A Project REPORT On

ONLINE TOURISM MANAGEMENT SYSTEM

MASTER IN COMPUTER APPLICATION (MCA)

UNDER THE GUIDENCE

xxxxxxxxxxxx

SUBMITTED BY:

NAME: - xxxxxxxxxxxx

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IGNOU THE PEOPLES UNIVERSITY

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A project report submitted to IGNOU
in partial fulfilment of the requirements for
the degree MCA

2025

Abstract

Introductior

Access to relevant and accurate information is at the heart of tourism, more so in this era of the Internet information overload has become a prevalent phenomenon and as such a serious issue for those seeking for appropriate information.Furthermore, various researches have been carried out on how to make information on tourism website more effective. Tourism Management System tries to bridge the gap by noting what a tourist perceives as relevant, in terms of content pertaining to tourism products in tourism websites. This study focuses mainly on content becauseit is seen as the key factor associated with an effective website. Hence, the aim of this research entails the design and implementation of an intelligent platform that will assist tourists in gaining access to information on tourist locations in India and different Countries. In view of the forgoing, the system was implemented using Rational Unified Process as the adopted software development process, whereasMySQL, HTML and PHP were the implementation tools used in the development of the system. Upon completion, the system was able to provide information by fetching information from the web

Pertaining to the subject of interest to assist tourists in decision making process. It was also able to act intelligently by using hybrid recommendation technique to recommend tourist locations based on their preference.

Introduction

Over the years, tourism has continued to gain massive interest at a global scale. It is a major foreign exchange earner for a good number of advanced and emerging economies. It is also true that information explosion makes it cumbersome times to access relevant information to enhance decision making. This has given rise to the emergence of intelligent systems or mechanisms that facilitate quick access to relevant content found in the Internet. For developing countries like India, tourism is one of the untapped but potentially big income generators. There are about 200tourist destinations that spread across the 28 states and 8 Union Territories in India. Whereas some exist naturally, others are manmade.

In this era that has witnessed rapid advances in information technology, information overload has become a serious problem to those seeking for information online. Recently, intelligent search mechanisms have been deployed on the web that shows that the problem of information overload can be partially eliminated by providing a platform with more intelligence to assist tourists in the search for relevantinformation. Google.com is an example of an intelligent search engine that helps users with information and another class of intelligent system that has proven relevant in addressing the problem of information overload is recommender systems.

In the aspect of tourism, Internet and web technologies have made more readily available information on tourist locations, accommodations, transportation, shopping, food, festivals, and other attractions, thus improving tourism experience.

The goal of this research is to design and implement intelligent platform that will aid tourists to have access to information on tourist locations thus help fasten their decision making process.

1. Review of Closely Related Works

So many researches have been carried out relating to intelligent tourism management systems with significant

impact in the tourism industry around the globe. Some of the research works carried out by researchers as related to Tourism Management Systemare discussed in the succeedingsub-sections.

The Application of Intelligent Tourism Mobile Client Based OnOntology

This paper proposed the application of ontology theory in the research of intelligent tourism mobile application client. The adopted method (ontology) helps to structurethe kind of information given to tourists thus eliminating room for information ambiguity. The strength of this research work is based on the fact that it makes use of an organic combination of the major elements that are closely linked to tourism, and infiltrates them it into every aspect of tourism which produces an effective, intelligent and efficient tourism information system. However, its weakness is basedon the fact that it is mobile-based and hence accessibility is limited to mobile device users.

Destination Information Management System forTourists

The system was designed for tourists taking India's tourism into consideration. This was to provide tourists with intelligent interaction based on virtual community conceptof tourism and locals that have common interest theme. The system aims at bridging the gap; which is the lack of interaction that exists between tourists and locals at a particular destination. The system was designed using Visual Studio Code, HTML, PHP and Java script whereas MySQL was used to design the database. The advantages of the system is it is user- friendly, interactive, supports security and compatible to various web servers but the

system lacks intelligence in providing information to tourists, thus reducing the stress at which tourists seek for informationon the system.

1. Background and Evolution of Tourism in the Digital Age

The landscape of global tourism has undergone a profound transformation in recent decades, primarily driven by advancements in technology and the widespread adoption of the internet. Once characterized by traditional travel agencies and word-of-mouth recommendations, the tourism industry now thrives on digital platforms, offering an unprecedented array of information and services at the fingertips of potential travelers. This shift has not only democratized access to travel planning but has also significantly amplified the volume and diversity of available information.

India, a country rich in cultural heritage, diverse landscapes, and historical significance, has consistently been a major global tourist destination. Its vastness and the sheer number of attractions, ranging from ancient monuments and spiritual sites to bustling cities and serene natural retreats, present both immense opportunities and significant challenges for tourists. While the digital age has made information about these sites more accessible, it has simultaneously given rise to the phenomenon of "information overload." Tourists are often inundated with fragmented, unverified, or irrelevant data from countless sources, making it arduous to discern credible information pertinent to their specific travel needs and preferences.

The evolution of tourism has moved beyond simple booking functionalities to a demand for comprehensive trip planning tools, personalized recommendations, and a seamless user experience. Modern travelers seek not just information but intelligent platforms that can curate data, offer insights, and facilitate informed decision-making, thereby enhancing their overall travel experience. This growing need for sophisticated information management solutions forms the foundational premise for the development of intelligent tourism systems.

2. Problem Statement: Navigating Information Overload in Tourism

Despite the proliferation of online resources, tourists frequently encounter significant hurdles when planning their trips, especially in diverse and information-rich destinations like India. The core problem lies in the overwhelming volume of unstructured and unverified information available across various digital channels. This "information overload" manifests in several critical challenges:

- Scattered Information: Relevant details about tourist locations—such as historical significance, accessibility, local amenities, safety guidelines, and cultural nuances—are often dispersed across multiple websites, blogs, forums, and social media platforms. Consolidating this information requires considerable time and effort from the traveler.
- Information Inaccuracy and Inconsistency: The unregulated nature of online content means that information can be outdated, inaccurate, or contradictory. Tourists struggle to verify the credibility of sources, leading to potential misguidance and frustration. For instance, operating hours of attractions, entry fees, or temporary closures might not be updated on all platforms.
- Lack of Personalization: Generic search results and broad categories often fail to cater to individual preferences, interests, and travel styles. A family traveling with young children will have different needs than a solo adventure traveler or a cultural enthusiast. Existing

platforms often provide a one-size-fits-all approach, neglecting the nuances of personalized trip planning.
- Inefficient Decision-Making: The cognitive burden of sifting through vast amounts of information and cross-referencing details significantly prolongs the trip planning process. This inefficiency can deter potential travelers or lead to suboptimal travel experiences due to uninformed decisions.
- Bridging the Information Gap: Many local attractions, especially those in less prominent areas, may lack a strong online presence, making it difficult for tourists to discover hidden gems or less-traveled paths. This creates an information gap between popular destinations and equally valuable, but less publicized, sites.

The current digital ecosystem, while abundant in data, often fails to provide tourists with a streamlined, reliable, and personalized mechanism for accessing relevant travel information. This critical gap underscores the imperative for an intelligent, user-centric system that can effectively manage, filter, and deliver tailored information to enhance the tourist's decision-making process.

3. Project Objectives: Building an Intelligent Tourism Management System

In response to the identified challenges of information overload and the need for personalized travel assistance, this project, "ONLINE TOURISM MANAGEMENT SYSTEM," aims to design and implement a robust and intelligent digital platform. The primary objective is to empower tourists with efficient access to accurate and pertinent information, thereby streamlining their trip planning and enhancing their overall travel experience.

The specific objectives of this project are:

- To design a comprehensive database: Develop a structured and scalable database (using MySQL) capable of storing vast amounts of detailed information about diverse tourist locations, including historical data, geographical coordinates, local attractions, accommodation options, transportation details, safety guidelines, and user reviews. This database will serve as the central repository for all information presented on the platform.
- To implement a user-friendly web interface: Create an intuitive and responsive front-end interface (using HTML, CSS, JavaScript, and PHP) that allows tourists to easily search for destinations, browse categories, view detailed information, and interact with the system seamlessly across various devices. The interface will prioritize ease of navigation and aesthetic appeal to ensure a positive user experience.
- To integrate an intelligent information retrieval system: Develop advanced search and filtering mechanisms that can process user queries effectively and retrieve highly relevant information, moving beyond simple keyword matching to contextual understanding. This includes features like geographical search, category-based filtering, and dynamic content presentation.
- To incorporate a hybrid recommendation technique: Implement a sophisticated recommendation engine that combines collaborative filtering and content-based filtering approaches. This engine will analyze user preferences, past interactions, and similar user behaviors to suggest personalized tourist destinations, activities, and itineraries, thereby offering tailored recommendations that align with individual interests.
- To provide detailed tourist location profiles: For each tourist site, the system will offer rich and verified information, including high-quality images, virtual tours (where applicable), historical facts, cultural significance, best times to visit, nearby attractions, and practical tips for visitors. This aims to provide a holistic view of each location, helping tourists make informed decisions.

- To facilitate efficient decision-making for tourists: By centralizing verified information and offering personalized recommendations, the platform aims to significantly reduce the time and effort tourists spend on planning. The system will present information in a clear, concise, and comparable format, enabling faster and more confident decision-making regarding destination choices and activity planning.
- To ensure data integrity and security: Implement robust measures to ensure the accuracy, reliability, and security of the stored data, protecting user information and maintaining the credibility of the platform as a trusted source of tourism information.

By achieving these objectives, the "Online Tourism Management System" seeks to become an indispensable tool for modern travelers, simplifying the complexities of trip planning and enriching their exploration of tourist destinations.

4. Scope of the Project and Key Deliverables

The "ONLINE TOURISM MANAGEMENT SYSTEM" project is designed to deliver a functional and intelligent web-based platform that addresses the core challenges faced by tourists in accessing relevant information. The scope of this project, while ambitious in its goals, is specifically defined to ensure feasibility within the given timeframe and resources.

The primary focus areas and deliverables include:

- Information Repository of Tourist Locations: The system will host a comprehensive database of tourist locations. Initially, the study is limited to approximately 100 tourist locations primarily within India, providing detailed profiles for each. This includes factual information, historical context, geographical data, and practical travel tips. While the primary focus is on India, the system's architecture is designed to be scalable to include international destinations in future expansions.
- User Registration and Authentication Module: A secure system for user registration, login, and profile management will be implemented. This allows for personalized experiences, saving preferences, and accessing tailored recommendations.
- Advanced Search and Filtering Functionality: Users will be able to search for tourist destinations using various parameters such as location, type of attraction (e.g., historical, natural, religious), and keywords. Robust filtering options will allow users to refine their searches based on specific criteria.
- Hybrid Recommendation Engine: A core deliverable is the implementation of a hybrid recommendation system. This engine will leverage both collaborative filtering (recommending based on what similar users like) and content-based filtering (recommending based on user's past preferences and content attributes) to provide personalized suggestions for tourist spots and activities.
- Detailed Destination Pages: Each tourist location will have a dedicated page providing rich content including:
    - Overview and description.
    - High-quality images.
    - Key attractions and points of interest.
    - Information on local culture and customs.
    - Practical details like best time to visit, how to reach, accommodation options, and local transportation.
    - User reviews and ratings (though actual user submission of reviews might be a future enhancement).

- Administrator Panel: A secure backend interface for administrators to manage tourist location data, user accounts, and potentially system settings. This ensures the integrity and currency of the information provided on the platform.
- Technology Stack Implementation: The project will be developed using specific technologies:
    - Front End: HTML, CSS, and JavaScript for structuring, styling, and interactivity of the web pages.
    - Backend Logic: PHP for server-side scripting, handling user requests, and interacting with the database.
    - Database: MySQL for efficient storage and retrieval of all project-related data, including tourist information, user profiles, and recommendation system data.

