. Because of the user interface's user-friendly design, users are able to effortlessly navigate through a wide variety of accessible options. Users have the opportunity to make use of the search functionality in order to identify bundles that are tailored to meet the specific criteria that they have. In addition, the items can be arranged in accordance with the moment at which they were created, which enables users to easily access the most recent offerings at the beginning of the process. By making use of the various filtering options that are accessible, users have the power to improve the quality of their search experience. The users have the flexibility to narrow down the packages based on the category that they fall into, which enables them to focus solely on travel or hotel packages. Through the utilization of this optimized technique, the user experience is enhanced, which in turn makes it easier to determine the ideal product that is in accordance with the preferences and requirements of the persons who are engaged.

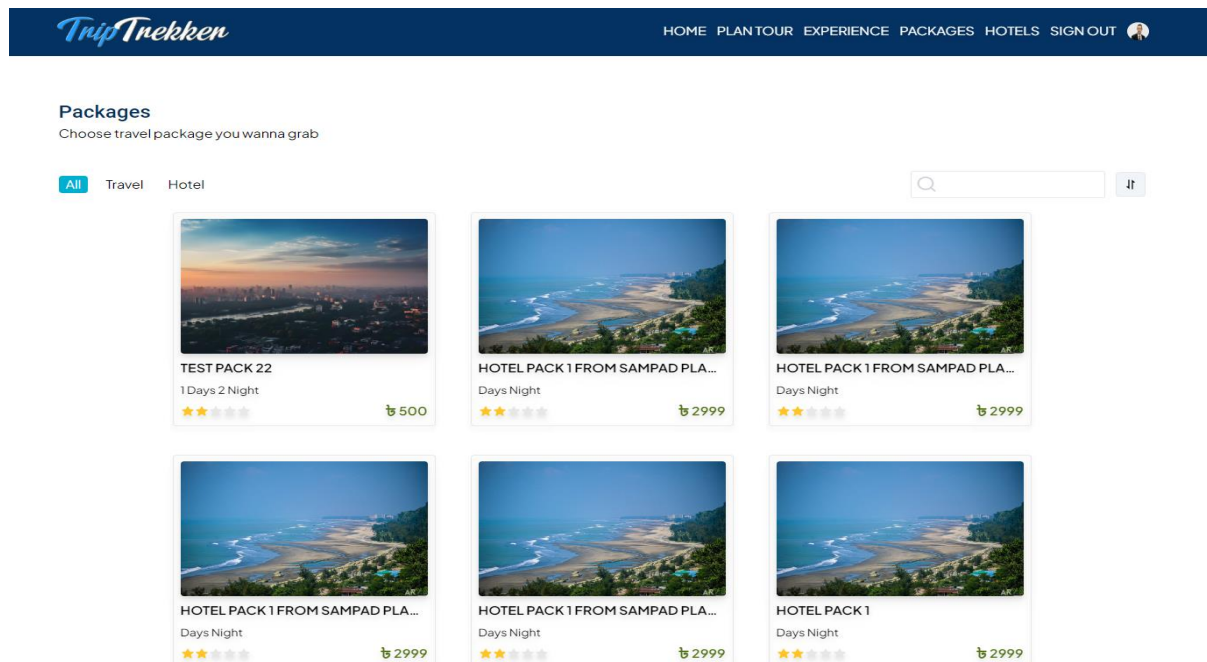


Figure 4.3.9: All Travel Packages page

Hotels Page: On our dedicated page, you will find a wide variety of hotels that provide a variety of options to go with. Make a decision that is well-informed and matched to your interests for a pleasant stay by selecting a particular hotel. This will allow you to access full facts.

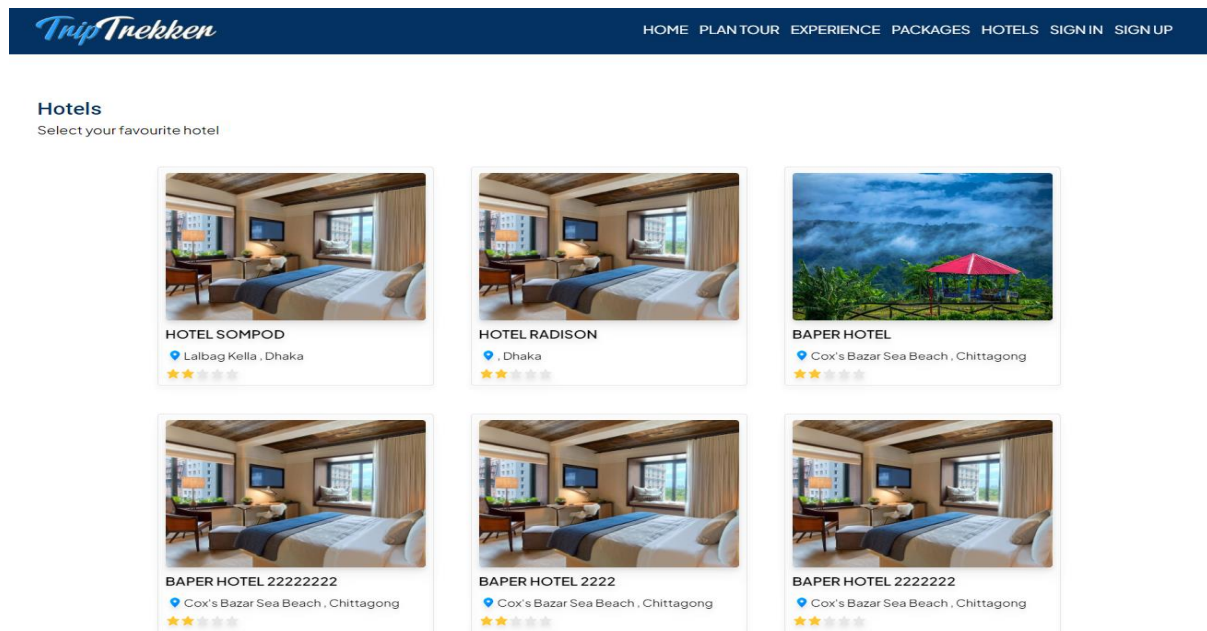


Figure 4.3.10: All Hotel Packages page

Hotel Details Page: On our Hotel Details page, you will have the opportunity to take advantage of the convenience of accessing detailed information on the hotel. Find out important information such as the phone number, the exact address, the location on the map, and most importantly, the various hotel packages that are available. You can select from a wide variety of reasonably priced packages, assuring that you will find the ideal solution that is tailored to your interests for an experience that will enrich your stay.

