

VROMON – WEB BASED TRAVEL MANAGEMENT SYSTEM (TMS)

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The requirements for the Bachelor of Science in Computer Science and Engineering are partially satisfied by this report.

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APPROVAL

The Department of Computer Science and Engineering at Daffodil International University has accepted this project, " **Vromon - Web-based travel management system**" submitted by "Arnob Sarker" ID-201-15-3426 as satisfactory for partially fulfilling the requirements for the degree of B.Sc. in Computer Science and Engineering. The project's style and contents have also been approved. The presentation took place on 26th January, 2024.

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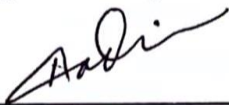
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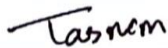
We hereby officially announce that we completed this project under the supervision of **Mr. Mahimul Islam Nadim, Lecturer**, Department of CSE, Daffodil International University. Furthermore, we affirm that neither this project nor any portion of it has been submitted for consideration for a degree or certificate elsewhere.

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ABSTRACT

The sophisticated and user-friendly Web-based travel management system (TMS) "Vromon" was created with three main stakeholders in mind: system administrators, organizers, and customers—all of whom want to travel more easily and more comfortably. This cutting-edge platform combines state-of-the-art technology to provide an extensive feature set catered to the various demands of every stakeholder.

The "Vromon" System Administrator module provides administrators with powerful capabilities to monitor system configurations, manage user accounts, and guarantee the platform's security and seamless functioning. Administrators are empowered to ensure that all users are working in an effective and safe environment by implementing updates, configuring access levels, and maintaining system integrity.

"Vromon" offers Organizers a user-friendly interface for effortlessly planning, organizing, and managing travel-related tasks. This module provides features for efficiently managing reservations, creating and customizing trip packages, organizing itineraries, and supervising logistical preparations. Using real-time data and reporting capabilities, organizers may maximize their clients' travel experiences and make well-informed decisions.

Customers who utilize "Vromon" benefit from a user-friendly interface that makes booking and organizing travel hassle-free. Customers may easily manage their travel preferences, book and explore a variety of travel alternatives, and obtain comprehensive itineraries through an intuitive interface. Moreover, interactive elements and tailored suggestions improve the whole trip experience, guaranteeing client happiness and loyalty.

The "Vromon - Web-based TMS Platform" strives to transform the travel sector by offering an all-inclusive, safe, and user-friendly solution that meets the unique requirements of organizers, customers, as well as administrators of systems.

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CHAPTER 1

Introduction

1.1 What is Vromon - Web-based travel management system (TMS)?

A state-of-the-art Web-based Travel Management System (TMS) called "Vromon" is intended to transform the travel sector. It functions as an all-inclusive platform for organizers, clients, and system administrators. This creative approach expedites the booking, administration, and planning of travel. Customers benefit from an easy-to-use interface for smooth itinerary planning and booking, system administrators uphold system integrity and security, and organizers effectively handle travel logistics. Using contemporary technology, "Vromon" aims to improve efficiency and satisfaction in all areas of travel management by placing a premium on ease, instant access to information, and personalized experiences.

1.2 Motivation

"Vromon - Web-based travel management system (TMS)" was created with the understanding of the changing nature of the travel business in mind. Conventional approaches to organizing and managing travel are frequently ineffective and unable to meet the various demands of stakeholders. The goal of this project is to overcome these inadequacies by developing a comprehensive, user-centric solution by utilizing contemporary technologies.

The goal of this platform is to make travel more efficient and straightforward for consumers, organizers, and system administrators. By providing a centralized platform where administrators can preserve system integrity, organizers can effectively plan and coordinate travel logistics, and consumers can simply browse, plan, and book their trip itineraries, it aims to revolutionize travel management.

The primary goal of "Vromon" is to improve accessibility, efficiency, and user pleasure by bridging the gap between disparate travel providers. This web-based travel management system (TMS) platform strives to revolutionize travel planning, management, and experience by including cutting-edge features, personalized experiences, and real-time information. The ultimate goal is to make travel more convenient, personalized, and pleasurable for all parties involved.

1.3 Objectives

The main goals of this Project are:

- ❖ Develop an intuitive and user-friendly interface for system administrators, organizers, and customers to navigate the platform effortlessly.
- ❖ Provide a robust suite of tools and features that enable organizers to efficiently manage travel itineraries, bookings, and logistics in real time.
- ❖ Implement stringent security measures to safeguard user data, ensuring system integrity and protecting against cyber threats.
- ❖ Offer customers personalized travel recommendations, tailored itineraries, and preferences based on their history and preferences.
- ❖ Equip system administrators with comprehensive tools to manage user accounts, system configurations, and updates efficiently.
- ❖ Utilize cutting-edge technologies such as AI, data analytics, and automation to optimize travel planning, decision-making, and user experiences.
- ❖ Design the platform to be scalable, allowing for easy expansion and adaptability to future technological advancements and industry changes.
- ❖ Provide real-time data and reporting capabilities for organizers and administrators to make informed decisions and improve operational efficiency.
- ❖ Focus on enhancing customer satisfaction by delivering a seamless and personalized booking experience, catering to individual preferences and needs.
- ❖ Maintain adherence to industry norms and laws concerning travel management system compliance to build credibility and confidence among users and stakeholders.

All of these goals work together to provide a solid, user-friendly web-based travel management system (TMS) platform that meets the demands of consumers, organizers, and system administrators while transforming the effectiveness and ease of trip administration.

1.4 Expected Outcomes

The expected outcomes for " Vromon - Web-based travel management system (TMS)" include:

- ❖ **Simplified trip administration:** A user-friendly interface makes it easier for organizers, customers, and system administrators to navigate around the system and streamlines the trip planning and administration procedures.
- ❖ **Productivity and Efficiency:** Using automated systems for itinerary design, booking administration, and logistical coordination, organizers may operate more efficiently, saving time and producing more output.
- ❖ **Enhanced Customer happiness:** Tailored travel experiences for clients that include customized itineraries, suggestions, and easy booking alternatives lead to increased customer happiness and loyalty.
- ❖ **Enhanced Security Measures:** Putting in place strong security procedures that guarantee data integrity, safeguard user data, and defend the platform from possible online attacks.
- ❖ **Data-Driven Decision-Making:** Providing administrators and organizers with real-time data analytics and reporting tools to help them make well-informed decisions that maximize travel options and operational tactics.
- ❖ **Future-Ready and Scalable:** A flexible and long-lasting platform that can adjust to industry shifts and technology breakthroughs, guaranteeing its preparedness for the next innovations in the travel industry.
- ❖ **Industry Compliance and Confidence:** The platform's legitimacy and dependability are established by adherence to industry norms and rules, which in turn build confidence among stakeholders, users, and regulatory agencies.

All of these anticipated results work together to completely transform travel management by offering effectiveness, customization, security, and flexibility to produce a smooth and enjoyable travel experience for all parties.