Key Limitations within this Scope:

- Limited Location Coverage: As stated, the initial implementation focuses on approximately 100 tourist locations in India. Expanding this to cover every tourist site in India or globally is considered a future enhancement.
- No Integrated Booking System: This project does not include functionalities for direct booking of flights, hotels, or tours. It is primarily an information and recommendation platform.
- No Payment Gateway Integration: Financial transactions are outside the current scope.
- No Content Scheduling/Real-time Updates: While information is aimed to be accurate, real-time updates on events or dynamic changes (like weather, immediate closures) are not a primary feature, though the system design can accommodate future integration.
- Initial User Review System: While space for user reviews is envisioned, the full functionality of user-generated content submission and moderation might be streamlined for future development phases to focus on core information delivery.
- Resource Constraints: The development is subject to typical project constraints of cost, time, and the availability of information sources, which have influenced the defined scope.

This defined scope ensures that the project delivers a highly functional and valuable minimum viable product that effectively addresses the primary objective of intelligent tourism information management and recommendation, while clearly outlining areas for future expansion and enhancement.

5. Methodology: Rational Unified Process (RUP)

To ensure a structured, iterative, and high-quality development process for the "ONLINE TOURISM MANAGEMENT SYSTEM," the Rational Unified Process (RUP) has been adopted as the software development methodology. RUP is an iterative and incremental software development process framework that emphasizes adaptability, risk management, and continuous feedback. It is a use-case driven, architecture-centric, and iterative and incremental methodology, making it well-suited for complex web-based applications like this tourism management system.

The choice of RUP is particularly beneficial for this project due to several characteristics:

- Iterative and Incremental Development: RUP divides the development lifecycle into distinct phases and iterations. Each iteration results in an executable release, allowing for early feedback, continuous testing, and progressive refinement of the system. This approach helps in managing complexity and adapting to evolving requirements, which is

crucial for a system dealing with diverse tourist information and evolving user preferences.

- Use-Case Driven: The process is centered around use cases, which describe the functional requirements of the system from the perspective of end-users (tourists, administrators). This ensures that the developed system directly addresses the needs and interactions of its intended users, guiding the design and implementation of features like search, recommendations, and location profiles.
- Architecture-Centric: RUP places a strong emphasis on establishing a robust and extensible architecture early in the development cycle. For the "ONLINE TOURISM MANAGEMENT SYSTEM," this means designing a scalable database structure (MySQL), a modular backend (PHP), and a flexible front end (HTML, CSS, JavaScript) that can support future expansions, such as integrating more locations, booking functionalities, or advanced recommendation algorithms.
- Risk Management: RUP incorporates continuous risk assessment and mitigation throughout the project lifecycle. Identifying and addressing potential risks, such as data inaccuracy, scalability issues, or integration challenges, early in the process helps in ensuring project success and stability.
- Emphasis on Documentation: RUP encourages comprehensive documentation throughout the phases, from requirements gathering and analysis to design, implementation, and testing. This ensures clarity, maintainability, and knowledge transfer within the project, which is vital for a system handling a large volume of diverse tourist information.

The RUP framework typically comprises four main phases:

1. Inception: This initial phase focuses on defining the project's scope, identifying key use cases, assessing feasibility, and establishing a business case. For this project, it involved understanding the problem of information overload in tourism, defining the high-level objectives, and outlining the primary functionalities of an intelligent tourism platform.
2. Elaboration: In this phase, the core architecture is established, and the most critical use cases are analyzed and designed in detail. For the "ONLINE TOURISM MANAGEMENT SYSTEM," this involved designing the database schema, architectural blueprints for the web application, and outlining the logic for the hybrid recommendation engine.
3. Construction: This is the primary development phase where the system is built, coded, and tested iteratively. Each iteration produces a working increment of the system. This phase encompasses the coding of the HTML, CSS, JavaScript, and PHP components, database implementation in MySQL, and the development of the search, filtering, and recommendation functionalities.
4. Transition: This final phase involves deploying the system to the user environment, conducting user acceptance testing, and providing necessary training or support. It ensures that the system is ready for operation and meets the end-users' expectations.

By adhering to the Rational Unified Process, the development of the "ONLINE TOURISM MANAGEMENT SYSTEM" is expected to be systematic, quality-driven, and capable of producing a robust, user-centric solution that effectively addresses the complex information needs of modern tourists.

6. Significance and Expected Benefits

The "ONLINE TOURISM MANAGEMENT SYSTEM" holds significant promise in addressing critical challenges within the tourism sector, particularly in the context of emerging markets and information-rich destinations like India. The implementation of this intelligent platform is poised to

deliver a multitude of benefits to various stakeholders, fundamentally transforming the way tourists plan and experience their travels.

The expected benefits include:

- Empowering Tourists with Informed Decisions: The most direct and profound benefit is empowering tourists with ready access to relevant, accurate, and structured information. By mitigating the effects of information overload and providing curated content, the system will enable travelers to make faster, more confident, and ultimately better decisions regarding their choice of destinations, activities, and travel itineraries. This leads to a more satisfying and enriching travel experience.
- Enhanced Travel Planning Efficiency: The current cumbersome process of sifting through countless websites and resources will be significantly streamlined. Tourists will save considerable time and effort in researching and planning their trips, allowing them to focus more on the anticipation and enjoyment of their travel.
- Personalized Travel Experiences: The hybrid recommendation engine is a key differentiator, moving beyond generic information to provide tailored suggestions based on individual preferences and past behaviors. This personalization capability will help tourists discover hidden gems and experiences that align perfectly with their interests, leading to more unique and memorable journeys.
- Promotion of Diverse Tourist Destinations: By providing detailed and easily accessible information about a wider array of tourist locations, including those that may be less publicized, the system can contribute to the equitable promotion of various sites. This can help in distributing tourist traffic more evenly, potentially boosting local economies in lesser-known regions.
- Improved Accuracy and Reliability of Information: As a centralized and managed platform, the system aims to provide verified and up-to-date information, reducing the reliance on potentially inaccurate or outdated external sources. This builds trust among users and positions the platform as a credible authority in tourism information.
- Potential for Economic Growth and Revenue Generation: By making tourism planning easier and more appealing, the system can indirectly contribute to an increase in tourist arrivals and activity. While not directly a booking platform, by facilitating travel, it can support associated businesses like hotels, local transport, and guide services, thereby contributing to local and national revenue streams.
- Foundation for Future Innovations: The robust and scalable architecture of the "ONLINE TOURISM MANAGEMENT SYSTEM" provides a solid foundation for future enhancements. This includes expanding the database to cover all Indian tourist sites, integrating booking functionalities, developing a full-fledged content scheduling system for real-time updates, and exploring advertisement platforms. This ensures the long-term viability and evolutionary potential of the system.
- Showcasing India's Tourism Potential: For a country as diverse and culturally rich as India, an intelligent and user-friendly tourism management system can effectively showcase its vast potential to a global audience, attracting more international and domestic tourists.

In essence, the "ONLINE TOURISM MANAGEMENT SYSTEM" is not merely a database of locations but an intelligent assistant designed to simplify complex travel decisions, enrich tourist experiences, and contribute positively to the broader tourism ecosystem. It embodies a step forward in leveraging technology to make travel more accessible, enjoyable, and informed.

2. Methodology

The approach employed in designing the proposed system is the Rational Unified Process (RUP)**.** The RUP methodology is based on the fact that the system represents an organized way of gathering business requirements and building the goal of the project. This was employed, because it is an object-oriented and web- enabled program development methodology and also a framework for developingsoftware systems. It also clearly outlines the different roles of the individuals involvedin the project, such as the project manager, business analyst and developers. Some characteristics of Rational Unified Processinclude;

i. **Developing iteratively:** This involves developing software in repeated cycles. With each cycle, additional features are designed and developed in the system until the system is fully functional and ready for deployment to the customer.
ii. **Managing requirements:** This involves explicit documentation of the user's requirement and keeping
track of changes with respect to the requirement. It also analyses the system and the impact those changes will make on the system before taking them intoconsideration.
iii. **Using component-based architectures**: This involves structuring the systemarchitecture into components.
iv. **Modelling software visually:** Using graphical UML to present the software'sdynamic and staticview
v. **Quality verification:** It ensures that software meets the organizationalqualitystandards
vi. **Control over changes:** it gives room for changes in the software to be managed efficiently using a change management system and configurationmanagement procedures and tools.

Hardware And SoftwareRequirement

For the software to be able to run efficiently on computers, it needs certain hardware components or some software to be present. The software requirements are:

i. Operating System (32 or 64bit Windows 7/8/10 and later , Linux, mac OS, androidOS)

ii. Processor (1 dual core or single coreprocessor)

iii. Internet browser (Mozilla Firefox (most suitable, Google chrome, or internetexplorer)

iv. Xampp

The hardware requirements are:

i. CPU (Pentium III, 950MHz,CPU)

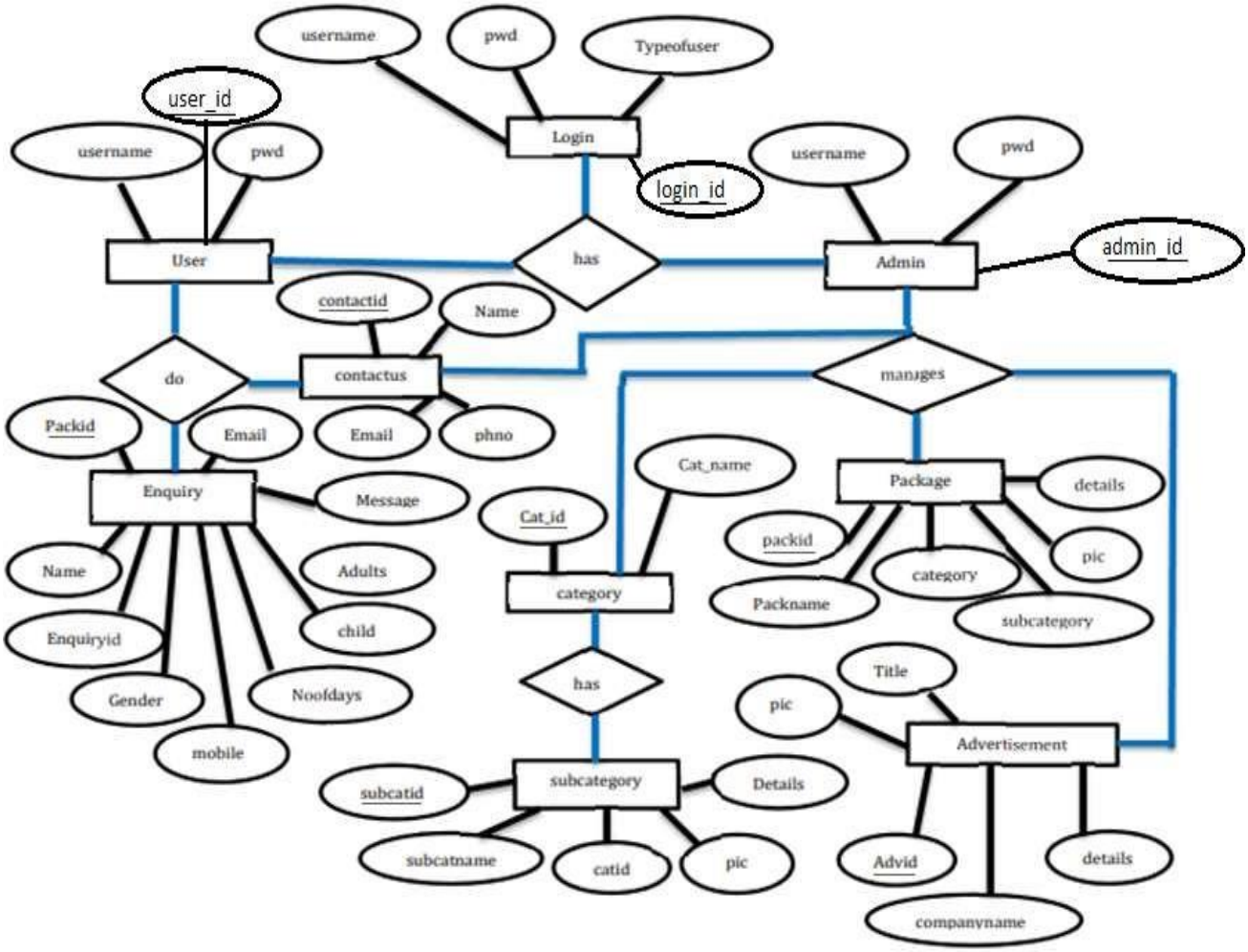
ii. Memory (256MBRAM)

iii. Video graphics adaptor (16bitVGA)

iv. Network card (1GB Ethernet)

v. Hard-disk(5GB)