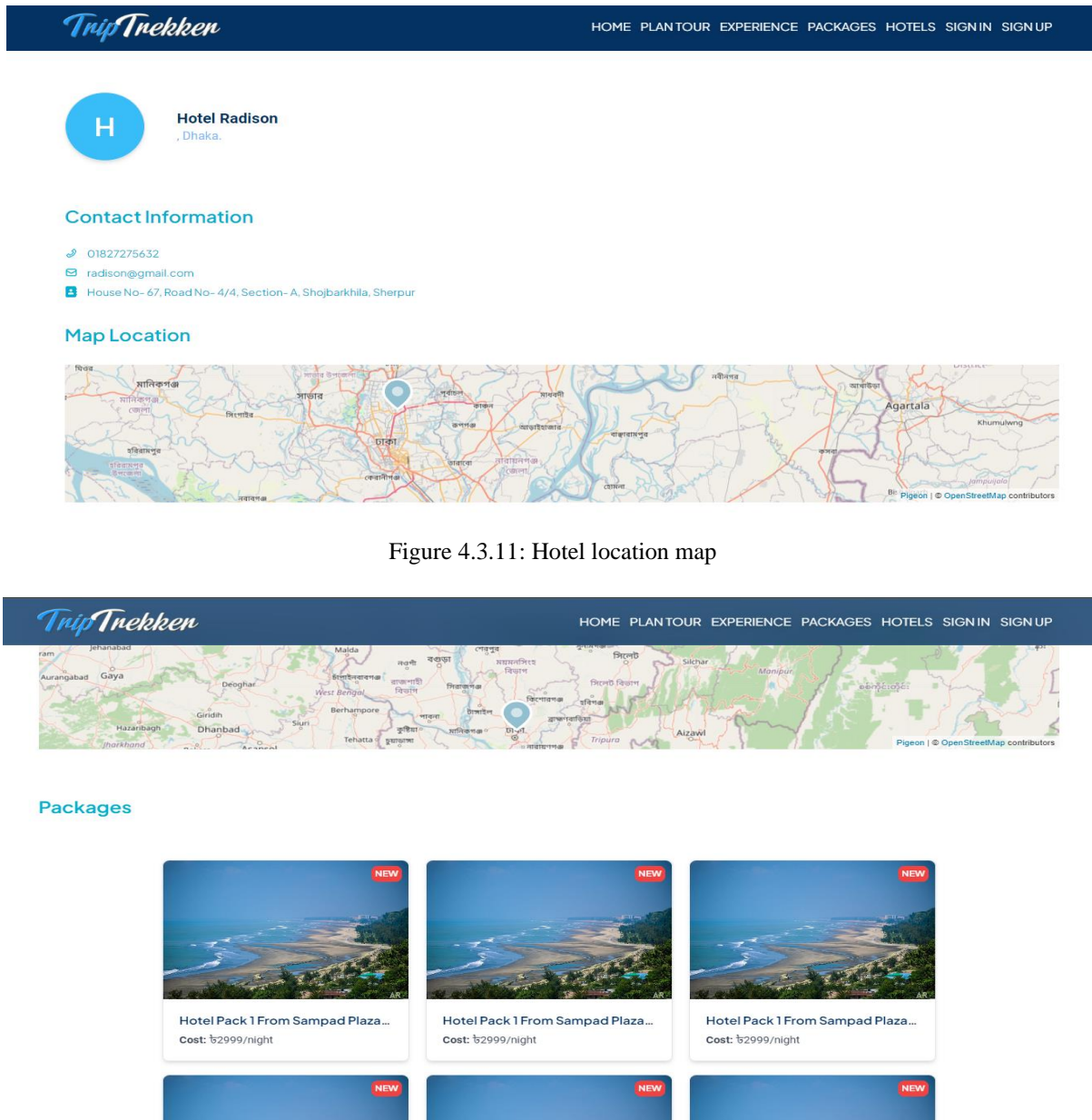


Figure 4.3.11: Hotel location map

Figure 4.3.12: Hotel Details Page

Package Details Page: You may find the details of the package on the website that is dedicated to that. There are two separate package kinds shown on this page, and they each have their own user interface: hotel packages and travel packages. Get all the information you need about the package you chose, and then book it with no hassle by paying for it. Your reservation will go off without a hitch if you follow these steps.

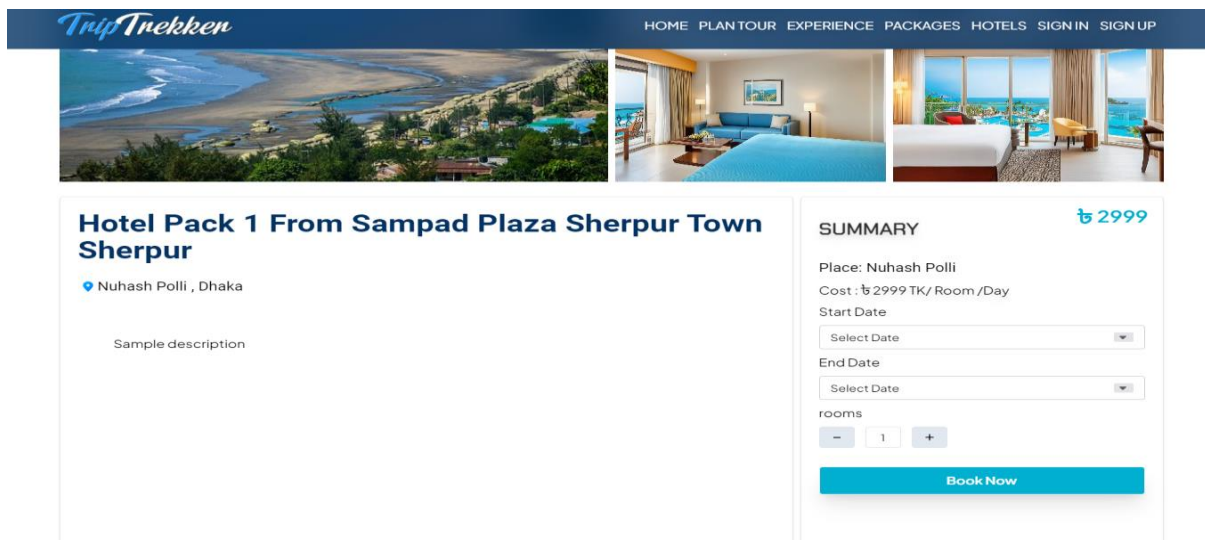


Figure 4.3.13: Package Details Page

Payment Page: Experience the secure SSLCommarz payment interface, which presents an extensive range of payment alternatives, as you navigate towards the payment process. Ensure a dependable transaction experience by employing one of the numerous secure payment methods that are provided.

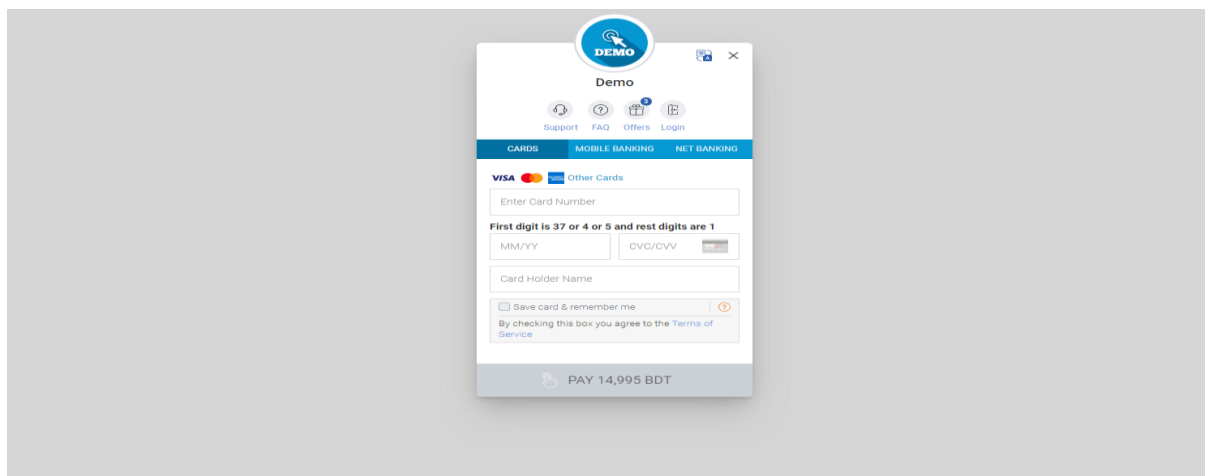


Figure 4.3.14: Payment Page

Offer Details Page: All of the information that the user needs to know about the offer that they have chosen can be found on the offer details page.