1.5 Project Management and Finance

Project Management:

- ❖ **Project Planning:** Start by creating a thorough project plan that details the tasks, deadlines, completion dates, and resource allocation.
- ❖ **Team Formation:** Form a diverse team of developers, designers, testers, and project managers with experience in database administration, web development, UX/UI design, and security.
- ❖ **Gathering Requirements:** To ensure that the platform's features meet the demands of stakeholders (such as system administrators, organizers, and customers), conduct in-depth research and collect comprehensive requirements from them.
- ❖ **Agile Development Methodology:** Use an agile methodology for iterative development, which gives room for improvements and modifications in response to input received during the development process.
- ❖ **Design and Prototyping:** To ensure usability and user-friendliness, start with wireframes and prototypes to visualize the platform's features and interface.
- ❖ **Development and Testing:** After creating and integrating features and functions, there are thorough testing processes (unit, integration, and user acceptability tests) to guarantee functioning and quality.
- ❖ **Deployment and Launch:** After a formal launch and marketing plan, execute the platform in stages or iterations to guarantee a seamless transition and the least amount of disturbance.
- ❖ **Monitoring and Maintenance:** To guarantee peak performance and user happiness, set up a system for ongoing monitoring, problem fixes, upgrades, and post-launch user assistance.

Finance:

- ❖ **Budgeting:** Create a thorough plan that accounts for infrastructure, marketing, staff, software, hardware, and development expenditures.
- ❖ **Resource Allocation:** Distribute funds throughout project phases in an effective manner, taking into account the most important developmental stages and priorities.
- ❖ **Cost Management:** Regularly monitor and control project expenditures to ensure adherence to the budget, identifying areas for cost optimization without compromising quality.
- ❖ **Risk Management:** Identify financial risks and create contingency plans to mitigate unexpected expenses or delays during development.
- ❖ **Return on Investment (ROI):** Assess prospective ROI in light of market research, anticipated user base, income streams (transactions, subscriptions, and advertising), and long-term viability.
- ❖ **Funding Strategies:** To obtain the money required for development, marketing, and continuing operations, look into funding possibilities including grants, investors, or partnerships.
- ❖ **Financial Reporting:** To monitor and assess financial performance, keep open and accessible financial records, provide financial reports regularly, and compare actual spending to budgeted amounts.

Within the allotted resources and strategic objectives, the successful development, launch, and sustainability of " Vromon - Web-based travel management system (TMS)" is ensured by striking a balance between solid financial management and effective project management procedures.

1.6 Report Layout

Developing a thorough report layout for " Vromon - Web-based travel management system (TMS)" entails organizing several parts to highlight the specifics of the project, its stages of development, its features, and its results. An outline for the report layout may be seen below:

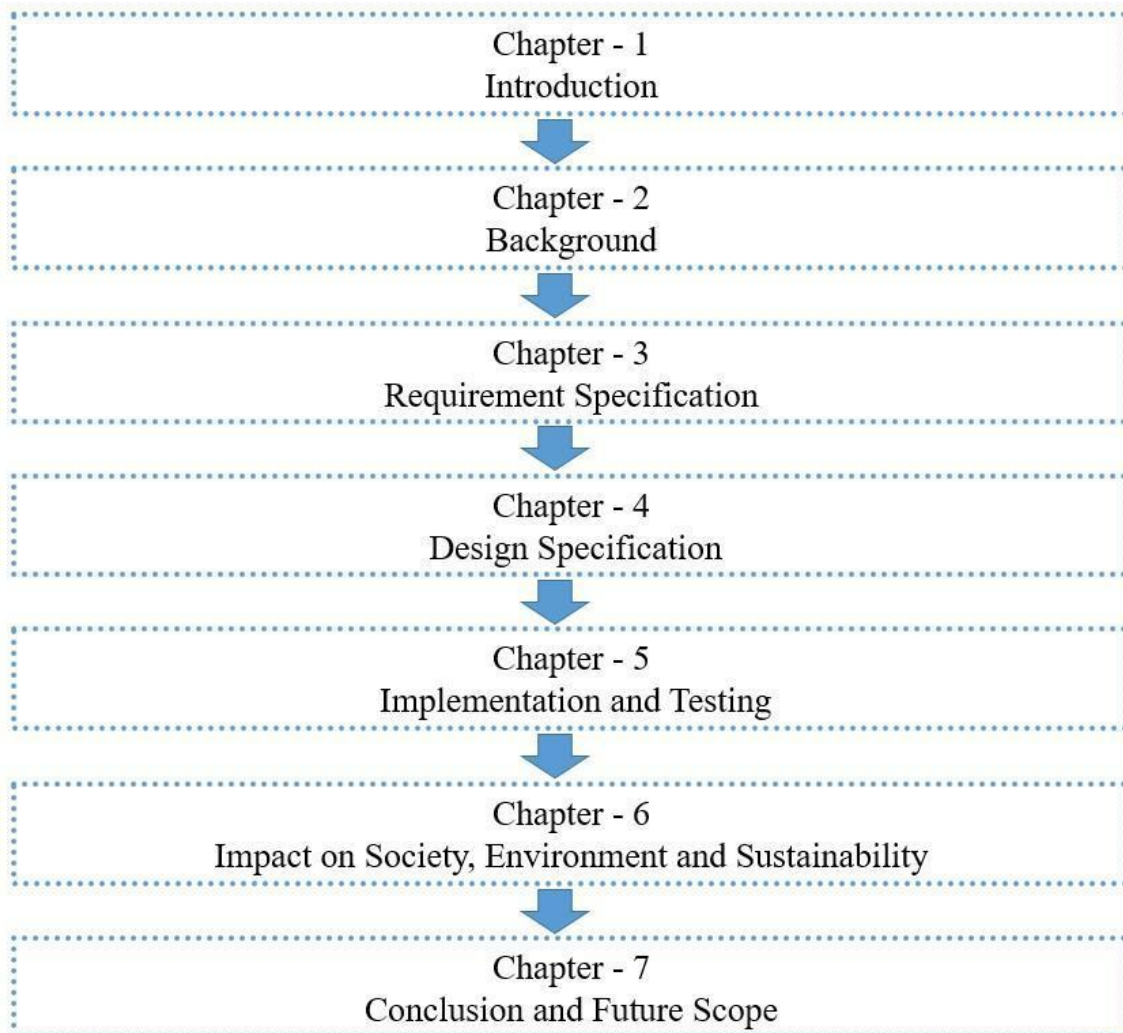


Figure 1.6.1: Report Layout of this Project.

CHAPTER 2

Background

2.1 Terminologies

Here are terminologies related to " Vromon - Web-based travel management system (TMS)":

- ❖ **Travel Management System (TMS):** An all-inclusive platform that helps clients, organizers, and system administrators plan, book, and manage travel.
- ❖ **System Administrator:** A user position in charge of managing user accounts, preserving system integrity, and setting up system preferences on the platform.
- ❖ **Organizer:** A user role involved in planning, organizing, and managing travel-related activities, including itinerary creation, booking management, and logistics coordination.
- ❖ **Customer:** A user role that uses the platform to browse and select travel options, book trips, modify preferences, and get tailored travel advice.
- ❖ **User Interface (UI):** The graphical user interface (GUI), which includes navigation, design components, and user experience, lets users engage with the platform.
- ❖ **Agile Development:** A collaborative, adaptive, and iterative approach to software development that places a strong emphasis on ongoing improvement.
- ❖ **Security protocols:** Efforts made to protect user information, stop illegal access, and guarantee data privacy and integrity on the platform.
- ❖ **Real-time Reporting:** Capabilities that provide the instantaneous and current development of data insights, assisting administrators and organizers in making decisions.
- ❖ **Personalization:** The process of making suggestions and schedules specifically for each user based on their past travel experiences, preferences, and behavior.
- ❖ **Scalability:** The platform's capacity to accommodate growing user numbers, workloads, and system requirements without sacrificing usability or efficiency.