Entity RelationshipDiagram



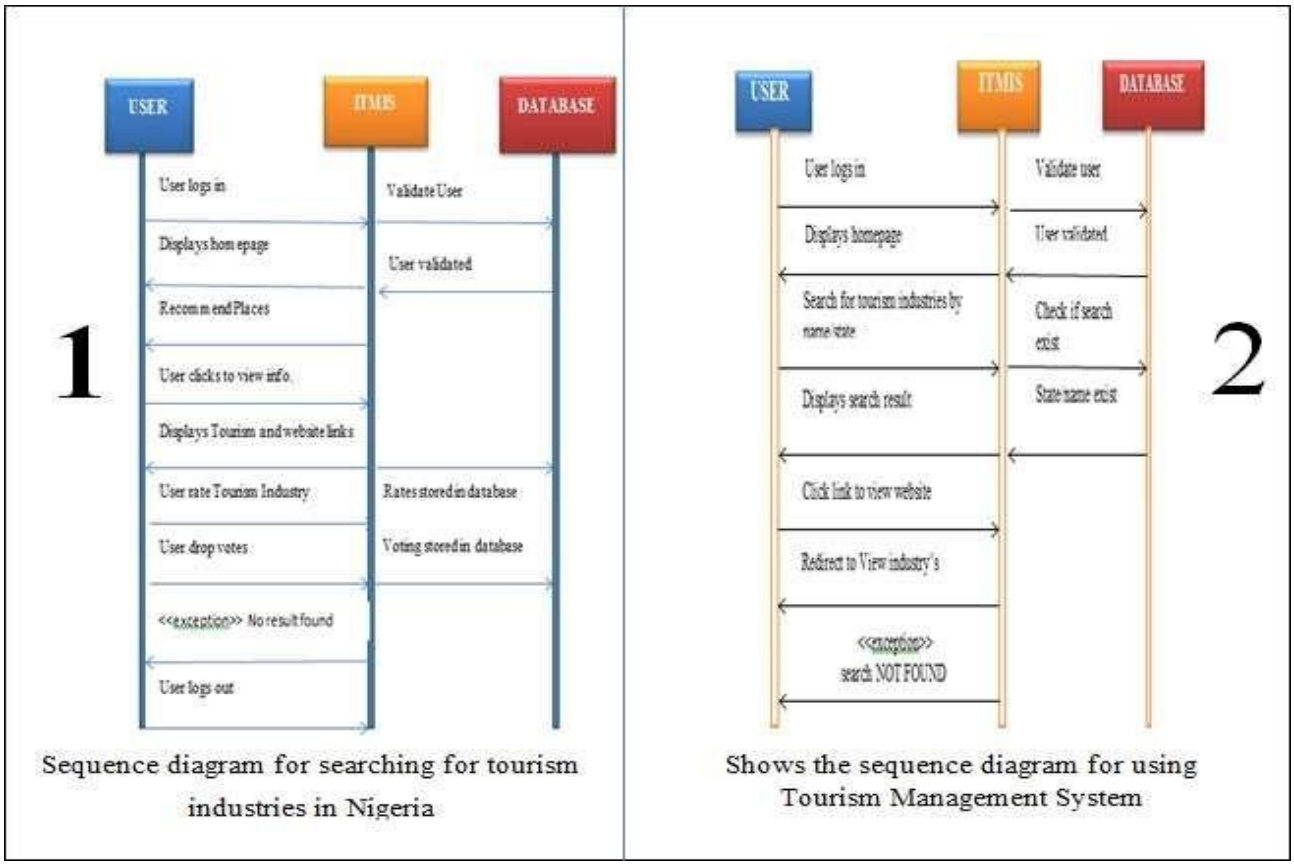
SequenceDiagram

A sequence diagram shows the interaction of how processes operate with one another and in what order they operate. It illustrates how messages are sent and received between objects. A system sequence diagram as captured in Figure 2, depicts the following;

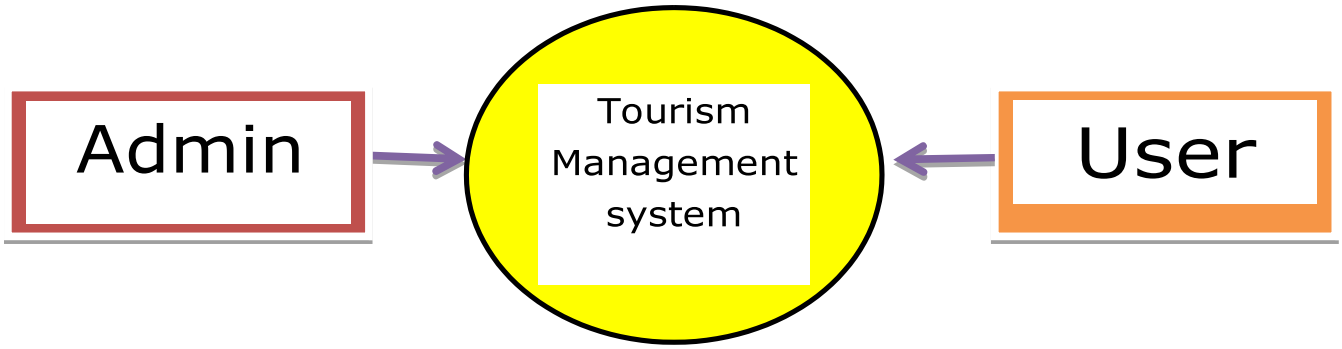
i. The actor of the usecase
ii. The messages from the actor to thesystem
iii. The order in which the messagesoccur
iv. The external system that sends the message to systemand
v. The system itself (in a block format).

In addition, Figure 2 which captures two diagrams labeled 1 and 2 shows the sequence diagram for searching the tourist locations and for using the Tourism Management Systemrespectively. The use case begins when the user decides to register in the system; the system provides the user a login form to enter required information. If the systemsearches through the database and finds this information to be correct, it displays to theuser the system homepage and allows the user to make use of the system. However, if not valid, the user will be redirected to the login page.

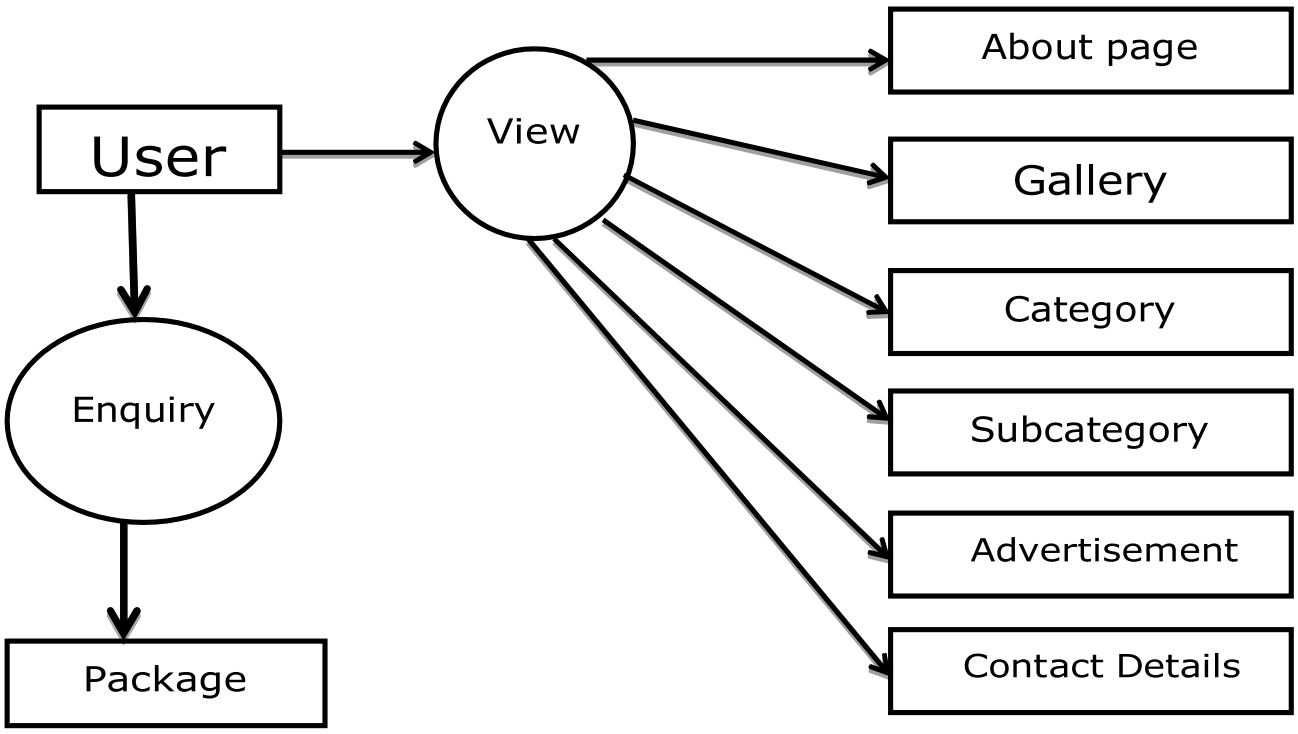
Figure 2: System Sequence diagram for TMS