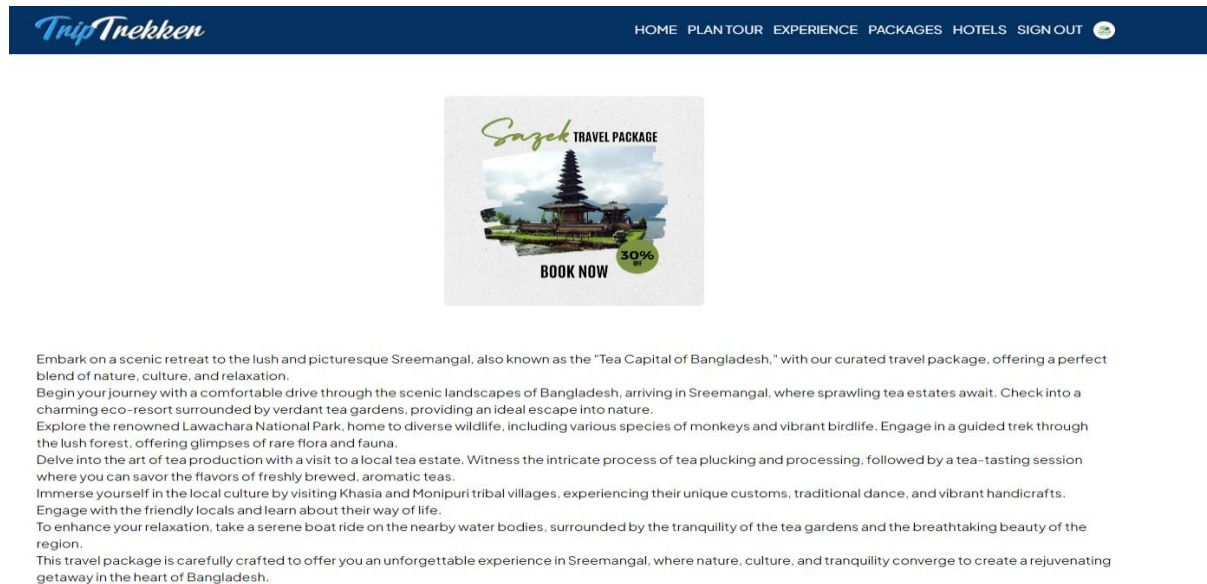


Figure 4.3.15: Offer Details Page

Agency Dashboard: All owners of travel agencies can discover information about their agencies on the Agency Dashboard page. The owner of the agency is able to view all of the orders that have been received, the current status of the orders, as well as all of the packages that they have generated and maintain them.

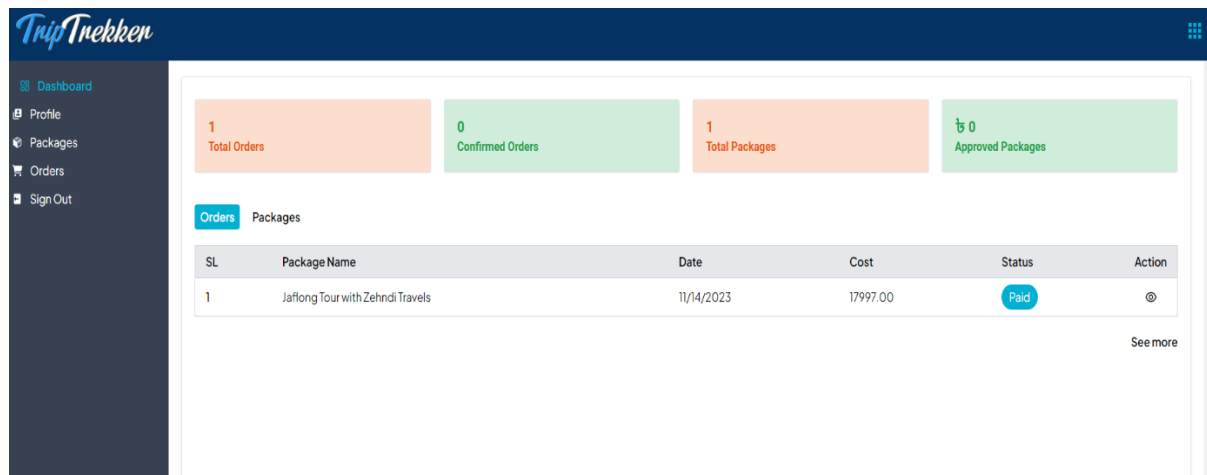


Figure 4.3.16: Agency Dashboard

Hotel Owner Dashboard: The page called Agency Dashboard is a great resource for any hotel owners looking for information on their properties. All of the orders that have been received, their current status, and all of the packages that have been prepared and maintained may be viewed by the hotel owner.

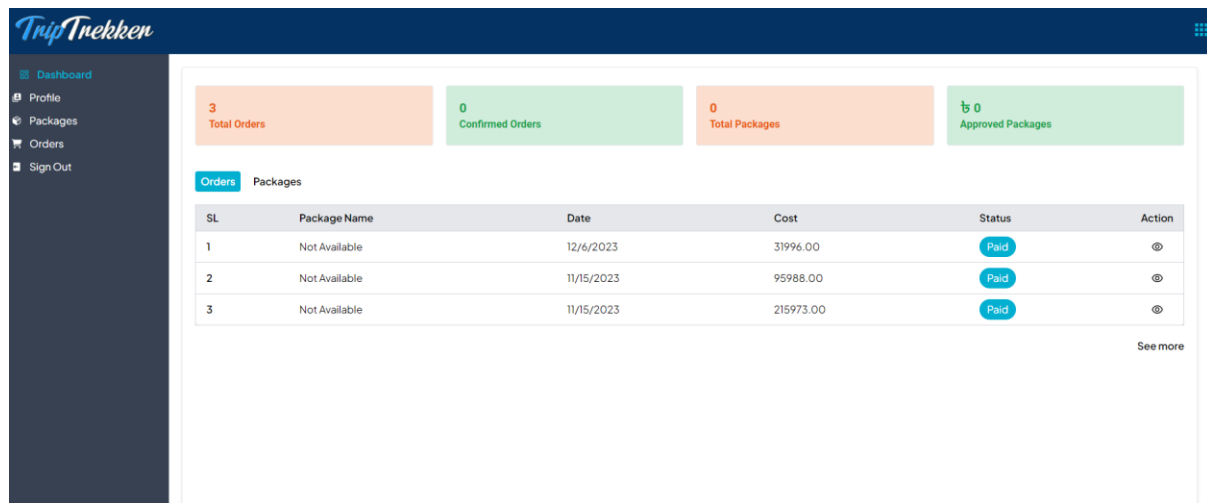


Figure 4.3.17: Hotel Owner Dashboard

User Dashboard: Users can access account details such as total orders, confirmed orders, cancelled orders, total spent money, the option to examine order details, the choice to check transaction history, and the ability to request a refund on the user dashboard page.