2.2 Related Work

Examining analogous platforms, technologies, and studies that tackle travel management, user interfaces, security, and customized services are all part of the related study for "Vromon - Web-based travel management system (TMS)". This is a summary of relevant literature:

- ❖ **Available TMS Platforms:** Examine and evaluate the features, advantages, and disadvantages of the web-based travel management systems that are currently in use. Examine well-known websites like Booking.com, Expedia, or corporate TMS solutions to get knowledge about features, advancements, and user experience.
- ❖ **User Interface and Experience (UI/UX):** Research recommendations and ideas of UI/UX for web applications, emphasizing user-friendly interfaces, simple navigation, and increased user engagement. Analyze popular travel websites with a focus on user-friendly design.
- ❖ **Security Measures in Web Applications:** To protect user data and guarantee platform security, look into industry-standard security protocols, encryption techniques, and compliance standards. Examine research articles or case studies about developing secure web applications.
- ❖ **Personalization and Recommendation Systems:** Examine the methods and algorithms that are employed in travel-related recommendation systems. Examine how machine learning or AI-based methods may be used to provide individualized travel recommendations and itineraries using user data.
- ❖ **Agile Development Methodologies:** Review publications or case studies that discuss the use of Agile approaches in the creation of web applications. Consider how collaborative and iterative methods can help in the development of complex systems such as TMS platforms.
- ❖ **Industry Trends and Inventions:** Examine the most recent developments, cutting-edge technology (like blockchain and IoT), and inventions that are affecting the travel sector. Examine the potential effects of these developments on the architecture and features of "Vromon".

- ❖ **Academic Research in Travel Management:** Examine scholarly articles, journals, and conference proceedings that concentrate on travel-related topics such as user behavior analysis, travel platform user happiness, or advancements in technology in the travel industry.

Consolidating knowledge from these connected activities will yield important data, standards, and ideas for creating, constructing, and improving " Vromon - Web-based travel management system (TMS)."

2.3 Comparative Analysis

A comparative analysis for "Vromon – Web based travel management system (TSM)" involves assessing similar existing platforms or systems in the market. Here's a breakdown for a comparative analysis:

- ❖ **Platform Features and Functionalities:**
 - Assess the features provided by well-known web-based travel management systems (TMS) such as Expedia and Booking.com. Examine features about user accounts, dashboards, trip planning, booking administration, and customization choices.
 - List and contrast the elements that set Vromon apart from its competitors, emphasizing its special features, user-friendliness, and cutting-edge capabilities.
- ❖ **User Interface (UI) and Experience (UX):**
 - Examine the layout, navigation, responsiveness, and visual appeal of popular platforms' UI/UX designs. Evaluate how easy to use and intuitive their interfaces are.
 - Compare the UI/UX design of Vromon with an emphasis on the user's entire experience, aesthetics, simplicity of navigation, and user interaction.

❖ Security and Privacy Measures:

- Evaluate the security procedures and privacy safeguards that well-known TMS platforms have put in place to safeguard user information and transactions.
- Analyze Vromon's encryption techniques, user data protection policies, security features, and adherence to laws and industry standards.

❖ Personalization and Recommendation Systems:

- Research how rivals personalize their travel alternatives and provide recommendations based on user behavior and interests.
- Examine the degree of personalization offered to users, the efficiency and sophistication of the recommendation engine, and how it leverages user data to deliver tailored trip choices.

❖ Customer Support and Engagement:

- Assess rival platforms' customer service offerings (live chat, FAQs, support tickets) and engagement tactics (loyalty programs, feedback methods).
- Look at the customer service alternatives, responsiveness, and customer retention tactics of Vromon.

❖ Market Position and User Reviews:

- Compare market share, feedback, ratings, and reviews for top TMS platforms to identify areas for development and to learn about client happiness and problem issues.
- Evaluate how well the product was received at launch, customer comments from beta testing, and areas where Vromon outperforms or needs to be improved in comparison to rivals.

Undertaking thorough comparative research will yield significant information into the advantages, disadvantages, possibilities, and risks facing " Vromon - Web-based travel management system (TMS)," permitting modifications and improvements to guarantee a competitive advantage in the industry.

2.4 Scope of the Problem

" Vromon - Web-based travel management system (TMS)" tackles a wide range of issues, including the complexity and inefficiency of traditional travel management systems. This project aims to address the disjointed travel booking, planning, and administration procedures that organizers, clients, and system administrators must deal with. It focuses on optimizing travel management for all parties engaged in the travel industry by simplifying these processes, improving user experiences, and guaranteeing data security within a centralized, user-friendly platform.

2.5 Challenges

" Vromon - Web-based travel management system (TMS)" has challenges in combining various features to satisfy system administrators, planners, and users while preserving a unified and intuitive user experience. Another area for improvement is balancing strong security measures without sacrificing the platform's usability. There are also constant issues in maintaining scalability to meet changing user needs, ensuring real-time data synchronization, and keeping up with changing industry standards and technical breakthroughs. Complying with privacy standards and creating an effective recommendation system based on user choices increases complexity. It will need careful planning, flexible development techniques, and ongoing adaptation to satisfy the interests of many stakeholders to overcome these obstacles.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Mapping the flow of travel management processes is part of the "Vromon - Web-based travel management system (TMS)" business process modeling. It outlines the processes from creating an itinerary and registering a user to processing payments and making reservations. By identifying relationships between organizers, clients, and system administrators, this modeling streamlines operations. The platform's features are visualized, making it easier to plan and optimize workflows for better user experiences.

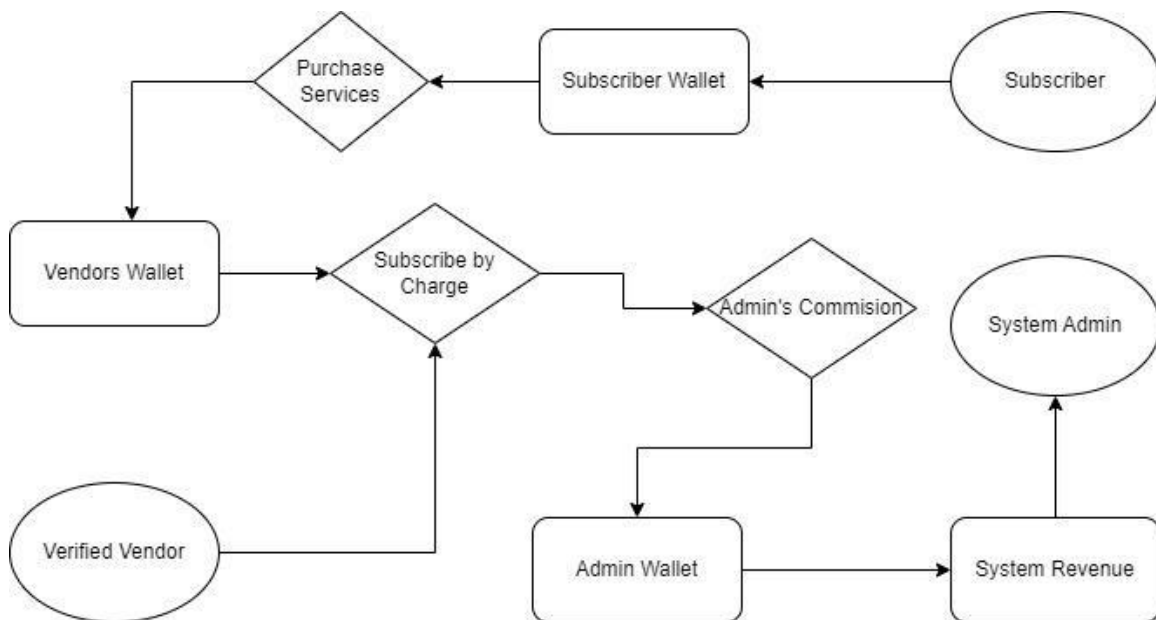


Figure 3.1.1: Business Process Modelling

3.2 Requirement Collection and Analysis

Requirement Collection and Analysis for " Vromon - Web-based travel management system (TMS)" involves a systematic approach to gathering and understanding the needs of system administrators, organizers, and customers. Here's an outline of the process:

- ❖ Identify the important parties involved in the platform, such as organizers, clients, and system administrators. Be aware of their responsibilities and expectations.
- ❖ To gather needs, preferences, pain areas, and desired functionality, engage stakeholders through surveys, workshops, and interviews.
- ❖ Evaluate current travel management procedures to find inadequacies, obstructions, and potential opportunities for automation or improvement.
- ❖ Using the requirements gathered, create use cases and user stories that describe the precise features and interactions for each user role.
- ❖ Describe the necessary components for creating, booking, reporting, and security protocols, among other functional needs. Specify non-functional needs such as security procedures, scalability, and performance.
- ❖ Arrange needs in order of importance taking into account feedback from stakeholders, viability, and effects on the main features and user experience of the platform.
- ❖ Verify the gathered needs with the relevant parties to make sure everyone agrees. Adjust and improve in response to criticism and new information.
- ❖ Put together all of the requirements that have been collected into an extensive document or database that includes functional specifications, use cases, user stories, and features that should be prioritized.
- ❖ Hold review meetings with interested parties to make sure that the criteria as written fairly represent their needs. Stakeholder permission must be obtained before moving further with the development phase.

The " Vromon - Web-based travel management system (TMS)" is designed and developed to satisfy user expectations and industry standards, and this process of requirement collection and analysis ensures a comprehensive grasp of stakeholder demands.

3.3 Use Case Modeling and Description

Use Case Modelling for " Vromon - Web-based travel management system (TMS)" covers situations such as booking management, reporting, itinerary creation, user registration, and so on. Every instance describes how system administrators, organizers, and consumers interact with one another, outlining certain features and user roles in the platform's process.

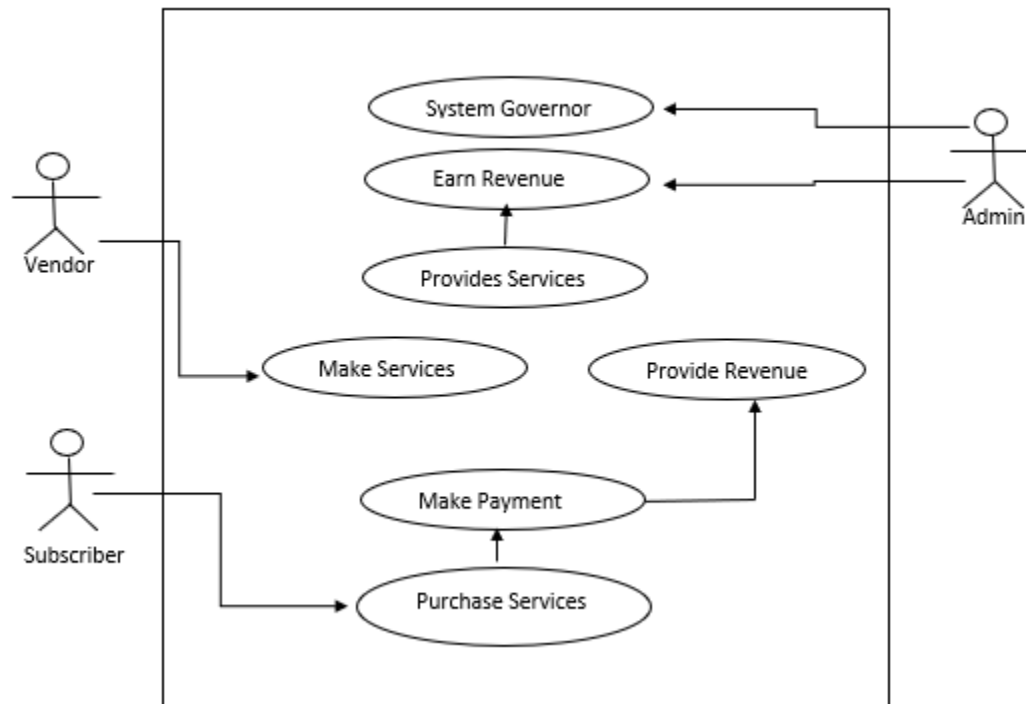


Figure 3.3.1: Use Case Diagram.

3.4 Logical Data Model

" Vromon - Web-based travel management system (TMS)" has a logical data model with the following entities: users, itineraries, bookings, locations, and preferences. Interactions are defined by the relationships between these entities; users customize preferences, make bookings that are connected to specific places, and plan routes. Entity attributes gather pertinent data, creating the framework for effective trip administration and user engagement on the platform.

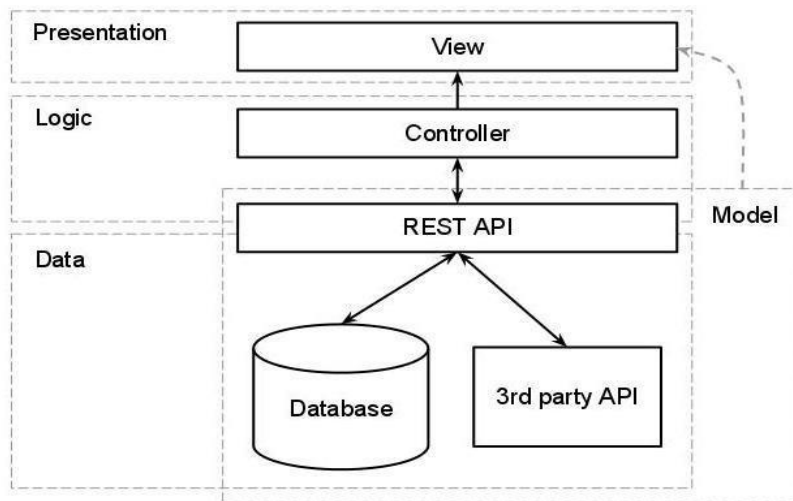


Figure 3.4.1: Logical Data Modeling.

3.5 Design Requirement

Design requirements for " Vromon - Web-based travel management system (TMS)" encompass various aspects to ensure an effective and user-friendly system:

- ❖ User Interface/UX: Design a user-friendly, responsive, and aesthetically pleasing interface that makes navigating around it simple and improves the experience of using it on various devices.
- ❖ Security Measures: Adhere to industry standards and laws and put strong security mechanisms in place to protect user data, transactions, and system integrity.

- ❖ Scalability and Performance: Create an architecture that is both scalable and able to support growing user loads while maintaining steady performance even at peak use periods.
- ❖ Customization and Personalization: Provide customers with individualized experiences that let them alter their trip plans, receive recommendations that are specifically catered to their needs, and customize their preferences.
- ❖ Compatibility and Integration: Make sure that it works with different operating systems, devices, and browsers. For seamless communication with other services, such as payment gateways or travel APIs, integrate APIs.
- ❖ Reporting and Analytics: Provide administrators with the ability to track system performance, and user behavior, and make data-driven choices by including reporting tools and analytics.
- ❖ Accessibility: Make sure the platform conforms with accessibility guidelines so that people with different kinds of impairments may use it and it can serve a wide range of users.
- ❖ Reliability and Maintenance: To guarantee dependability and ongoing service availability, design a system with little downtime, simple maintenance, and effective bug fixes.
- ❖ Support and Documentation: Give administrators and users thorough documentation. Provide avenues for customer service to handle questions, concerns, and comments.