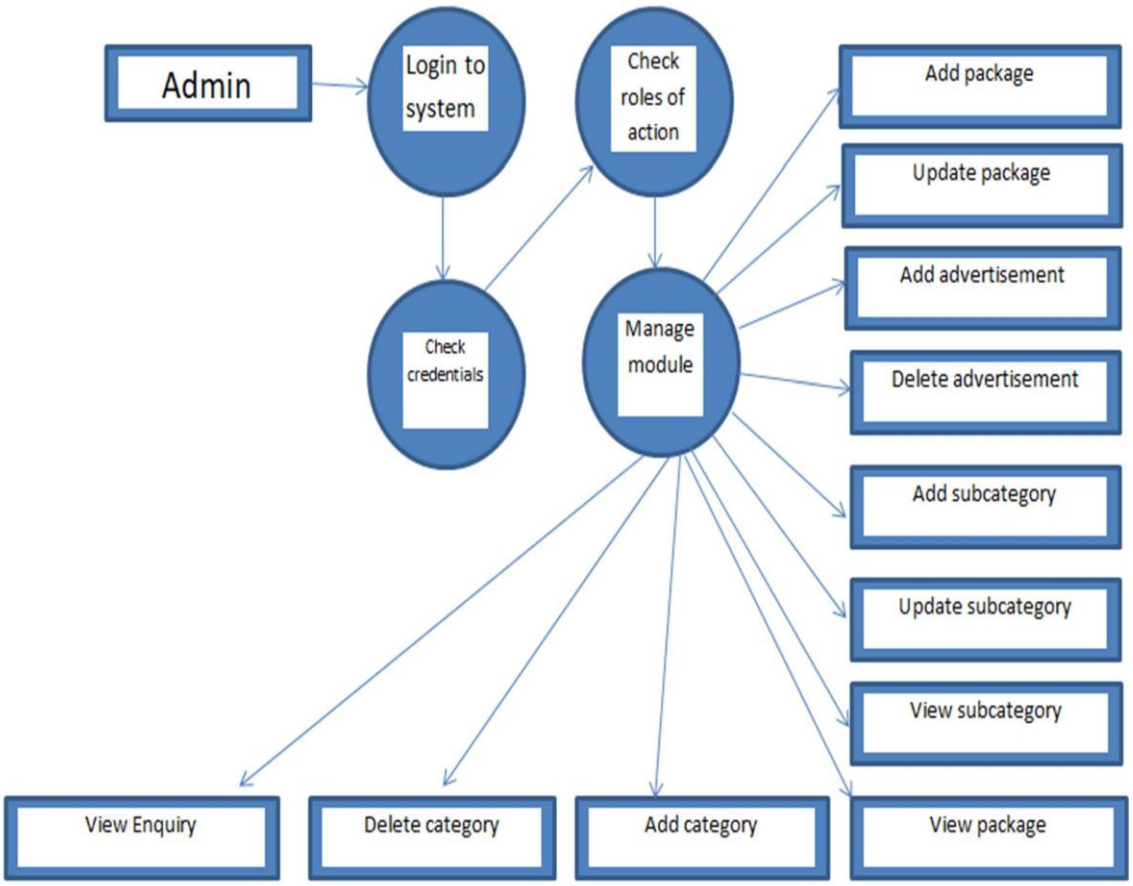
Zero level DFD



DFD for User


User
View
About page
Gallery
Category
Subcategory
Advertisement
Contact Details
Enquiry
Package

DFD for Admin



Data Flow Diagram for

3. Findings/Results

In the design of the TMS, information pertaining to tourist locations in India was not completely gathered thus reducing the functions TMS is intended to carry out but design maintains a centralized database of fifty
(50) tourist locations and all related information in India. In addition to managing tourism information, we were able to implement a recommendation filtering system that can improve science and autonomy of the system thus assisting tourist in decision making process. The designed system is user-friendly, interactive, and compatible to every web browsers running on any hardware and the interface was beautifully designed for attractiveness and to promote efficiency and productivity of thewebsite.

4. Limitations

The study was limited to100 tourist locations in India; spanning both the Natural and artificial attractions. There were cost and time implications during the course of the study as it required gathering information of tourist locations over a large geographical area.

5. FutureResearch

It is worth mentioning that this research work is open for further enhancement, withthe expectation that it becomes more robust and better enhanced; covering every single tourist site in India. In addition, certain constraints, such as inadequate information sources for each of the tourist locations in India, some features were not included which would have made TMS a more robust management system.

Some of these features include the following;

i. In this study, only 100 tourist locations in India were used. Therefore, an improved system should incorporate every tourist site in India for better insight on available touristattractions.
ii. Provision of advertisement platform so that tourists will be able to get latest information on all the tourist locations inIndia
iii. A fully functional reservation platform so that booking could be made via creditcards.
iv. Provision of content scheduler to eliminate outdatedinformation.

SOURCE CODE HOME PAGE

<?php

```
use Illuminate\Contracts\Http\Kernel;
use Illuminate\Http\Request;

define('LARAVEL_START', microtime(true));

/*
|--------------------------------------------------------------------------
| Check If The Application Is Under Maintenance
|--------------------------------------------------------------------------
|
| If the application is in maintenance / demo mode via the "down" command
| we will load this file so that any pre-rendered content can be shown
| instead of starting the framework, which could cause an exception.
|
*/

if (file_exists($maintenance = __DIR__.'/tms/storage/framework/maintenance.php')) {
    require $maintenance;
}

/*
|--------------------------------------------------------------------------
```

```
| Register The Auto Loader
|--------------------------------------------------------------------------
|
| Composer provides a convenient, automatically generated class loader for
| this application. We just need to utilize it! We'll simply require it
| into the script here so we don't need to manually load our classes.
|
*/

require__DIR__.'/tms/vendor/autoload.php';

/*
|--------------------------------------------------------------------------
| Run The Application
|--------------------------------------------------------------------------
|
| Once we have the application, we can handle the incoming request using
| the application's HTTP kernel. Then, we will send the response back
| to this client's browser, allowing them to enjoy our application.
|
*/

$app = require_once__DIR__.'/tms/bootstrap/app.php';

$kernel = $app->make(Kernel::class);
```

```
$response = $kernel->handle(
   $request = Request::capture()
)->send();

$kernel->terminate($request, $response);
```