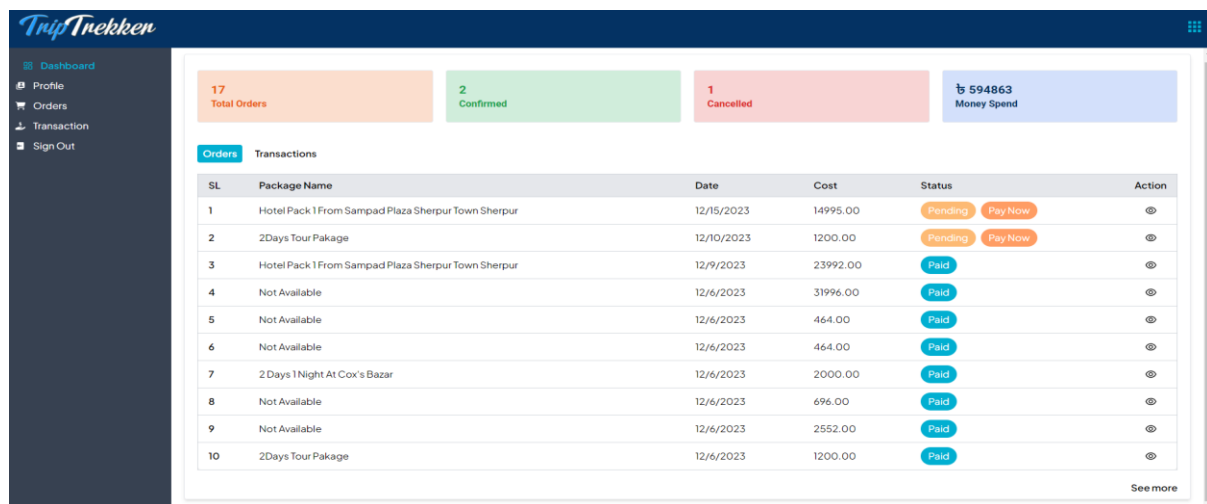


Figure 4.3.18: User Dashboard

Admin Dashboard: Admins can manage their profiles, divisions, places , agencies, and hotels via the admin dashboard. Manage packages made by agencies and hotels, orders, transactions, and offers, among other things.

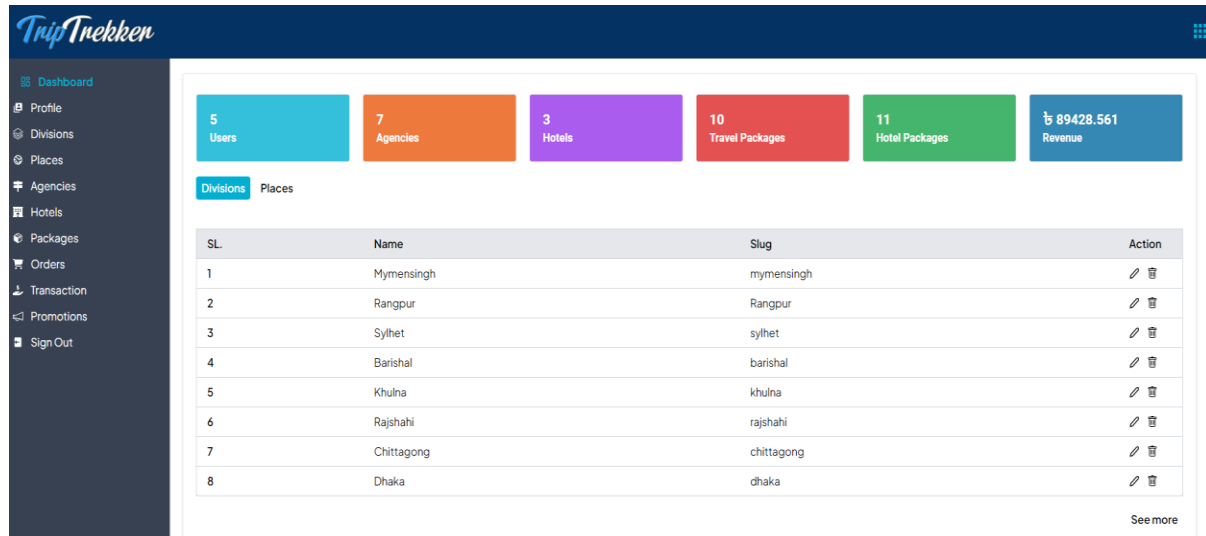


Figure 4.3.19: Admin Dashboard

Profile Page: All types of users, admins, agencies, and hotel owners can update their personal profiles on the profile page; hotel owners and travel agencies can add and update information about their organizations. Upload the required documents.

The screenshot shows the TripTrekken Profile Page. The top navigation bar is dark blue with the TripTrekken logo on the left and a grid icon on the right. A sidebar on the left contains a list of menu items: Dashboard, Profile, Divisions, Places, Agencies, Hotels, Packages, Orders, Transaction, Promotions, and Sign Out. The main content area is titled 'PROFILE' and contains a photo upload section with a placeholder image and instructions: 'The image must be clear and recent', 'Size must be 4*4', and 'Size must not exceed 5mb'. Below this is a 'General Information' section with fields for Full Name (Shahin), Gender (Male selected), Phone (01779448961), and NID (admin@gmail.com). An 'Address' section follows with fields for Street/ Village (Belabo), City (Narsingdi), and a 'Save' button.

Figure 4.3.20: Profile Page for all types user

Manage Division Page: Admins can add new divisions, modify division information, and delete divisions from the division page.