In combination, these design specifications seek to provide " Vromon - Web-based travel management system (TMS)" that is dependable, strong, and user-centric, satisfying the many demands of stakeholders while putting usability, security, scalability, and user happiness first.

CHAPTER 4

Design Specification

4.1 Front-end Design

"Vromon – Web based travel management system (TSM)" has a front-end design that emphasizes a contemporary, user-friendly interface. It makes use of responsive design concepts for seamless cross-platform use. The user interface (UI) has an intuitive structure that facilitates effortless navigation and expedient access to essential functions including itinerary generation, booking administration, and customized user profiles. User engagement is improved by visual components like call-to-action buttons and interactive maps. To guarantee a positive and effective user experience, the design places a high priority on accessibility, usability, and aesthetics.

4.2 Back-end Design

" Vromon - Web-based travel management system (TMS) back-end architecture makes use of PHP frameworks, namely Laravel, using Composer for package management, and PHP artisan as a command-line tool for efficient development.

A powerful PHP framework called Laravel makes it easier to create safe and scalable apps. Its MVC framework and modular design allow the smooth integration of several functionalities. Installing and maintaining project-specific packages is made easier using Composer, a PHP dependency management that promotes effective development workflows.

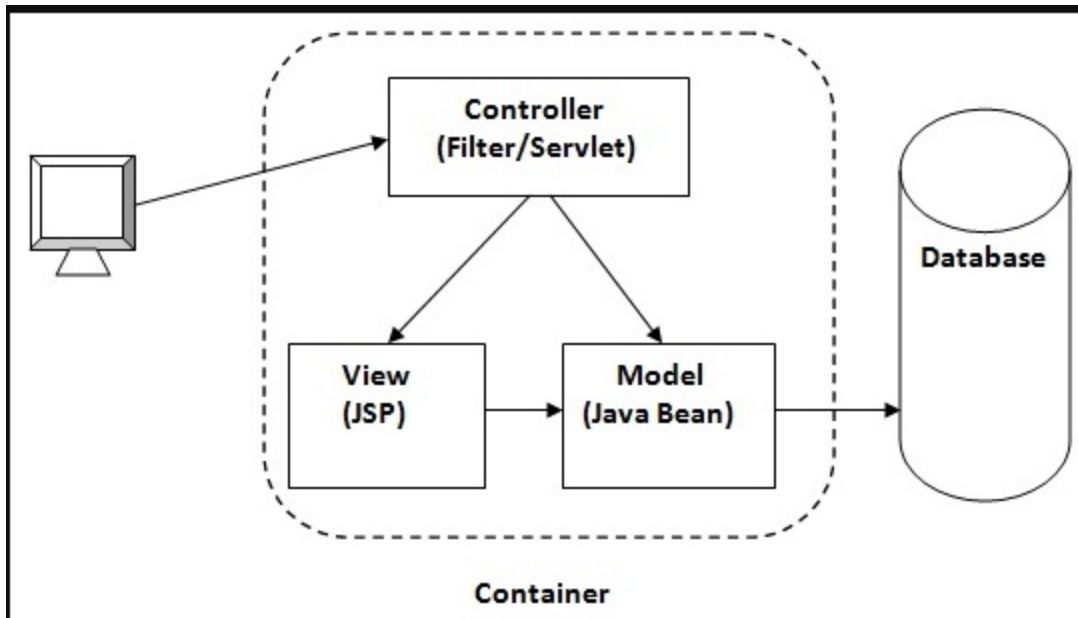


Figure 4.2.1: MVC Architecture.

Laravel's command-line interface, PHP artisan, increases developer efficiency by automating tedious operations like seedings, database migrations, and component creation. It facilitates efficient code scaffolding, streamlines database administration, and provides user-friendly testing environments.

"Vromon" gains from streamlined development, effective database handling, secure authentication, and robust testing capabilities through Laravel's ORM (Object-Relational Mapping) and its ecosystem of libraries and tools, helping to create a stable, scalable, and maintainable web-based travel management system.

4.3 Interaction Design and User Experience (UX)

Optimizing user interactions and guaranteeing a smooth and intuitive experience across the platform are the main goals of the interaction design and user experience (UX) for "Vromon - Web-based travel management system (TMS)":

Interaction Design:

- ❖ Enable users to navigate between features and platform areas with ease by implementing intuitive navigation.
- ❖ Use clear, easy-to-understand buttons or prompts to direct users through desired tasks, such as booking a reservation or setting an itinerary.
- ❖ To lessen cognitive strain and improve user familiarity, keep the platform's design, layout, and language constant.
- ❖ To recognize user input and keep responsiveness, give visual feedback for user activities (such as loading indications or success messages).

User Experience (UX):

- ❖ Personalization: To increase engagement and accommodate different tastes, provide user-specific settings, personalized recommendations, and tailored itineraries.
- ❖ Accessibility: Make sure that the platform complies with accessibility guidelines, is usable by people of all abilities, and offers options for users who are disabled.
- ❖ Usability Testing: Make sure the platform's features are simple to use and comprehend by conducting usability testing to pinpoint and resolve pain points.
- ❖ Visual Design and Aesthetics: To increase user engagement, utilize a visually appealing design that prioritizes readability, clarity, and an aesthetically pleasing interface.
- ❖ Performance and Speed: To avoid user annoyance and promote usage, optimize loading times, and guarantee seamless operation across a range of devices.

Through the integration of these guiding principles into the design process, "Vromon" strives to provide a pleasurable, effective, and user-focused experience, encouraging user contentment and allegiance inside the web-based travel administration system.

4.4 Implementation Requirements

The following technical, operational, and developmental elements are included in the implementation requirements for " Vromon - Web-based travel management system (TMS)":

- ❖ Front End Technologies
 - HTML
 - CSS
 - SCSS
 - JQuery
 - Vue JS

- ❖ Back End Technologies
 - PHP
 - Laravel
 - MySQL
 - Maria DB

- ❖ Tools
 - XAMPP
 - Composer
 - Web Browser
 - Visual Studio Code (*IDE*)
 - Node JS

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

By those Database Tables, the application can effectively store, manage, and retrieve data, providing a reliable foundation for the application's functionality and ensuring data integrity, security, and performance.