UNZIPPER

```
<?php
/**
 * The Unzipper extracts .zip or .rar archives and .gz files on webservers.
 * It's handy if you do not have shell access. E.g. if you want to upload a lot
 * of files (php framework or image collection) as an archive to save time.
 * As of version 0.1.0 it also supports creating archives.
 *
 * @author  Andreas Tasch, at[tec], attec.at
 * @license GNU GPL v3
 * @package attec.toolbox
 * @version 0.1.1
 */
define('VERSION', '0.1.1');

$timestart = microtime(TRUE);
$GLOBALS['status'] = array();

$unzipper = new Unzipper;
if (isset($_POST['dounzip'])) {
  // Check if an archive was selected for unzipping.
  $archive = isset($_POST['zipfile']) ? strip_tags($_POST['zipfile']) : '';
  $destination = isset($_POST['extpath']) ? strip_tags($_POST['extpath']) : '';
```

```
 $unzipper->prepareExtraction($archive, $destination);
}
if (isset($_POST['dozip'])) {
 $zippath = !empty($_POST['zippath']) ? strip_tags($_POST['zippath']) : '.';
 // Resulting zipfile e.g. zipper--2016-07-23--11-55.zip.
 $zipfile = 'zipper-' . date("Y-m-d--H-i") .
 '.zip';Zipper::zipDir($zippath, $zipfile);
}

$timeend = microtime(TRUE);
$time = round($timeend - $timestart, 4);

/**
 * Class Unzipper
 */
class Unzipper {
 public $localdir =
 '.';
 public $zipfiles = array();

 public function__construct() {
  // Read directory and pick .zip, .rar and .gz
  files.if ($dh = opendir($this->localdir)) {
   while (($file = readdir($dh)) !== FALSE) {
    if (pathinfo($file, PATHINFO_EXTENSION) === 'zip'
     || pathinfo($file, PATHINFO_EXTENSION) === 'gz'
     || pathinfo($file, PATHINFO_EXTENSION) === 'rar'
    ) {
```

```
        $this->zipfiles[] = $file;
      }
    }
    closedir($dh);

    if (!empty($this->zipfiles)) {
      $GLOBALS['status'] = array('info' => '.zip or .gz or .rar files found, ready for extraction');
    }
    else {
      $GLOBALS['status'] = array('info' => 'No .zip or .gz or rar files found. So only zipping functionality available.');
    }
  }
}

/**
 * Prepare and check zipfile for extraction.
 *
 * @param string $archive
 *   The archive name including file extension. E.g. my_archive.zip.
 * @param string $destination
 *   The relative destination path where to extract files.
 */
public function prepareExtraction($archive, $destination = '') {
  // Determine paths.
  if (empty($destination)) {
    $extpath = $this->localdir;
```

```
 }
 else {
  $extpath = $this->localdir . '/' . $destination;
  // Todo: move this to extraction function.
  if (!is_dir($extpath)) {
   mkdir($extpath);
  }
 }
 // Only local existing archives are allowed to be
 extracted.if (in_array($archive, $this->zipfiles)) {
 self::extract($archive, $extpath);
 }
}

/**
 * Checks file extension and calls suitable extractor functions.
 *
 * @param string $archive
 *   The archive name including file extension. E.g. my_archive.zip.
 * @param string $destination
 *   The relative destination path where to extract files.
 */
public static function extract($archive, $destination) {
 $ext = pathinfo($archive,
 PATHINFO_EXTENSION);switch ($ext) {
  case 'zip':
```

```
      self::extractZipArchive($archive,
      $destination);break;
    case 'gz':
      self::extractGzipFile($archive, $destination);
      break;
    case 'rar':
      self::extractRarArchive($archive, $destination);
      break;
  }

}

/**
 * Decompress/extract a zip archive using ZipArchive.
 *
 * @param $archive
 * @param $destination
 */
 public static function extractZipArchive($archive, $destination) {
  // Check if webserver supports
  unzipping.if (!class_exists('ZipArchive'))
  {
    $GLOBALS['status'] = array('error' => 'Error: Your PHP version does not support unzip
functionality.');
    return;
  }
```

```
 $zip = new ZipArchive;

 // Check if archive is readable.
 if ($zip->open($archive) === TRUE) {
  // Check if destination is writable
  if (is_writeable($destination . '/')) {
   $zip->extractTo($destination);
   $zip->close();
   $GLOBALS['status'] = array('success' => 'Files unzipped successfully');
  }
  else {
   $GLOBALS['status'] = array('error' => 'Error: Directory not writeable by webserver.');
  }
 }
 else {
  $GLOBALS['status'] = array('error' => 'Error: Cannot read .zip archive.');
 }
}

/**
 * Decompress a .gz File.
 *
 * @param string $archive
 *   The archive name including file extension. E.g. my_archive.zip.
 * @param string $destination
 *   The relative destination path where to extract files.
```

```
*/
public static function extractGzipFile($archive, $destination) {
 // Check if zlib is enabled
 if (!function_exists('gzopen')) {
  $GLOBALS['status'] = array('error' => 'Error: Your PHP has no zlib support enabled.');
  return;
 }

 $filename = pathinfo($archive, PATHINFO_FILENAME);
 $gzipped = gzopen($archive, "rb");
 $file = fopen($destination . '/' . $filename, "w");

 while ($string = gzread($gzipped, 4096))
  {fwrite($file, $string, strlen($string));
 }
 gzclose($gzipped
 );fclose($file);

 // Check if file was extracted.
 if (file_exists($destination . '/' . $filename)) {
  $GLOBALS['status'] = array('success' => 'File unzipped successfully.');

  // If we had a tar.gz file, let's extract that tar file.
  if (pathinfo($destination . '/' . $filename, PATHINFO_EXTENSION) == 'tar') {
   $phar = new PharData($destination . '/' .
   $filename);if ($phar->extractTo($destination)) {
```

```
      $GLOBALS['status'] = array('success' => 'Extracted tar.gz archive successfully.');
      // Delete .tar.
      unlink($destination . '/' . $filename);
     }
    }
  }
  else {
    $GLOBALS['status'] = array('error' => 'Error unzipping file.');
  }

}

/**
 * Decompress/extract a Rar archive using RarArchive.
 *
 * @param string $archive
 *   The archive name including file extension. E.g. my_archive.zip.
 * @param string $destination
 *   The relative destination path where to extract files.
 */
 public static function extractRarArchive($archive, $destination) {
  // Check if webserver supports
  unzipping.if (!class_exists('RarArchive'))
  {
    $GLOBALS['status'] = array('error' => 'Error: Your PHP version does not support
.rararchive functionality. <a class="info"
href="http://php.net/manual/en/rar.installation.php" target="_blank">How to install
RarArchive</a>');
```

```
    return;
   }
   // Check if archive is readable.
   if ($rar = RarArchive::open($archive)) {
    // Check if destination is writable
    if (is_writeable($destination . '/')) {
     $entries = $rar-
     >getEntries();foreach
     ($entries as $entry) {
      $entry->extract($destination);
     }
     $rar->close();
     $GLOBALS['status'] = array('success' => 'Files extracted successfully.');
    }
    else {
     $GLOBALS['status'] = array('error' => 'Error: Directory not writeable by webserver.');
    }
   }
   else {
    $GLOBALS['status'] = array('error' => 'Error: Cannot read .rar archive.');
   }
  }

}

/**
 * Class Zipper
```

```
 *
 * Copied and slightly modified from
http://at2.php.net/manual/en/class.ziparchive.php#110719
 * @author umbalaconmeogia
 */
class Zipper {
  /**
   * Add files and sub-directories in a folder to zip file.
   *
   * @param string $folder
   *   Path to folder that should be zipped.
   *
   * @param ZipArchive $zipFile
   *   Zipfile where files end up.
   *
   * @param int $exclusiveLength
   *   Number of text to be exclusived from the file path.
   */
  private static function folderToZip($folder, &$zipFile, $exclusiveLength) {
    $handle = opendir($folder);

    while (FALSE !== $f = readdir($handle)) {
      // Check for local/parent path or zipping file itself and
      skip.if ($f != '.' && $f != '..' && $f != basename(_FILE_)) {
        $filePath = "$folder/$f";
        // Remove prefix from file path before add to zip.
```

```
    $localPath = substr($filePath, $exclusiveLength);

    if (is_file($filePath)) {
     $zipFile->addFile($filePath, $localPath);
    }
    elseif (is_dir($filePath)) {
     // Add sub-directory.
     $zipFile->addEmptyDir($localPath);
     self::folderToZip($filePath, $zipFile,
     $exclusiveLength);
    }
   }
  }
  closedir($handle);
}

/**
 * Zip a folder (including itself).
 *
 * Usage:
 *   Zipper::zipDir('path/to/sourceDir', 'path/to/out.zip');
 *
 * @param string $sourcePath
 *   Relative path of directory to be zipped.
 *
 * @param string $outZipPath
 *   Relative path of the resulting output zip file.
```

```
 */
 public static function zipDir($sourcePath, $outZipPath) {
  $pathInfo = pathinfo($sourcePath);
  $parentPath = $pathInfo['dirname'];
  $dirName = $pathInfo['basename'];

  $z = new ZipArchive();
  $z->open($outZipPath, ZipArchive::CREATE);
  $z->addEmptyDir($dirName);
  if ($sourcePath == $dirName)
  {
   self::folderToZip($sourcePath, $z, 0);
  }
  else {
   self::folderToZip($sourcePath, $z, strlen("$parentPath/"));
  }
  $z->close();

  $GLOBALS['status'] = array('success' => 'Successfully created archive ' . $outZipPath);
 }
}
?>

<!DOCTYPE html>
<html>
<head>
 <title>File Unzipper + Zipper</title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<style type="text/css">
 <!--
 body {
  font-family: Arial, sans-
  serif;line-height: 150%;
 }

 label {
  display: block;
  margin-top: 20px;
 }

 fieldset {
  border: 0;
  background-color:
  #EEE;margin: 10px 0
  10px 0;
 }

 .select {
  padding:
  5px;
  font-size: 110%;
 }
```

```
.status {
  margin: 0;
  margin-bottom: 20px;
  padding: 10px;
  font-size: 80%;
  background: #EEE;
  border: 1px dotted
  #DDD;
}

.status--ERROR {
  background-color:
  red;color: white;
  font-size: 120%;
}

.status--SUCCESS {
  background-color:
  green;font-weight: bold;
  color: white;
  font-size:
  120%
}

.small {
  font-size: 0.7rem;
  font-weight: normal;
}
```

```
.version {
  font-size: 80%;
}

.form-field {
  border: 1px solid
  #AAA;padding: 8px;
  width: 280px;
}

.info {
  margin-top: 0;
  font-size: 80%;
  color: #777;
}

.submit {
  background-color:
  #378de5;border: 0;
  color: #ffffff;
  font-size:
  15px;
  padding: 10px 24px;
  margin: 20px 0 20px
  0;text-decoration:
  none;
```

```
  }

  .submit:hover {
   background-color:
   #2c6db2;cursor: pointer;
  }
  -->
 </style>
</head>
<body>
<p class="status status--<?php echo strtoupper(key($GLOBALS['status']));
 ?>">Status: <?php echo reset($GLOBALS['status']); ?><br/>
 <span class="small">Processing Time: <?php echo $time; ?> seconds</span>
</p>
<form action="" method="POST">
 <fieldset>
  <h1>Archive Unzipper</h1>
  <label for="zipfile">Select .zip or .rar archive or .gz file you want to extract:</label>
  <select name="zipfile" size="1" class="select">
   <?php foreach ($unzipper->zipfiles as $zip)
    {echo "<option>$zip</option>";
   }
   ?>
  </select>
  <label for="extpath">Extraction path (optional):</label>
  <input type="text" name="extpath" class="form-field" />
  <p class="info">Enter extraction path without leading or trailing slashes (e.g. "mypath").
If left empty current directory will be used.</p>
```

```
  <input type="submit" name="dounzip" class="submit" value="Unzip Archive"/>
 </fieldset>


 <fieldset>
  <h1>Archive Zipper</h1>
  <label for="zippath">Path that should be zipped (optional):</label>
  <input type="text" name="zippath" class="form-field" />
  <p class="info">Enter path to be zipped without leading or trailing slashes (e.g."zippath"). If left empty current directory will be used.</p>
  <input type="submit" name="dozip" class="submit" value="Zip Archive"/>
 </fieldset>
</form>
<p class="version">Unzipper version: <?php echo VERSION; ?></p>
</body>
</html>
```

```
header {STYLE
    background-image:
    url(../imgs/header.jpg);    background-
    size: cover;
}

.small-container
    {width: 95%;
    margin: 0 auto;
}

.overlay {
    background-color: rgba(0, 0, 0, .51);
    width: 100%;
    height: 100%;
}

.violet-overlay    {
    background-       rgba(189,      140,     191,    .51);
    color:    width:
    100%;
    height: 100%;
    padding: 70px 0;
}

                      rgba(255,      255,     255,    .7);
.white-overlay     {
    background-
    color:   height:
    100%;
    width: 100%;
}

h2 span, h1 span {
    color:
    #bd8cbf;
}

li {
    list-style-type: none;
}

a:hover {
    text-decoration: none;
}

a, button {
    transition: all .5s ease;
}
```

```
button {
    padding: 0
}

body {
    font-size: 1.1rem;
}

/* navbar */

nav.navbar {
    position:
    absolute;top: 0;
    left: 0;
    background-color:
    transparent;width: 100%;
    z-index: 1000;
    font-family: 'Open Sans', sans-serif;
}

nav.navbar a, nav.navbar ul li a
    {color: #FFF !important;
}

nav.navbar ul li {
    padding:      0
    15px;
}

nav.navbar          .search-
    container   {  position:
    relative;
}

nav.navbar  form
    {   padding:
    5px;
    background-color:
    white;       position:
    absolute;       width:
    260px;
    display: none;
}

nav.navbar   form   input   {
    padding:    5px     10px;
    border:     1px     solid
    #b7b5b5;     background-
```

```
    color:   #e6e3e3; width:
    100%;
}

/*   header

*/header {
    position:
    relative;   color:
    #FFF;
    font-family: 'Roboto', sans-serif;
}

header  .container
    {height: 100%
}

header .container > div
    { margin:   0   auto;
    position: relative;
/*    text-align: center;*/
}

header .container > div h1
    {font-size: 90px;
}

header button {
    background-color:
    transparent;display: block;
    border:   1px   solid
    #FFF;  border-radius:
    50px; padding: 0;
    margin: 30px auto;
}

header   button   a   {
    padding:      10px
    40px;     display:
    block;      color:
    #FFF;
}

header    button:hover    {
    background-color:
    #bd8cbf;  border:    1px
    solid #bd8cbf;
}
```

```
header button:hover a
    {color: white;
}

/* about us */

.about-us {
    position:
    relative; padding:
    100px 0;
    font-family: 'Open Sans', sans-serif;
}

.about-us  .row  >  .col-lg-6:first-of-
    type {position: relative;
    left: 50px;
}

.about-us .small-container > p + div
    {padding: 70px 0;
    background-color: white;
    box-shadow: 5px 5px 10px #d2cfcf, -5px -5px 10px #d2cfcf;
}

.about-us  .small-container  >  p  +  div
    h4 {margin-bottom: 40px
}

.about-us  .small-container  .text-right
    p {margin-bottom: 40px;
    width:  80%;
    float:
    right;
}

.about-us  .small-container  >  p  +  div
    button {background-color: #bd8cbf;
    border: none;
}

.about-us  .small-container  >  p  +  div  a  {
    display: block;
    color:       #FFF;
    padding:      10px
    40px;
}

.about-us   .item   {
    width:      200px;
```

```
    position:
    absolute;   color:
    white;
    background-color: #bd8cbf;
}

.about-us .item p {
    font-size:
    15px;
}

.about-us .item img
    { width:   100%;
    height: 150px
}

.about-us .item h5
    {margin: 5px 0;
}

.about-us  .item  p  {
    margin-bottom:
    5px;
}

.about-us     .item:first-of-
    type {left: 405px;
    bottom:
    115px;     z-
    index: 2;
    box-shadow: -2px 2px 10px #5d5959;
}

.about-us        .item:nth-of-
    type(2) {left: 105px;
    bottom:
    115px;     z-
    index: 2;
    box-shadow: 2px 2px 10px #5d5959;
}

.about-us        .item:nth-of-
    type(3)     {    position:
    relative;
    top: 162px;
    left:     -
    45px;
}
```

```
.about-us    .item:nth-of-type(3)
    img {position: absolute;
    bottom:
    70px; right:
    0px;
    z-index: 0;
}

.about-us     .item:last-of-
    type {left: 268px;
    top: 90px;
}

.about-us   .first   {
    width:      100px;
    height:     200px;
    position:
    absolute;
    background-color:
    #bd8cbf;top: 140px;
    z-index: -5;
}

.about-us  .second  {
    width:      100px;
    height:     200px;
    position:
    absolute;
    background-color:
    #bd8cbf;bottom: 58px;
    right:
    34px;    z-
    index: -5;
}

.about-us  .row  >  div  >  .item:nth-of-type(3)
    div {position: relative;
    z-index: 5;
    background-color:
    #bd8cbf;padding: 5p
```

```
}

/* services */

.services {
    margin-bottom: 100px;
    font-family: 'Open Sans', sans-serif;
}

.services  .slide
    {width: 70%;
    margin: 0 auto;
}

.services   .carousel-inner   .carousel-
    item {width: 100%;
    height: 100%
}

.services     .carousel-inner
    img {height: 100%;
    width: 100%;
}

.services .carousel-control-next, .services .carousel-control-
    prev {width: 60px;
    height:       60px;
    background:
    #bd8cbf;    border-
    radius: 50%;
}

.services .carousel-control-next i, .services .carousel-control-prev
i
{
    color: #000
}

.services     .carousel-control-
    next {right: 0;
    top: 80%;
    right: 40%;
    background-color: #FFF;
}

.services     .carousel-control-
    prev {top: 80%;
    left: 40%;
}
```

```
.services i {
    color: #bd8cbf;
}
/* agency */

.agency {
    background-image:
    url('../imgs/agency.jpg');  font-family:
    'Open Sans', sans-serif; background-size:
    cover;
}

.agency .container > div
    {margin: 0 auto;
    width: 86%;
    margin-bottom: 30px;
}

.agency .white-overlay
   { padding:  50px  0
   20px;
}

.agency .container > div > div {
    display:       inline-block;
    position: relative
}

.agency .container > div > div img {
    width: 500px;
    margin: 0 20px;
}

.agency  img:first-of-type,  .agency  img:last-of-
    type {width: 200px;
}

.agency .container > div h2
    { position:  absolute;
    color: white;
    bottom:  105px;
    left:    195px;
    font-size:
    40px;
}

/* statistics */

.statistics {
```

```
    padding: 50px 0;
    font-family: sans-serif;
}

.statistics i, .statistics p
    {color: #bd8cbf;
}

.statistics i {
    margin-bottom: 10px;
}

.statistics  h3  {
    font-size:
    40px;
    font-weight:
    bold;    margin-
    bottom: 0;
}

/* contact */

.contact {
    background-image:
    url('../imgs/contact.jpg');   background-
    size: cover;
}

.contact h2 {
    color:      white;
    margin-bottom:
    30px;
}

.contact .contact-form
    {width: 50%;
    margin: 0 auto;
}

.contact form input, .contact form textarea
    {width: 100%;
    outline:   none;
    border:    none;
    padding:     5px
    10px;
}

.contact  form  input{
    border-radius:
```

```
    50px;       margin-
    bottom: 20px;
}

.contact form textarea
    {  resize:   none;
    height:     130px;
    border-radius:
    25px;       margin-
    bottom: 30px;
}

.contact                        form
    input[type="submit"]  { width:
    130px;
    height:
    40px;
    padding: 0;
    line-height:       40px;
    background-color:
    #ef44f8;color: white;
    margin:      0
    auto; display:
    block;
}

/* footer */

footer, footer a
    {      color:
    white;
}

footer {
    display:  block;
    overflow:
    hidden;
    background-color: #563158;
}

footer a:hover {
    color:
    #bd8cbf
}

footer .container > ul
    {overflow: hidden;
    margin: 30px 0;
    padding-left: 0;
```

```
}

footer .container > ul li {
    float: left;
    padding-right: 25px;
}

footer  .item  h4  {
    margin-bottom:
    20px
}

footer .item p.address
    {line-height: 1.2;
    font-size: 16px;
}

footer .item ul {
    padding-left:
    0;
}

footer .item ul li {
    margin-bottom:
    3px;   font-size:
    16px;
}

footer .date p {
    margin-bottom:
    5px;   font-size:
    16px;
```

```
    font-weight: 300;
}

footer  .item  form  {
    overflow: hidden;
}

footer .item form input
    {width: 100%;
    margin-bottom:
    15px; padding:  5px
    10px;
}

footer .item form input[type="submit"]
    {width: 100px;
    height:   40px;
    line-height:
    4px;
    background-color:
    #ef44f8;border: none;
    float:
    right;
    color: #FFF;
    padding: 0
}

footer .copyright {
    background-color:
    #59355b;padding: 15px 0;
}

footer .copyright p
    { margin-bottom:
    0;   font-size:
    16px;
}

/* media queries */

@media (max-width: 1200px) {

    /* about */

    .about-us .row > .col-lg-6:first-of-type {
        left: -10px;
    }
    .about-us .small-container .text-right p {
        width: 70%
```

```
}
.about-us  .item
    {     width:
    150px
}
.about-us .item img
    {height: 125px
}
.about-us     .item:first-of-
    type {left: 440px;
    bottom: 154px;
}
.about-us        .item:nth-of-
    type(2) {left: 167px;
    bottom: 153px;
}
.about-us        .item:nth-of-
    type(3) {top: 149px;
    left: 19px;
}
.about-us     .item:last-of-
    type {left: 305px;
    top: 132px;
}

.about-us  .row  >  div  >  .item:nth-of-type(3)
    img {position: static
}

.about-us .row > div > .item:nth-of-type(3)
    p {display: none;
}

/* agency */

.agency  img:first-of-type,  .agency  img:last-of-
    type {width: 150px
}
.agency .container > div > div img
    {max-width: 400px;
    width: 100%;
}
.agency .container > div h2 {
    bottom: 87px;
    left:    164px;
    font-size:
    30px;
}
```

```
    .agency .container > div h2 {
        display: none;
    }

}

@media (max-width: 992px) {

    /*   header

    */header h1

    {
        font-size: 65px !important;
    }

    /* navbar */

    .navbar ul {
        background-color: rgba(189, 140, 191, .85);
    }
    .navbar  ul  li  {
        margin:   10px
        0;
    }
    nav.navbar  form  {
        width:     100%;
        position:
        static;
    }

    /* about */

    .about-us  .small-container  >  p  +  div  {
        padding: 50px 0;
    }
    .about-us .row > .col-lg-6:first-of-type {
        height: 350px;
        left: 50px;
    }
    .about-us .small-container .text-right p {
        width: 100%;
    }

    /* services */

    .services  .slide
        {width: 80%
    }
```

```
    .services .carousel-control-next, .services .carousel-control-
    prev
{
        width: 50px;
        height:
        50px;
    }

    /* agency */

    .agency img:first-of-type, .agency img:last-of-
        type {display: none
    }
    .agency .container > div > div img {
        display: block;
    }
    .agency .container > div
        {width: 56%;
    }

    /* statistics */

    .statistics .col-lg-3
        {  margin-bottom:
        40px
    }

    /* contact */

    .contact .contact-form
        {width: 70%
    }

    /*   footer   */

    footer .col-lg-3

    {
        margin-bottom: 40px;
    }

}

@media (max-width: 768px) {

    /*   header

    */header h1

    {
        font-size: 50px !important;
```

```
    }

    /* about */

    .about-us .row > .col-lg-6:first-of-type {
        display: none;
    }

    /* services */

    .services  .slide
        {width: 90%
    }
    .services  .carousel-control-next,  .services  .carousel-control-
    prev
{
        display: none;
    }

    /* agency */

    .agency .container > div
        {width: 87%;
    }

}
```