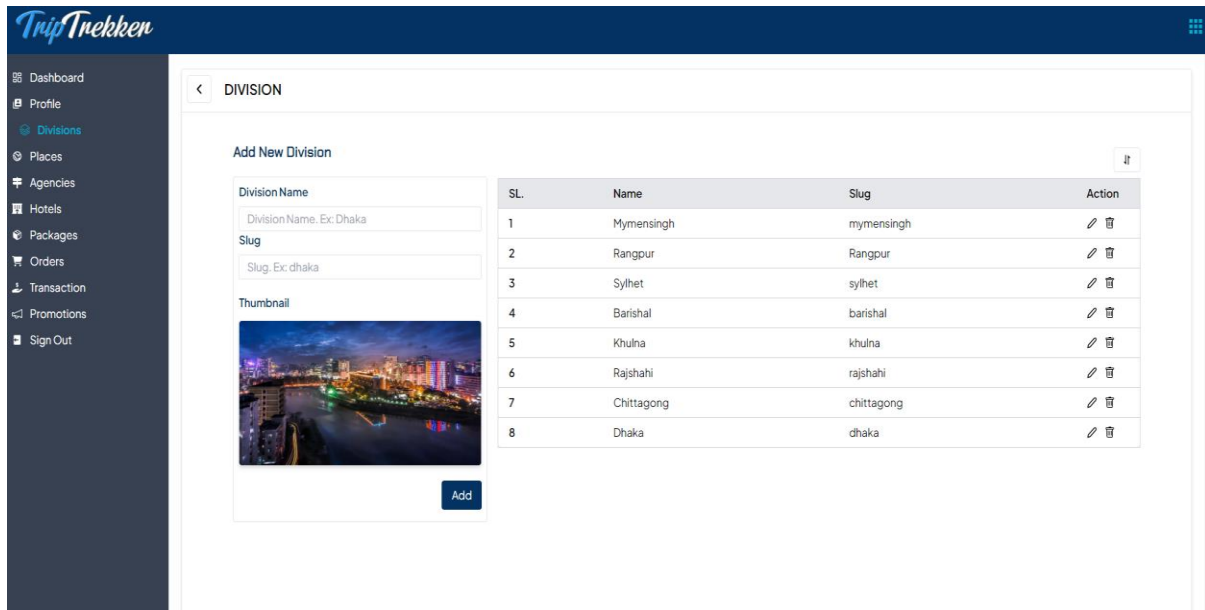


Figure 4.3.21: Manage Division Page

Manage Places Page: Admins can inspect newly created places, delete them, and change detailed information of any places.

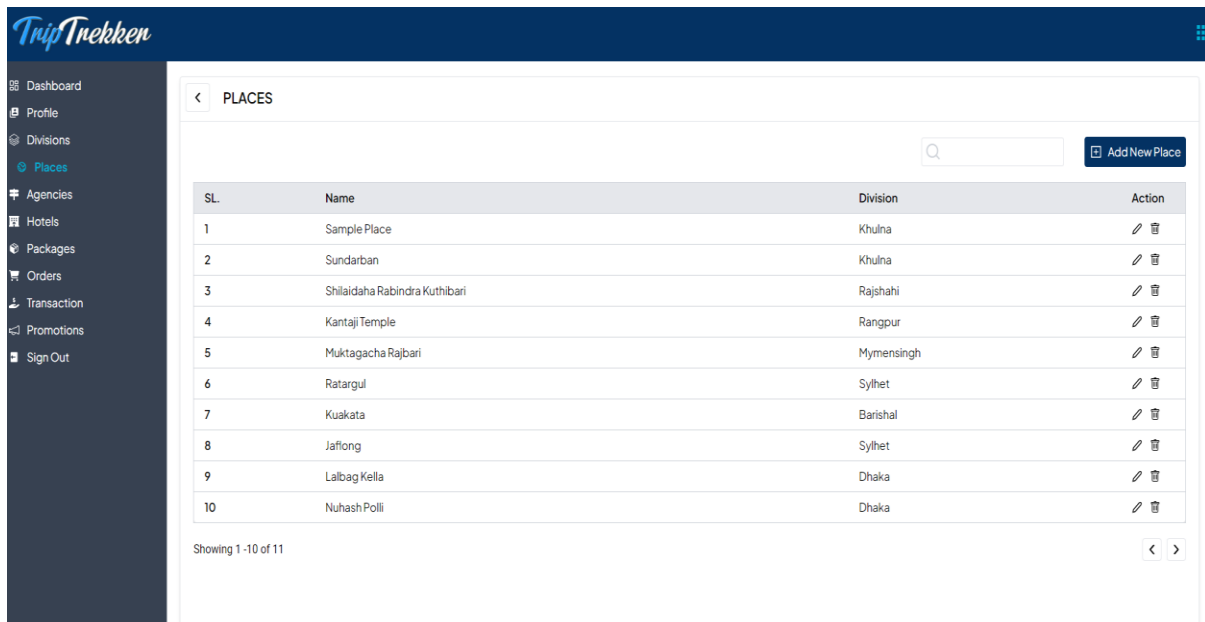


Figure 4.3.22: Manage Places Page

TripTrekken

- Dashboard
- Profile
- Divisions
- Places**
- Agencies
- Hotels
- Packages
- Orders
- Transaction
- Promotions
- Sign Out

Thumbnails

+ Upload

Name
Sample Place

Division
Khulna

Description
Sample place details

Update

Figure 4.3.23: Add Places

Manage Agencies: Admins can view all agencies on this page. They can be deleted, approved, or banned by admins.

TripTrekken

- Dashboard
- Profile
- Divisions
- Places
- Agencies**
- Hotels
- Packages
- Orders
- Transaction
- Promotions
- Sign Out

AGENCIES

All Approved Pending Declined Banned

SL	Logo	Name	Email	Lisence No	Owner	Status	Action
1		sdsdsdsdsdsdsdsds	dsdsdsdsdsds@gmail.com	232323232323	travelGuru	Pending	
2		Dynamic Travels	dynamic@gmail.com	498498484	Global Milage Management Company Ltd.	Pending	
3		Global Milage Management Company Ltd.	globalmileage@gmail.com	949999999999	Globalmileage	Pending	
4		Zehndi Travel	zehndi@travel.com	23243573434	Travel Agency 2	Declined	
5		Marine Travels Agency	marin@travel.com	4421714345132	Travel Agency	Pending	
6		Agency 2	agency2@gmail.com	31234123123		Pending	
7		Marine Travels Agency	marin@travel.com	4421714345132	Travel Agency	Approved	
8		Marine Travels Agency	marin@travel.com	4421714345132	Travel Agency	Approved	
9		Marine Travels Agency	marin@travel.com	4421714345132	Travel Agency	Approved	
10		Marine Travels Agency	marin@travel.com	4421714345132	Travel Agency	Approved	

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Figure 4.3.24: Manage Agencies Page

TripTrekken

Dashboard
Profile
Divisions
Places
Agencies
Hotels
Packages
Orders
Transaction
Promotions
Sign Out

Agency Information

Name: sdsdsdsdsdsdsdsds

Email: dsdsdsdsdsdsd@gmail.com

Licence No: 232323232323

Address: sssfsfsdfsdf

Owner Information

Name: travelOUru

Email: travel33@gmail.com

Phone: 01845277749

Documents: 1.webp

Pending [Update](#)

Figure 4.3.25: Add Agencies

Manage Hotels: Admins can view all hotels on this page. They can be deleted, approved, or banned by admins.