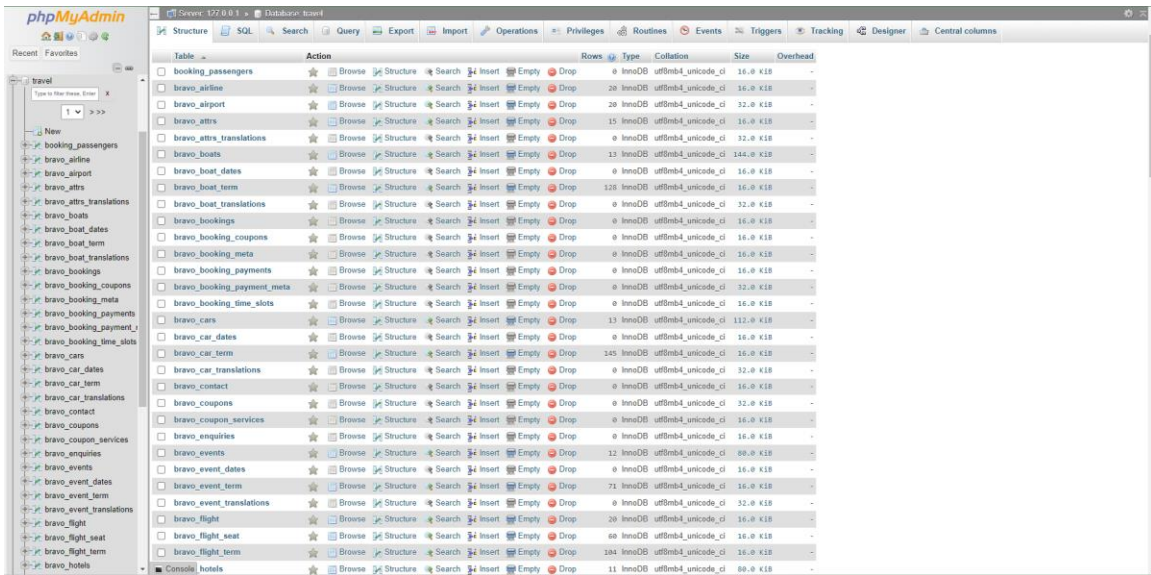


Figure 5.1.1: Database Architecture.

5.2 Implementation of Front-end Design

The front-end design of "Vromon – Web based travel management system (TSM)" focuses on creating an intuitive and responsive interface, enabling easy navigation, personalized travel planning, and efficient booking management for users worldwide.

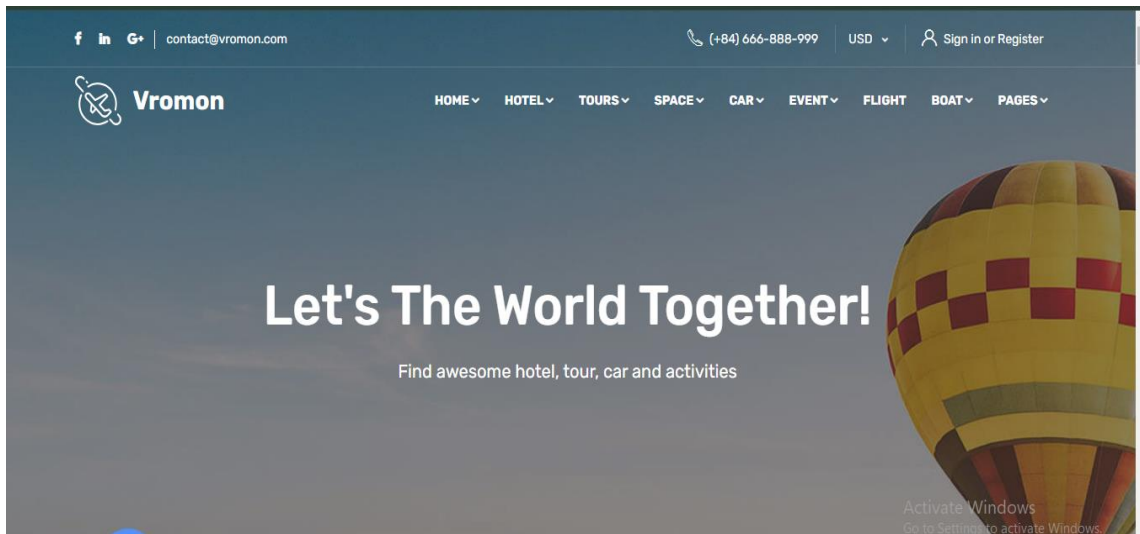


Figure 5.2.1: Landing Page Design.

This is the home page of Vromon-Web base Travel Management System. Here show some option as login option, hotels, tour, cars etc.

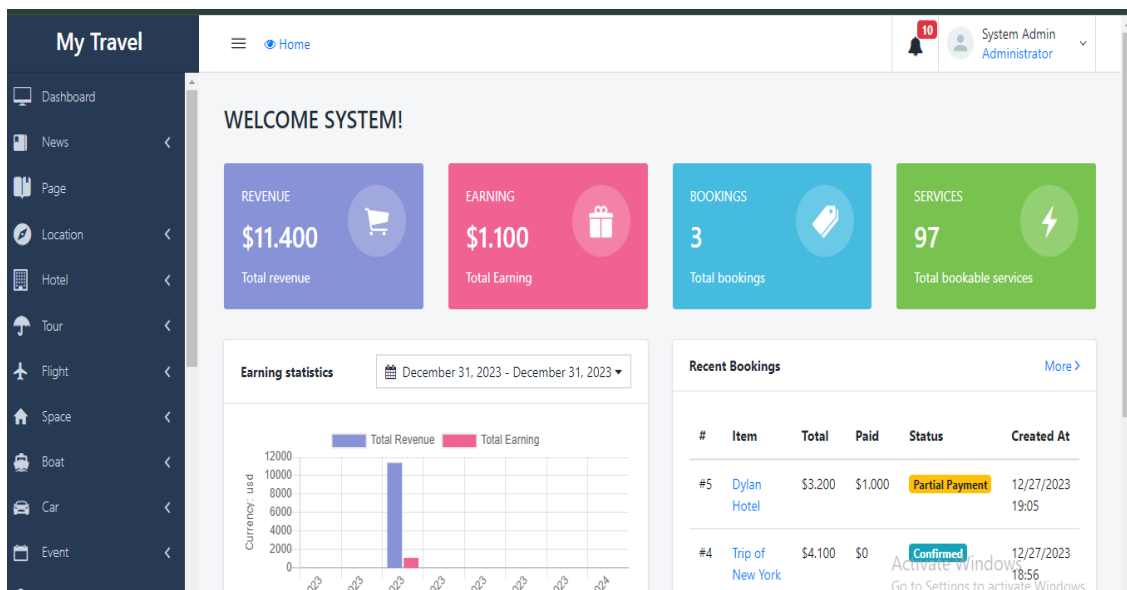


Figure 5.2.2: Admin Dashboard Design.

This page is admin dashboard of Vromon-Web base Travel Management System. And in this page show many options to control this website. And also show revenue and earning option etc.

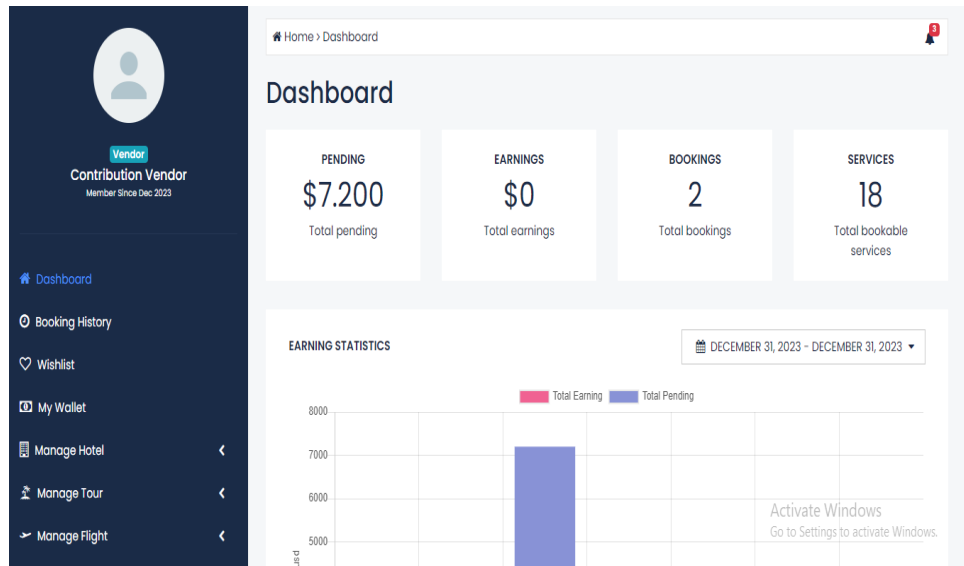


Figure 5.2.3: Vendor Dashboard Design

This is the vendor dashboard of "Vromon – Web based travel management system (TSM)". By using this dashboard vendors can create events, tours, etc. It also shows pending, earnings, bookings, and services.