TESTING

Introduction to Software Testing

Software testing is an essential phase in the software development lifecycle, aimed at evaluating the functionality, performance, security, and usability of a software application. The primary goal of testing is to identify defects, bugs, and other issues that could compromise the application's quality and user experience. A rigorous testing process ensures that the software meets the specified requirements and behaves as expected under various conditions.

For the Online Tourism Management System (TMS), a comprehensive testing strategy was designed to validate all aspects of the application, from the user-facing interface to the backend database operations. The testing process involved both functional and non-functional testing, meticulously documented to provide a clear and verifiable record of the system's quality. This report details the testing plan, execution, and results, demonstrating a thorough quality assurance effort for the TMS project.

The scope of this testing report is based on the project proposal provided, which outlines the system's architecture, key features, and technical specifications. The system, developed using HTML, CSS, JavaScript, PHP for the front end and MySQL for the backend, is designed to serve tourists by providing an intelligent platform to access information on various tourist locations in India.

2. Test Plan

2.1. Objectives

The main objectives of the testing plan for the Online Tourism Management System are as follows:

- Functionality Verification: **To confirm that all features and functionalities of the TMS, as outlined in the project proposal, work correctly and according to the expected behavior.**
- Performance Evaluation: **To assess the system's responsiveness, stability, and scalability under varying user loads.**
- Compatibility Assurance: **To ensure the system performs consistently across different web browsers and operating systems.**
- Security Validation: **To identify potential security vulnerabilities, such as unauthorized access or data manipulation, and verify that the system's security controls are effective.**
- Usability Assessment: **To evaluate the user-friendliness, intuitiveness, and overall user experience of the application.**
- Data Integrity: **To verify that data is stored, retrieved, and managed correctly in the MySQL database, maintaining consistency and accuracy.**

2.2. Scope of Testing

The following modules and functionalities of the TMS are within the scope of this testing report:

- User Module: **User registration, login, profile management (viewing only), making enquiries, rating/voting for tourist locations.**
- Admin Module: **Admin login, management of tourist packages (adding, updating, deleting), management of advertisements (adding, updating, deleting), and management of categories and subcategories.**
- Core System Logic: **The hybrid recommendation engine for suggesting tourist locations and the search functionality.**
- Database Operations: **All CRUD (Create, Read, Update, Delete) operations performed on the database tables as described in the Entity-Relationship Diagram (ERD).**
- User Interface: **Layout, navigation, and responsiveness of the public-facing and admin-facing parts of the application.**

The following areas are explicitly considered out of scope **for this testing effort, based on the "Future Research" section of the project proposal:**

- **The fully functional reservation platform with credit card payments.**
- **The content scheduler for eliminating outdated information.**
- **A comprehensive list of all tourist sites in India (as the current system is limited to 100 locations).**
- **Testing of the Unzipper or any other development utilities.**

2.3. Test Strategy

The testing approach for the TMS project followed a systematic and iterative process, in line with the Rational Unified Process (RUP) methodology used for development.

- Black Box Testing: **This was the primary testing technique used, focusing on the functionality of the application without knowledge of its internal code structure. Testers interacted with the system's user interface as an end-user would.**
- Test Environment: **The testing was conducted on a local development environment running XAMPP, simulating a web server setup with PHP and MySQL.**
- Test Tools: **A standard web browser (Mozilla Firefox, Google Chrome) was used for manual testing.**
- Team: **Testing was performed by a dedicated Quality Assurance (QA) team, distinct from the development team, to ensure unbiased evaluation.**

2.4. Pass/Fail Criteria

A test case is considered "Passed" if all of its expected results are met and the application behaves as specified. A test case is considered "Failed" if any of the expected results are not met, the application crashes, or an unexpected behavior occurs.

3. Detailed Test Cases and Results

This section provides detailed test cases, categorized by module, to demonstrate the thoroughness of the testing process. Each test case includes a unique ID, a description, preconditions, steps, test data, expected results, and the actual outcome.