TripTrekken

Dashboard
Profile
Divisions
Places
Agencies
Hotels
Packages
Orders
Transaction
Promotions
Sign Out

< HOTELS

All Approved Pending Declined Banned

SL	Logo	Name	Email	Licence No	Owner	Status	Action
1	logo	Hotel Sompod	sompod@gmail.com	34567887655	Hotel OwnerTwo	Approved	Edit Delete
2	logo	Hotel Radison	radison@gmail.com	4576254724	Hotel Owner One	Pending	Edit Delete
3	logo	Baper Hotel	baperhotel@gmail.comss	2122323442343		Pending	Edit Delete
4	logo	Baper Hotel 22222222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
5	logo	Baper Hotel 22222222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
6	logo	Baper Hotel 2222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
7	logo	Baper Hotel 22222222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
8	logo	Baper Hotel 2	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
9	logo	Baper Hotel 22222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete
10	logo	Baper Hotel 222222	baperhotel@gmail.com	2122323442343		Pending	Edit Delete

Showing 1 - 10 of 11

Figure 4.3.26: Manage Hotels page

Agency Information

Name: sdsdsdsdsdsdsds

Email: dsdsdsdsdsd@gmail.com

Licence No: 232323232323

Address: ssfsfsdfsdf

Owner Information

Name: travelGUru

Email: travel33@gmail.com

Phone: 01845277749

Documents: 1.webp

Pending [Update](#)

Figure 4.3.27: Add Hotels

Manage Packages Page: On this website, hotel owners and agencies have the ability to create, amend, and remove packages for their respective hotels and travel agencies. The status of packages can also be altered by the admin. Users with normal privileges are the only ones who can access packages that have been authorized by administrators.

PACKAGES

Search:

All Hotel Travel

SL	Name	Agency/Hotel	Status	Action
1	test pack 22	Marine Travels Agency	Pending	Edit Delete
2	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	Hotel Radison	Pending	Edit Delete
3	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	Hotel Radison	Pending	Edit Delete
4	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	Hotel Radison	Pending	Edit Delete
5	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	Hotel Radison	Pending	Edit Delete
6	Hotel Pack 1	Hotel Radison	Pending	Edit Delete
7	Hotel Pack 1	Hotel Radison	Pending	Edit Delete
8	Hotel Pack 1	Hotel Radison	Pending	Edit Delete
9	Hotel Pack 1	Hotel Radison	Pending	Edit Delete
10	Hotel Pack 1	Hotel Radison	Pending	Edit Delete

Showing 1 - 10 of 21

Figure 4.3.28: Manage Package Page

ADD NEW PACKAGE

Photos:

Name:

Division:

Location:

Duration:

Cost:

Status:

Description:

Normal B I U

Figure 4.3.29: Add packages

Orders Page: Admins have the ability to access all orders, users can view their own placed orders, and agency and hotel owners can modify the status of orders they have received on the orders page.

ORDERS

SL	Package Name	Date	Cost	Status	Action
1	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	12/15/2023	14995.00	Pending	
2	2Days Tour Package	12/10/2023	1200.00	Pending	
3	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	12/9/2023	23992.00	Paid	
4	Not Available	12/6/2023	31996.00	Paid	
5	Not Available	12/6/2023	464.00	Paid	
6	Not Available	12/6/2023	464.00	Paid	
7	2 Days 1 Night At Cox's Bazar	12/6/2023	2000.00	Paid	
8	Not Available	12/6/2023	696.00	Paid	
9	Not Available	12/6/2023	2552.00	Paid	
10	2Days Tour Package	12/6/2023	1200.00	Paid	

Showing 1 -10 of 23

Figure 4.3.30: Order page

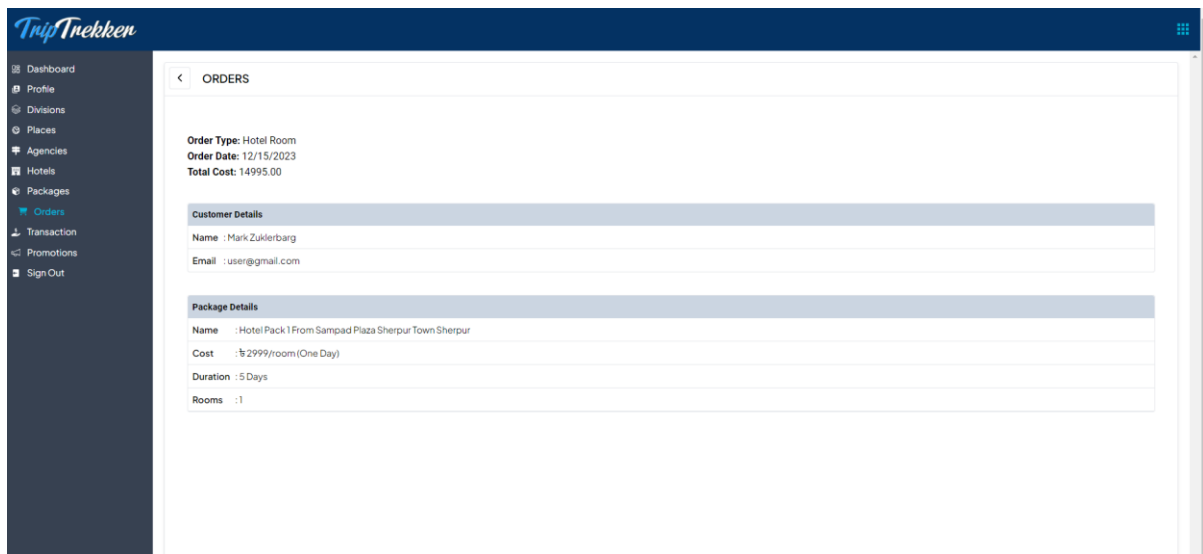


Figure 4.3.31: Order details page

Transaction Page: At the page for transactions Payment histories are accessible to the user. This webpage allows users to request a refund. Administrators, conversely, have the ability to examine every transaction and process refund requests submitted by users.

SL	Tnx Id	Package Name	Date	Total	Status	Action
1	65741a925e128d448c10bf06	Hotel Pack 1 From Sampad Plaza Sherpur Town Sherpur	12/9/2023	23992.00	Paid	Refund Cancel
2	6570230a82d7f4c32c03567a	Not Available	12/6/2023	31996.00	Paid	Refund Cancel
3	656ff6d82d7f4c32c03557c	Not Available	12/6/2023	464.00	Paid	Refund Cancel
4	656f8ffcfcaadb702227f6cdf	Not Available	12/6/2023	464.00	Paid	Refund Cancel
5	656f8aac57a3ee433c612025	2 Days 1 Night At Cor's Bazar	12/6/2023	2000.00	Paid	Refund Cancel
6	656f87a214d0b5b24e20f8f2	Not Available	12/6/2023	696.00	Paid	Refund Cancel
7	656f876e14d0b5b24e20f8d3	Not Available	12/6/2023	2552.00	Paid	Refund Cancel
8	656f87414d0b5b24e20f8a1	2Days Tour Package	12/6/2023	1200.00	Paid	Refund Cancel
9	656f86c48b112f8a6b3a7f36	2Days Tour Package	12/6/2023	1200.00	Paid	Refund Cancel
10	656f8fc38128be4023193f150	2 Days at NuhasPalli	12/1/2023	2990.00	Paid	Refund Cancel

Figure 4.3.32: Transaction Page

Promotion Page: Users are able to view and take advantage of promotional offers that are created on this page by administrators only. Such offers are then displayed on the homepage.