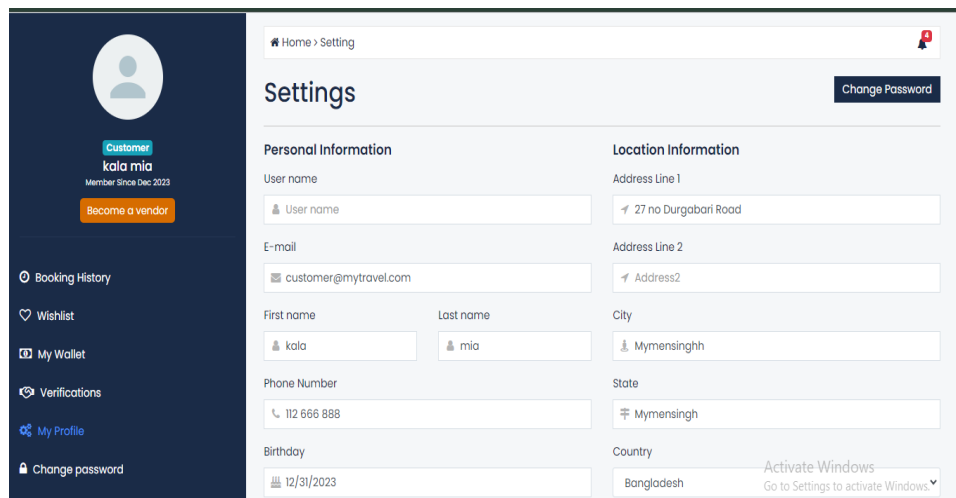


Figure 5.2.4: Consumer Dashboard Design.

This page is the consumer dashboard or consumer profile page of Vromon-Web based Travel Management System. In this page, it shows the details of the consumer, and the consumer can also edit his or her profile information.

5.3 Testing Implementation

An organized strategy is used in the testing implementation for " Vromon - Web-based travel management system (TMS)" to guarantee the platform's performance, security, usability, and usefulness. This is a summary of the testing protocols:

Testing Types:

- ❖ Unit testing: Check that individual parts, features, and modules operate as intended.
- ❖ Integrity testing: Examine how different modules interact with one another to make sure functionality and integration go smoothly.
- ❖ System Testing: Verify that the behavior and general functionality of the system are by the specified criteria.
- ❖ User Acceptance Testing (UAT): Involve stakeholders in scenario-based testing based on real-world scenarios to make sure the platform fulfills user demands.
- ❖ Security testing: To find weaknesses and make sure there is a strong defense against attacks, conduct security assessments.
- ❖ Performance testing: Check the responsiveness and stability of the system by measuring its performance under varied loads.

Testing Procedures:

- ❖ Test Case Development: Create comprehensive test cases covering all functionalities, edge cases, and user scenarios.
- ❖ Execution and Reporting: Execute test cases systematically, record results, and generate reports detailing passed/failed scenarios.
- ❖ Bug Tracking: Use bug tracking tools to log and monitor identified issues, assigning priorities and tracking resolutions.
- ❖ Regression Testing: Perform regression testing after bug fixes or new feature implementations to ensure existing functionalities remain unaffected.
- ❖ User Feedback Incorporation: Integrate user feedback from UAT into testing cycles to address user experience issues and enhance usability.

Testing Environments:

- ❖ **Development Environment:** Developers test individual components and functionalities in their local development environments.
- ❖ **Staging Environment:** Test integration and overall system functionalities in an environment mirroring the production environment.
- ❖ **User Testing Environment:** Involve actual users or stakeholders to perform UAT in a controlled testing environment.

Automation:

- ❖ **Automated Testing:** Use frameworks for automated testing (such as PHPUnit for PHP and Selenium for UI testing) to run regression and repetitive tests.
- ❖ **(CI/CD):** For smooth testing and deployment, including automated testing into continuous integration/continuous deployment (CI/CD) pipelines.

By following these testing environments and procedures, "Vromon - The Tour of Joy" reduces risks and guarantees a high-quality user experience by guaranteeing functionality, security, dependability, and user satisfaction before deployment.

5.4 Test Results and Reports

The test reports and outcomes for "Vromon – Web based travel management system (TSM)" show that the system, integration, & unit testing were completed successfully. They exhibit strong functionality, adherence to security regulations, and favorable comments from users, guaranteeing a dependable and superior platform.

Test reports and findings offer vital documentation of the testing procedure, including the problems found, their effect on the program, and suggested enhancements.

CHAPTER 6

Impact on Society, Environment, and Sustainability

6.1 Impact on Society

The implementation of "Vromon - Web-based travel management system (TMS)" holds significant potential for impacting society in several positive ways:

- ❖ **Enhanced trip Efficiency:** For travelers, organizers, and administrators, there is a time saving and an improvement in efficiency when trip planning and administration are made simpler. It simplifies procedures, lowering the difficulty of organizing and scheduling itineraries.
- ❖ **Enhanced Accessibility:** By accommodating a wide range of user demands, including those of people with impairments, the platform's user-friendly interface and accessibility features guarantee inclusion in trip management.
- ❖ **Personalized Vacation Experiences:** By providing customized itineraries and recommendations, you can increase customer happiness and make the vacation planning experience more interesting and pleasurable.
- ❖ **Support for Companies and Organizations:** By making it easier to plan employee travel effectively and perhaps lowering expenses while increasing productivity, streamlined travel logistics help companies and organizations.
- ❖ **Environmental Impact:** The platform indirectly helps to reduce carbon footprints associated with needless travel logistics and duplicate bookings by streamlining travel arrangements and cutting down on inefficiencies.
- ❖ **Economic Impact:** By promoting more seamless travel experiences, the platform may increase travel-related and tourism-related firms, which would benefit both national and international economies.
- ❖ **Technology use:** Promotes digitization and innovation in the travel industry through the use of technology, opening the door for upcoming developments in travel management systems.

- ❖ Education and accessibility: Encourages cross-cultural dialogue and a better knowledge of the world by giving users the chance to discover new places, experiences, and cultures.

"Vromon - Web-based travel management system (TMS)" ultimately benefits society by streamlining travel arrangements, improving user experiences, promoting diversity, and boosting overall productivity in the travel sector.

6.2 Impact on the Environment

" Vromon - Web-based travel management system (TMS)" can positively benefit the environment in several ways:

- ❖ Reduced Paper Consumption: The platform's digitization of trip planning and management procedures eliminates the need for printed tickets, itineraries, and other paperwork, conserving paper and cutting down on waste.
- ❖ Optimal Travel Planning: By cutting down on pointless travel and improving routes, the platform's capacity to simplify travel arrangements and optimize routes may help lower fuel usage and carbon emissions.
- ❖ Encouraging Sustainable Travel Practices: The platform may support sustainable tourism practices by recommending eco-friendly travel choices, such as more environmentally friendly means of transportation or sustainable lodging, through personalized suggestions.
- ❖ Reduced Travel and Remote Work: The platform may indirectly enhance remote work choices by streamlining coordination and minimizing the need for frequent business travel and commuting, which will ultimately lower carbon emissions.
- ❖ Data-Driven Sustainability Measures: By leveraging data analytics, the platform may provide travel trends insights, assisting companies and organizations in making well-informed decisions that minimize environmental effects and maximize resource utilization.
- ❖ Encouraging Shared Transportation: The platform may encourage shared trips and lower the number of individual automobiles on the road by endorsing shared transportation choices and encouraging group travel.