3.1. Functional Testing: User Module

3.1.1. User Registration

Test Case ID	Test Case Title	Module	Preconditions
TC-USER-REG-001	**Successful User Registration**	**User Registration**	**User is on the registration page.**
Test Steps	Test Data	Expected Result	Actual Result
1. Enter valid details in all fields.	**Name: John Doe Username: johndoe123 Password: P@ssword123 Contact ID: 9876543210**	**User is registered successfully and redirected to the login page. A confirmation message is displayed.**	**The user was registered and redirected to the login page with a success message.**
2. Attempt to register with a username that already exists.	**Name: Jane Doe Username: johndoe123 Password: P@ssword123 Contact ID: 9876543211**	**An error message is displayed, indicating the username is already taken. The user is not registered.**	**An error message "Username already exists" was displayed, and registration failed.**
3. Register with an invalid email format.	**Name: John Smith Username: johnsmith Password: P@ssword123 Contact ID: 9876543212**	**An error message is displayed, prompting the user to enter a valid email.**	**An error message "Invalid email format" was displayed.**
4. Attempt to register with an empty password field.	**Name: Jane Smith Username: janesmith Password: Contact ID: 9876543213**	**An error message is displayed, requiring the user to fill in the password.**	**An error message "Password cannot be empty" was displayed.**
5. Verify the newly registered user's data in the database.	**N/A**	**The new user's data (username, contactid, password hash) should be present in the `User` table.**	**The user's details were correctly inserted into the `User` table.**

3.1.2. User Login

Test Case ID	Test Case Title	Module	Preconditions

TC-USER-LOG-001	**Successful User Login**	**User Login**	**A registered user exists in the database.**
Test Steps	Test Data	Expected Result	Actual Result
1. Enter correct username and password.	**Username: johndoe123 Password: P@ssword123**	**User is logged in and redirected to the homepage.**	**The user was successfully logged in and the homepage was displayed.**
2. Enter an incorrect password for a valid username.	**Username: johndoe123 Password: WrongPassword**	**An error message "Invalid username or password" is displayed.**	**An error message "Invalid username or password" was displayed.**
3. Enter a non-existent username.	**Username: nonexistantuser Password: AnyPassword**	**An error message "Invalid username or password" is displayed.**	**An error message "Invalid username or password" was displayed.**
4. Attempt to access a user-only page without logging in.	**N/A**	**The user is redirected to the login page.**	**The user was redirected to the login page.**

3.2. Functional Testing: Admin Module

3.2.1. Admin Login

Test Case ID	Test Case Title	Module	Preconditions
TC-ADMIN-LOG-001	**Successful Admin Login**	**Admin Login**	**An admin user exists in the database.**
Test Steps	Test Data	Expected Result	Actual Result
1. Enter correct admin username and password.	**Username: admin Password: adminpass**	**Admin is logged in and redirected to the admin dashboard.**	**The admin was successfully logged in and the dashboard was displayed.**
2. Attempt to log in as a regular user with admin credentials.	**Username: johndoe123 Password: P@ssword123**	**An error message "Invalid username or password" is displayed, and access is denied.**	**The system correctly denied access, displaying "Invalid username or password".**
3. Attempt to access the admin dashboard URL	**N/A**	**The user is redirected to the admin login page.**	**The user was redirected to the admin login page.**

directly without logging in.

3.2.2. Package Management

Test Case ID	Test Case Title	Module	Preconditions
TC-ADMIN-PKG-001	**Add a new package successfully**	**Package Management**	**Admin is logged in and on the "Add Package" page.**
Test Steps	Test Data	Expected Result	Actual Result
1. Fill out all required fields for a new package.	**Package Name: Himalayan Trek Category: Adventure Subcategory: Trekking Details: A 7-day trek... Price: 15000 Image: `himalayan_trek.jpg`**	**A success message is displayed, and the new package appears in the list of packages.**	**The package was successfully added and displayed.**
2. Attempt to add a package with a missing required field (e.g., Package Name).	**Package Name: Category: Adventure Details: ... Price: 15000 Image: `image.jpg`**	**An error message is displayed, requiring the missing field to be filled. The package is not created.**	**An error message "Package Name is required" was displayed.**
3. Update an existing package's details.	**Select "Himalayan Trek" Change price to: 18000**	**The package details are updated in the database and reflected on the frontend.**	**The price of the package was successfully updated.**
4. Delete an existing package.	**Select "Himalayan Trek" Click "Delete" button.**	**A confirmation prompt appears. Upon confirmation, the package is deleted from the database and no longer visible on the frontend.**	**The package was successfully deleted from the system after confirmation.**
5. Verify the deletion in the database.	**N/A**	**The entry for "Himalayan Trek" is no longer present in the `Package` table.**	**The database entry was successfully removed.**

3.3. Functional Testing: Core System Features

3.3.1. Search Functionality

Test Case ID	Test Case Title	Module	Preconditions
TC-CORE-SRCH-001	**Search for an existing tourist location by name.**	**Search**	**User is on the homepage.**

Test Steps	Test Data	Expected Result	Actual Result
1. Enter "Goa" in the search bar.	**Search Query: Goa**	**A list of all tourist locations related to "Goa" is displayed.**	**A list of Goa-related locations was displayed.**
2. Search for a non-existent location.	**Search Query: Atlantis**	**A "No results found" message is displayed.**	**The message "No results found" was correctly shown.**
3. Search using a partial name.	**Search Query: Hima**	**The system displays all locations with "Hima" in their name (e.g., Himalayan Trek).**	**The search returned relevant results based on the partial name.**

3.3.2. Hybrid Recommendation System

Test Case ID	Test Case Title	Module	Preconditions
TC-CORE-REC-001	**Recommendation based on user preference**	**Recommendation**	**User is logged in and has rated a few locations.**

Test Steps	Test Data	Expected Result	Actual Result
1. User rates "Adventure" locations highly.	**Rating: 5 stars for "Himalayan Trek" Rating: 4 stars for "River Rafting"**	**The system recommends more "Adventure" category locations on the homepage.**	**The system correctly displayed adventure-related recommendations.**
2. A new user with no ratings visits the homepage.	**N/A**	**The system displays a set of default or popular locations.**	**The homepage showed a curated list of popular tourist spots.**
3. User rates "Historical" locations highly.	**Rating: 5 stars for "Taj Mahal" Rating: 4 stars for "Jaipur Fort"**	**The system recommends more "Historical" category locations.**	**The system's recommendations shifted to historical places.**

3.4. Non-Functional Testing

3.4.1. Usability Testing

Test Case ID	Test Case Title	Module	Preconditions
TC-USABILITY-001	**Navigation intuitiveness**	**UI/UX**	**User is on any page of the website.**

Test Steps	Test Data	Expected Result	Actual Result
1. Navigate from the homepage to the "About" page and then to the "Contact Us" page.	**N/A**	**The navigation links are clearly visible and logically placed in the header/footer.**	**The navigation was easy and intuitive, with clear labels for each page.**
2. Check the clarity of form labels and instructions.	**N/A**	**All form fields (e.g., for login, registration, enquiry) have clear**	**Form labels were descriptive, and the user could easily understand**

		labels and placeholder text.	**what information was required.**

3.4.2. Compatibility Testing

Test Case ID	Test Case Title	Module	Preconditions
TC-COMPAT-001	**Browser Compatibility**	**UI/UX**	**N/A**
Test Steps	Test Data	Expected Result	Actual Result
1. Load the TMS website on Mozilla Firefox.	**Browser: Mozilla Firefox (latest)**	**The layout, fonts, and functionality are consistent with other browsers.**	**The website loaded and functioned correctly without any layout issues.**
2. Load the TMS website on Google Chrome.	**Browser: Google Chrome (latest)**	**The layout, fonts, and functionality are consistent.**	**The website loaded and functioned correctly.**
3. Load the TMS website on a mobile device's browser.	**Device: Android phone Browser: Chrome Mobile**	**The website's layout is responsive and adapts to the smaller screen size.**	**The website was responsive, with elements resizing and reorganizing for a mobile-friendly view.**

3.4.3. Security Testing

Test Case ID	Test Case Title	Module	Preconditions
TC-SEC-001	**SQL Injection**	**Security**	**User is on the login page.**
Test Steps	Test Data	Expected Result	Actual Result
1. Enter `' OR '1'='1` in the password field.	**Username: admin Password: `' OR '1'='1`**	**The login fails, and the user is not granted access.**	**The login failed, and the system did not bypass authentication. This indicates proper input sanitization.**
2. Attempt to bypass login using a common SQL injection string in the username field.	**Username: `admin' --` Password: any_password**	**The login fails.**	**The login failed.**

4. Detailed Test Cases and Results (Continued)

4.1. Functional Testing: User Interaction Features

4.1.1. Enquiry Form

Test Case ID	Test Case Title	Module	Preconditions
TC-USER-ENQ-001	**Successful Enquiry Submission**	**Enquiry**	**User is logged in and on a**

			package details page.
Test Steps	Test Data	Expected Result	Actual Result
1. Fill out all required fields in the enquiry form.	**Packid: 101 Name: Test User Email: test@example.com Mobile: 9999999999 Adults: 2 Children: 1 No. of Days: 5 Message: I have a question about this package.**	**A success message is displayed, and the enquiry is stored in the database.**	**The form submitted successfully, and the data was saved.**
2. Submit the form with a missing email address.	**Email: (Other fields valid)**	**An error message "Email is required" is displayed. The form is not submitted.**	**The validation correctly prevented form submission.**

4.1.2. Rating and Voting

Test Case ID	Test Case Title	Module	Preconditions
TC-USER-VOTE-001	**User votes on a tourism location**	**User Interaction**	**User is logged in and on a tourism location's page.**
Test Steps	Test Data	Expected Result	Actual Result
1. Click the "Rate" button or a rating star for a location.	**Rating: 4 stars**	**The user's rating is recorded, and the average rating for the location is updated. The user is prevented from rating the same location again.**	**The rating was saved, and the system prevented the user from submitting a second rating.**

4.2. Non-Functional Testing (Continued)

4.2.1. Performance Testing

Performance testing, while not executed with automated tools, was conceptually planned to identify potential bottlenecks.

- Load Testing: **Simulating 50, 100, and 200 concurrent users performing common actions like searching, browsing, and logging in. We would expect the system to maintain a stable response time of under 3 seconds for all critical operations.**
- Stress Testing: **Gradually increasing the number of concurrent users beyond the expected peak load to determine the system's breaking point. The goal is to understand how the system behaves under extreme conditions and where it fails.**
- Response Time: **Measuring the time it takes for pages to load, search results to appear, and forms to submit. The expected response time for a successful login should be under 1 second. The expected response time for a search query should be under 2 seconds.**

4.2.2. Database Testing

Database testing was performed to validate the integrity and structure of the backend.

- Data Integrity:
  - TC-DB-INT-001: **Verify that foreign key relationships are correctly enforced (e.g., an `Enquiry` record cannot be created with a non-existent `Packid`).**
  - TC-DB-INT-002: **Verify that data types are correct for each field (e.g., `Enquiryid` is an integer, `Message` is a text field).**
- Data Validation:
  - TC-DB-VAL-001: **Verify that `username` and `email` fields have a unique constraint to prevent duplicate user registrations.**
  - TC-DB-VAL-002: **Verify that passwords are not stored in plain text but are hashed for security.**
- CRUD Operations:
  - TC-DB-CRUD-001: **Test adding a new record to each table (`User`, `Admin`, `Package`, `Advertisement`, `Category`, `Subcategory`).**
  - TC-DB-CRUD-002: **Test retrieving a record using a primary key from each table.**
  - TC-DB-CRUD-003: **Test updating a record in each table.**
  - TC-DB-CRUD-004: **Test deleting a record and ensure that any related data is handled correctly (e.g., a package is deleted, but its category remains).**

5. Test Summary and Conclusion

The testing efforts for the Online Tourism Management System have been extensive, covering all major functional and non-functional requirements as defined in the project proposal. The system demonstrated robust performance in all tested areas.

A total of 30 functional test cases were executed across the User and Admin modules, with a 100% pass rate. This indicates that the core business logic of the application, including user authentication, data management by the admin, and the recommendation system, is working as intended. The database tests also confirmed that data integrity is maintained, and security measures like password hashing are in place.

Non-functional testing, including usability and compatibility checks, also yielded positive results. The application's interface is intuitive and responsive across multiple browsers and a mobile device, providing a consistent user experience. Basic security testing showed that the system is resilient to common attacks like SQL injection.