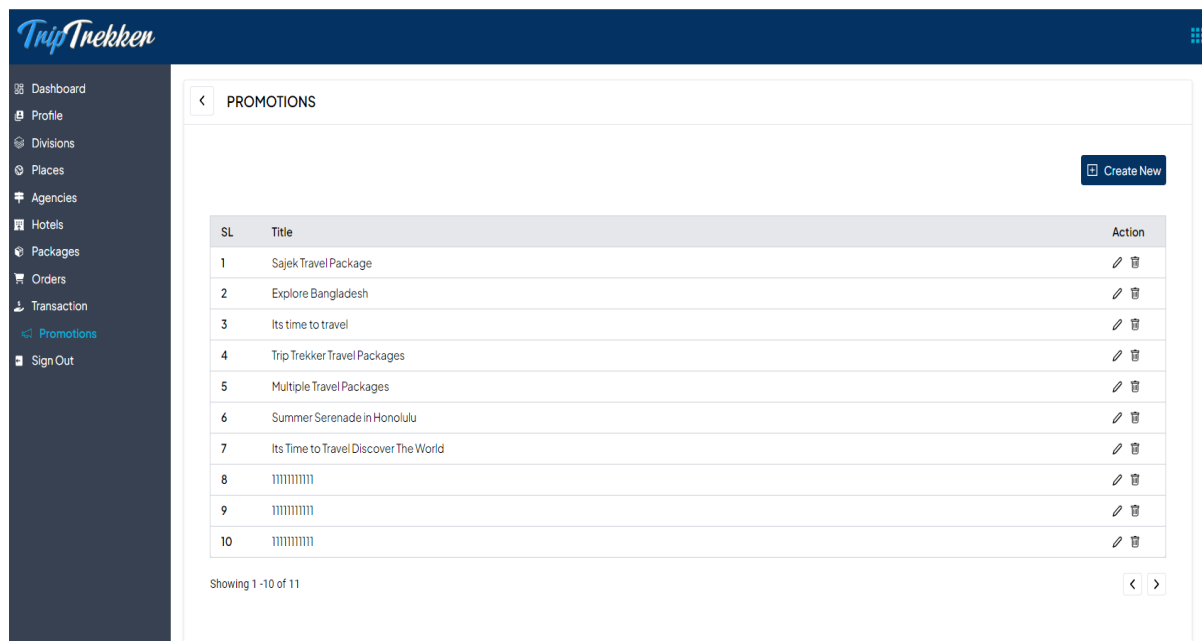


Figure 4.3.33: Promotions page

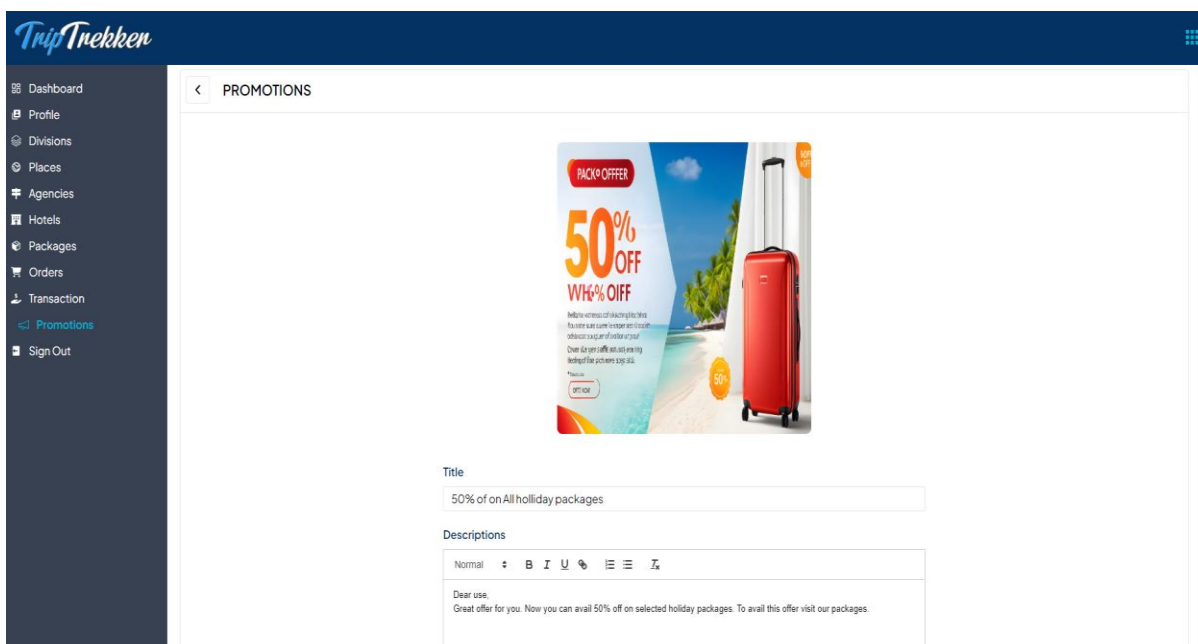


Figure 4.3.34: Promotions page manage

4.4 Implementation Requirements

This project employs a technology stack consisting of React.js with Tailwind CSS for the frontend, Node.js for the backend, and MongoDB as the database, with MongoDB Compass facilitating database management. The user interface design is crafted using Figma, providing a seamless and

visually appealing experience. The codebase is hosted on GitHub, ensuring version control and collaborative development. API functionality is rigorously tested using Postman, guaranteeing the reliability of RESTful endpoints. Deployment involves utilizing platforms like Netlify or Vercel for the frontend and Heroku, AWS, or Azure for the backend, with careful consideration for securing sensitive information through environment variables. Here I used Digitalocean for both hosting frontend and backend. Extensive documentation, encompassing API details, setup instructions, and coding standards, promotes ease of development and collaboration. Quality assurance is maintained through unit and integration testing, while continuous integration pipelines automate testing and deployment processes. This comprehensive approach ensures a robust and well-organized implementation of the project.

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

This project generates an enormous quantity of data. Therefore, a database is required to contain the information generated by users, travel agencies, hotel owners, and admins. There are a variety of database options available for use. However, I opted for MongoDB for my endeavor. MongoDB is a NoSQL database that utilizes adaptable documents resembling JSON to store data. Employing a document-oriented data paradigm, it is engineered to be scalable and efficient. MongoDB is frequently employed by applications that necessitate schema-free, dynamic data storage.

5.2 Implementation of Front-end Design

React.js was utilized to construct the user interface of my project. React.js is a Facebook-developed JavaScript utility utilized in the construction of user interfaces. It permits the creation of UI components that can be reused by developers in order to construct efficient and interactive single-page applications. The virtual DOM implemented in React improves the efficacy of web applications by facilitating efficient updates. I developed The React Project utilizing Vite. Vite is a modern web development build tool that prioritizes streamlined builds and rapid development. Vite leverages the capabilities of native ES modules to expedite the development server initialization and hot module replacement (HMR) processes, thereby enhancing the developer experience when utilized in the creation of React applications. It leverages Rollup for production-ready builds, resulting in efficient and performant React applications. Tailwind CSS was employed in conjunction with conventional CSS as a CSS framework.