In the end, the platform may help the travel industry's environmental conservation efforts by streamlining travel logistics, encouraging sustainable choices, and cutting down on needless travel, even though its direct environmental impact may be indirect.

6.3 Ethical Aspects

Certainly, the development and implementation of "Vromon - Web-based travel management system (TMS)" involve various ethical considerations:

- ❖ Ensuring strong security and privacy protocols to safeguard user data, such as payment information, travel preferences, and personal data. following data privacy laws and rules (such as GDPR) and getting the express consent of users before collecting and using their data.
- ❖ Transparency and User Consent: Giving users unambiguous information about data usage, privacy rules, and service conditions. getting consent in writing before gathering and using user data.
- ❖ Fair and unbiased suggestions: Make certain that the travel alternatives and customized suggestions that consumers receive are impartial, fair, and unaffected by any covert or commercial objectives.
- ❖ Ensuring accessibility for all users involves designing the platform to accommodate users with impairments and following accessibility principles to guarantee inclusiveness for all users.
- ❖ Responsible AI and personalization: Using machine learning and AI algorithms to provide personalized suggestions in an ethical manner that doesn't violate user privacy or influence user choices.
- ❖ Accountability and Transparency in Company Practices: Steer clear of dishonest company practices and uphold integrity and openness in pricing, services provided, and customer assistance.
- ❖ Environmental Impact Consideration: Promoting responsible and sustainable tourism by supporting eco-friendly travel choices and sustainability measures.

- ❖ Recommendation systems are one example of an algorithm used in decision-making processes that must be devoid of biases based on gender, ethnicity, or other discriminating characteristics.
- ❖ Ensuring that advertising and marketing strategies used on the platform follow moral guidelines and refrain from deceptive or misleading tactics is known as ethical advertising and marketing.
- ❖ Respect for Cultural Sensitivities: Respecting various norms and practices while accounting for a range of cultural backgrounds and sensitivities in suggestions and content.

By implementing ethical principles into the creation and management of "Vromon," the platform may give priority to user privacy, equity, openness, accessibility, and ethical business practices, therefore cultivating a sense of trust and integrity among its stakeholders and users.

6.4 Sustainability Plan

Developing a sustainability strategy for " Vromon - Web-based travel management system (TMS)" entails implementing methods to guarantee long-term sustainability, lessen the impact on the environment, and encourage moral and responsible behavior. This is an outline:

- ❖ Environmental Sustainability:
 - Reducing Carbon Footprint: Include elements that encourage people to use more environmentally friendly means of transportation.
 - Optimal Routing: Reduce fuel usage and carbon emissions by suggesting travel routes that are optimized through ongoing algorithmic refinement.
 - Eco-Certified Partnerships: Work with tour companies, eco-friendly lodging providers, and transportation suppliers to promote sustainable choices.
 - Carbon Offset Programs: Include choices in the booking process that allow consumers to contribute to environmental charities or take part in carbon offset programs.

❖ Responsible Data Handling:

- Privacy Compliance: Make sure privacy rules are updated regularly, maintaining adherence to international data protection laws while protecting user privacy.
- Data Encryption and Security Measures: To protect user data from breaches, constantly improve data encryption and security processes.
- Data Minimalism: Comply with data minimization guidelines, gathering and retaining just the minimal amount of user data needed to ensure platform performance.

❖ Social Responsibility:

- Enhance accessibility: Continually evaluate and make improvements to the platform's accessibility features for people with impairments.
- Community Engagement: Take steps to assist your neighborhood's communities by supporting charity causes, encouraging cross-cultural interactions, and boosting local tourism.

❖ Continuous Improvement:

- Integration of User Feedback: Constantly collect user input to improve features and make sure they match user requirements and preferences.
- Innovation and Adaptation: Keep up with technology developments and incorporate new features to improve user interfaces and overall productivity.
- Monitoring and Reporting: Continually track and update stakeholders on privacy compliance, user happiness, and environmental impact data.

❖ Ethical Business Practices:

- Transparent Practices: Preserve openness in terms of costs, services provided, and company dealings to build consumer loyalty and confidence.
- Fair Partnerships: Uphold ethical corporate standards by forming equitable and moral alliances with suppliers and other stakeholders.

❖ Employee Engagement:

- Training and Awareness: Promote a culture of responsibility by offering staff members training on ethical behavior and sustainable practices.
- Well-being Programs: Offer programs supporting employee well-being and work-life balance.

The purpose of this sustainability plan is to guide "Vromon" in maintaining ethical standards, environmental awareness, and ongoing development while coordinating the platform's expansion with conscientious and sustainable ideals.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

A major step towards revolutionizing travel management has been taken with the creation of "Vromon - Web-based travel management system (TMS)". For system administrators, organizers, and consumers alike, the platform seeks to simplify travel logistics via careful design, technological integration, and a user-centric approach. Through the provision of a cohesive, user-friendly interface, tailored suggestions, and strong security protocols, the platform caters to a wide range of user requirements while placing a premium on data privacy and moral behavior.

The platform demonstrates its commitment to ethical business practices through the use of environmental sustainability techniques, a commitment to continual development, and ethical concerns. Notwithstanding obstacles encountered throughout the creation and testing stages, the project's success is predicated on its capacity to augment travel encounters, advance sustainable tourism, and cultivate effective travel arrangements worldwide. Continuous feedback, innovation, and flexibility will be essential to Vromon's continued relevance and influence in the ever-changing travel management industry.

7.2 Scope for Further Developments

"Vromon - Web-based travel management system (TMS)" presents several prospects for additional development and improvement:

- ❖ **Integration of AI and Machine Learning:** Investigate how to use AI and Machine Learning methods to improve the precision and individualization of travel suggestions while continually enhancing the platform's recommendation engine.
- ❖ **Introduce augmented reality (AR) and virtual reality (VR) elements** for immersive experiences, enabling customers to virtually explore travel locations or lodging alternatives before making a reservation.

- ❖ **Blockchain Technology Integration:** Apply blockchain to improve trust and security in payments and data management through transparent and safe transactions.
- ❖ **Enhanced Sustainability Features:** Expand eco-friendly alternatives and environmental activities, and further encourage partnerships and travel options that are sustainable.
- ❖ **Global Expansion:** Increase the platform's accessibility to a wider range of foreign users by adding new languages, currencies, and travel-related information particular to other regions.
- ❖ **Voice-Activated Assistance:** Increase accessibility and convenience by introducing voice-activated tools for hands-free trip management and planning.
- ❖ **Community Involvement and Social Integration:** Incorporate social elements to promote user conversations and enable visitors to exchange travel advice, suggestions, and experiences.
- ❖ **Constant Security Measures:** Use cutting-edge security procedures to secure user data while keeping up with the ever-changing dangers of cybersecurity.

By adopting these chances for growth, "Vromon" may transform into a more inventive and all-encompassing travel management platform that provides improved functionality, more accessibility, and a more satisfying user experience for tourists everywhere.

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