5.3 Implementation of Back-end Design

Before beginning back-end development with Node.js, I installed it on my personal computer. I created a 'index.js' file in the same directory subsequent to executing "npm init -y" to generate a Node.js application. I configured an Express server, a flexible and minimal Node.js web application framework renowned for facilitating the creation of scalable and resilient server-side applications, in this file. This framework is widely utilized for developing APIs and managing HTTP requests due to its capabilities in constructing mobile and web applications. The hostname

'localhost' and the port '4000' are required to execute the project locally; it can be accessed at 'http://localhost:4000'.

5.4 Testing Implementation

When we want to do something, we have to think about the sustainability of that work. In our research, we tried to build models using machine learning approaches that can identify prostate cancer patients' cancer stages and survivability. This kind of research can have a significant impact on human beings. That's why we thought about the sustainability plan for our research. The symptoms of all diseases have been changing day by day. This is also applicable to prostate cancer. That's why we have a plan regarding this problem. In the near future, we will use reinforcement learning in our model. That will collect new types of data and train our model, and it will deploy new models continuously. In this process, there will be no problem if the symptoms of prostate cancer change.

Table 5.4.1 Performance Measurements of Survivability (Alive or Dead) Models

Test No.	Description	Test Data	Expected Result	Actual Result
01	Entering a valid email address along with an incorrect password.	Email: user@gmail.com Password: 123456	Invalid username or password.	Passed
02	During the signup process, attempting to register with an email address that is already in use.	Email: shahrin15-3335@diu.edu.bd	The email has already been taken.	Passed
03	Attempting to log in with an email address that is not yet registered.	Email: shahrin15-3335@gmail.com Password: 123456	No user found with this email address.	Passed

04	Attempting to sign in with a valid email and password.	Email: user@gmail.com Password: Admin#1234	Navigate to the homepage.	Passed
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5.5 Deployment

For deploying this project, I opted for 'digitalocean.com,' creating a 512MB memory, 10GB disk space droplet with Ubuntu 23.10 LTS. After installing Node.js, npm, and pm2, I cloned my GitHub repository, navigated to it with 'cd ./TripTrekker-back-end,' and ran 'npm i' to install packages. Following installation, I initiated the project as a process using 'pm2 start npm --name "TripTrekker" -- run dev.' The 'pm2 save' command preserved the process list for consistency across server reboots. I acquired the 'triptrekker.online' domain from GoDaddy, configured DNS, and set up a free CloudFlare SSL certificate. The website is now accessible to everyone at 'triptrekker.online'.

CHAPTER 6

Conclusions and Future Work

6.1 Impact on Society

Inspiring and informative travel resources are available on my website. People can find new places to go and have better vacation plans with the help of TripTrekker's complete guides, recommendations, and travel stories. People can learn about other countries, traditions, and ways of life by traveling. Because traveling can help people from different cultures understand and interact with each other. My website may help the local economy grow. Promoting the exploration of less popular tourist destinations aids in the equitable distribution of tourism revenue. My website allows users to talk about their travel experiences helps to cultivate a sense of community among vacationers. This platform has the potential to serve as a place for those who have a strong passion for traveling to facilitate the exchange of information, and suggestions, and the cultivation of relationships with one another. My project will be beneficial to education because it will assist individuals in gaining knowledge about geography, history, and other cultures. This material has the potential to contribute to the education of persons who are interested in traveling to different parts of the world.

6.2 Impact on Environment

In the future, I plan to include a transportation service option on my website. Given the nature of my website, it has the potential to indirectly facilitate and promote travel and tourism. Although the website itself may not directly cause this, the advertising of travel can result in environmental repercussions owing to emissions from transportation. So, need to provide an eco-friendly destination for the user is mandatory.

6.3 Ethical Aspects

Make sure that all of the information on my website is correct and up to date. This includes information about travel, packages and hotels, prices, and information about places to visit. Giving tourists false information can make them unhappy. I am required to implement a privacy policy for my website due to the significant importance of safeguarding user data. Tell the user how their information will be gathered, used, and kept. Tripthekker needs to get permission from the user and make sure that private data is safe before collecting any personal information and sharing it with other people. To do this, my website has distinct management sections for the admin panel,

travel agency, hotel, and general users. Each section is isolated to prevent access to other parts of the system. I employ robust and reliable payment gateways to ensure the security of transactions for my users. My website ensures that its content and marketing materials are culturally sensitive and respectful. Try to represent diverse cultures accurately. I will try to be transparent about the relationships with partners, advertisers, and sponsors. I try maintain to all relevant laws and regulations related to travel, e-commerce, and user data protection.

6.4 Sustainability Plan

When we want to do something, we have to think about the sustainability of that work. As part of my project, I will be developing a business plan that is designed to be sustainable and ensure financial stability. Several different avenues of revenue, such as advertising, affiliate marketing, or premium memberships, should be taken into consideration. My website includes a feature that allows users to provide feedback. Users have the option to submit their valuable feedback through a direct live chat. So, business strategies can be looked at and changed often based on feedback from users and market trends. I think it is necessary to update and improve my website to add new technologies and functions, so I need to look up industry trends to remain competitive. I can guarantee that "TripTrekker" will not only fulfill the requirements of users but also make a good impact on the environment and society.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

Bangladesh boasts numerous captivating tourist destinations, offering a diverse array of options for travelers to plan their excursions. However, many individuals encounter difficulties in doing so, often due to a lack of comprehensive knowledge about these destinations or apprehensions about planning a trip. Recognizing this challenge, I have conceived a solution in the form of a website that serves as a comprehensive guide to all tourist places in Bangladesh. This website aims to provide users with detailed information about various tourist spots, enabling them to acquire extensive knowledge about each location. Armed with this information, individuals may find inspiration to explore these places. Additionally, the site will feature listings of travel agencies and hotels, streamlining the planning process for users. For those who prefer a hassle-free experience, travel agencies will offer curated travel packages. These packages will cover all aspects of the journey, ensuring a smooth and organized trip. Alternatively, individuals opting for a more personalized approach can manually plan their tours using the information provided on the website. To facilitate this, the site will offer a wide array of hotel options for each tourist destination, allowing users to conveniently book accommodations through the platform. By offering a one-stop solution for travel planning, my goal is to empower hesitant travelers and simplify the entire tour planning process. I believe that providing accessible information and seamless booking options will encourage more people to embark on journeys, ultimately contributing to the growth and enrichment of the tourism sector in Bangladesh.

7.2 Scope for Further Developments

In the upcoming future, I aspire to launch an all-encompassing online platform dedicated to simplifying international travel arrangements. My website will serve as a convenient hub for users seeking to plan, customize, and book their trips abroad, as well as for those interested in exploring the diverse attractions of Bangladesh. With features such as personalized itineraries, seamless hotel bookings, and international flight reservations, our platform aims to streamline the entire travel process. Additionally, we extend our services to individuals residing outside Bangladesh, offering them a chance to effortlessly plan and experience the cultural richness of the country. The incorporation of a secure international payment gateway will further enhance

the global accessibility of our platform, ensuring smooth and reliable transactions for users worldwide. Our commitment to user experience, security, and convenience underscores our vision to redefine the way people engage with and enjoy international travel.

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