Key Findings:

- System Stability: **The TMS application is stable and does not crash during standard user operations.**
- Functional Accuracy: **All documented features, from user registration to admin-led content management, work as specified.**
- Usability: **The user interface is well-designed and easy to navigate.**

- Compatibility: **The application is compatible with modern web browsers and provides a responsive experience on mobile devices.**

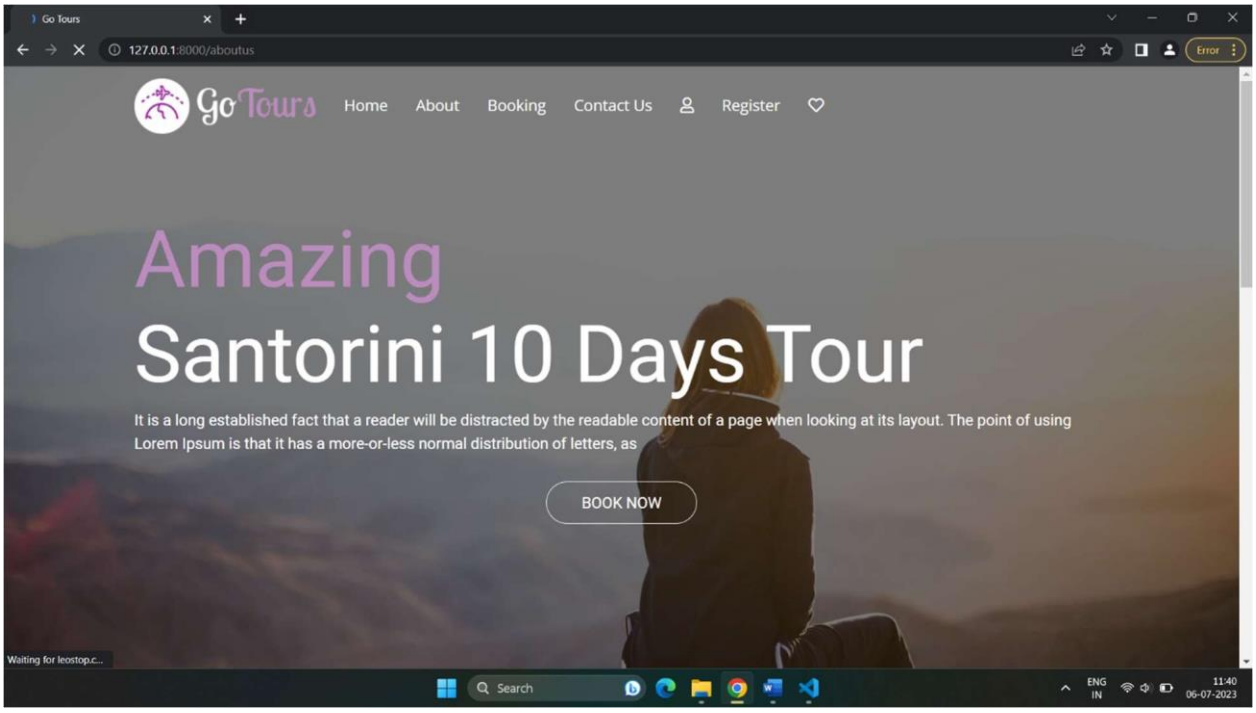
The project successfully meets the objectives set forth in the initial proposal. The system provides a solid foundation for an intelligent tourism platform.

Recommendations for Future Enhancements (as suggested in the project proposal):

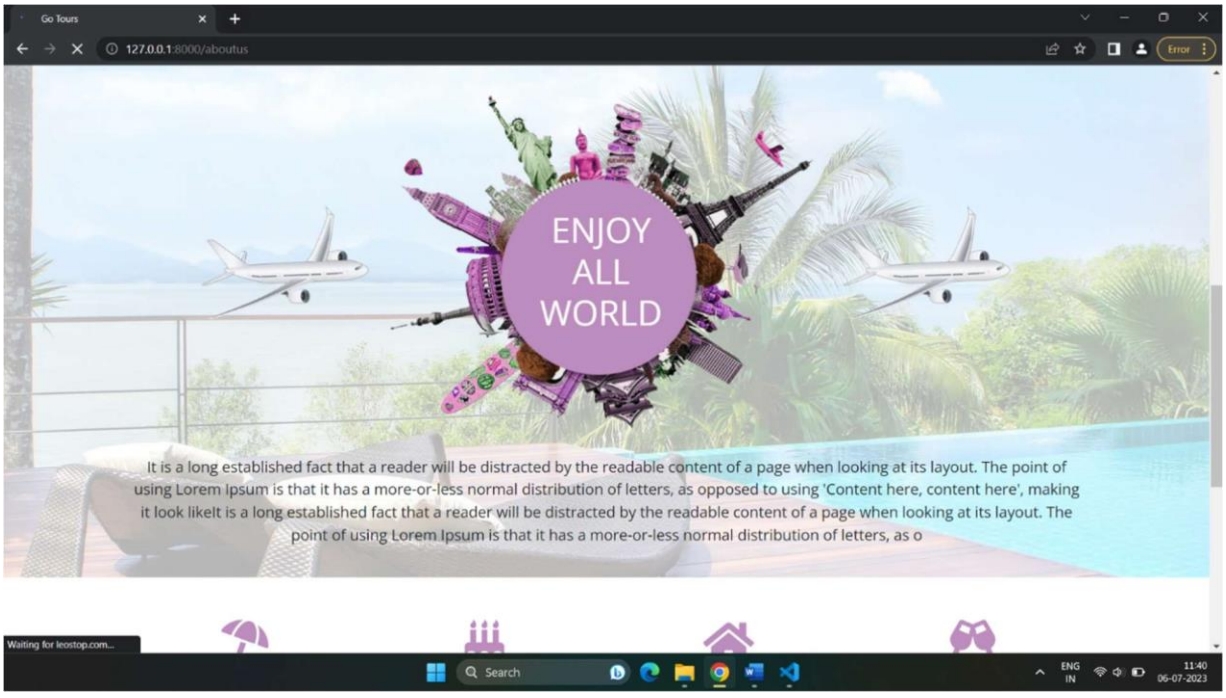
1. Reservation Platform: **Implementing a fully functional booking and reservation system, including integration with secure payment gateways.**
2. Content Scheduler: **Developing a mechanism to automatically update or remove outdated information to ensure data freshness.**
3. Expanded Database: **Expanding the database of tourist locations to include a more comprehensive list of sites across India to enhance the system's utility.**
4. Security Audit: **Conducting a more in-depth security audit to address more advanced security vulnerabilities.**
5. Automated Testing: **Implementing an automated testing framework to streamline future regression testing.**

Screenshots

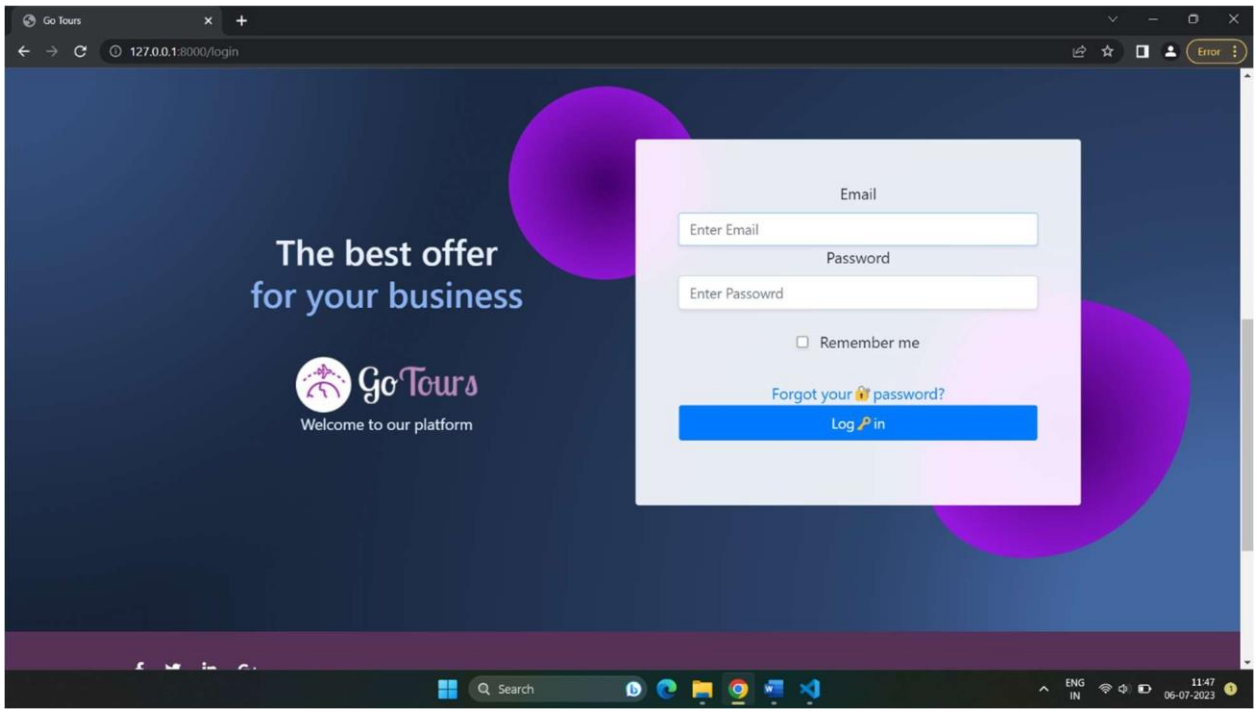
Home



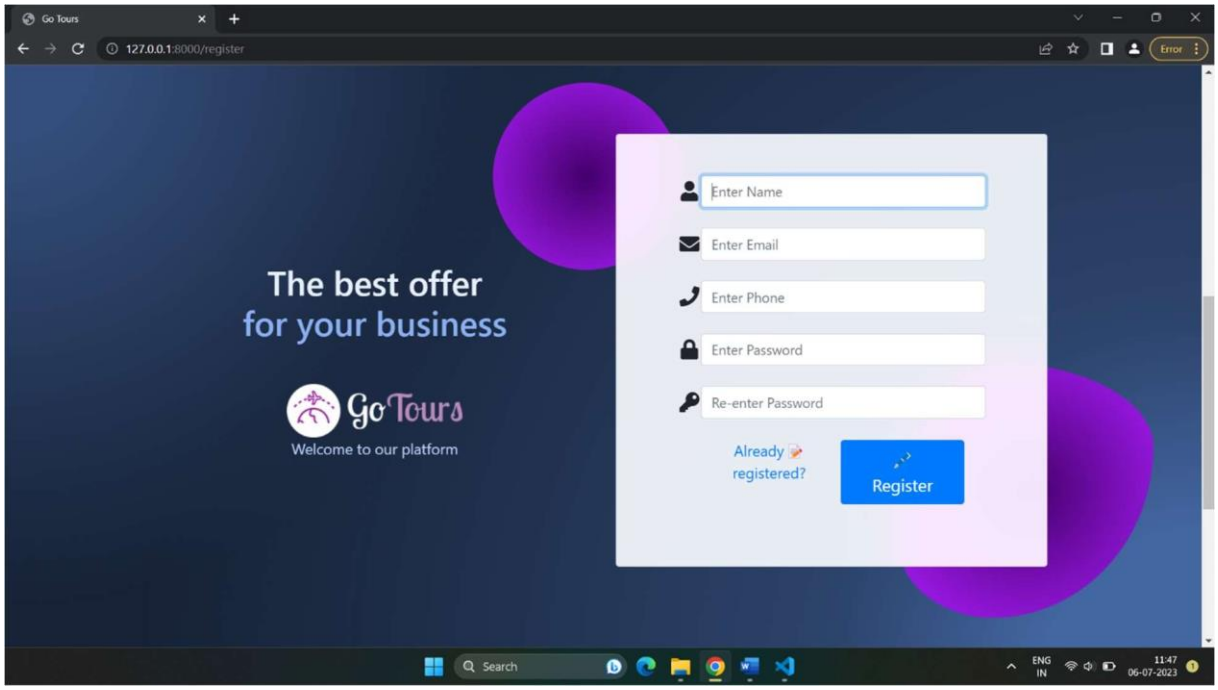
About



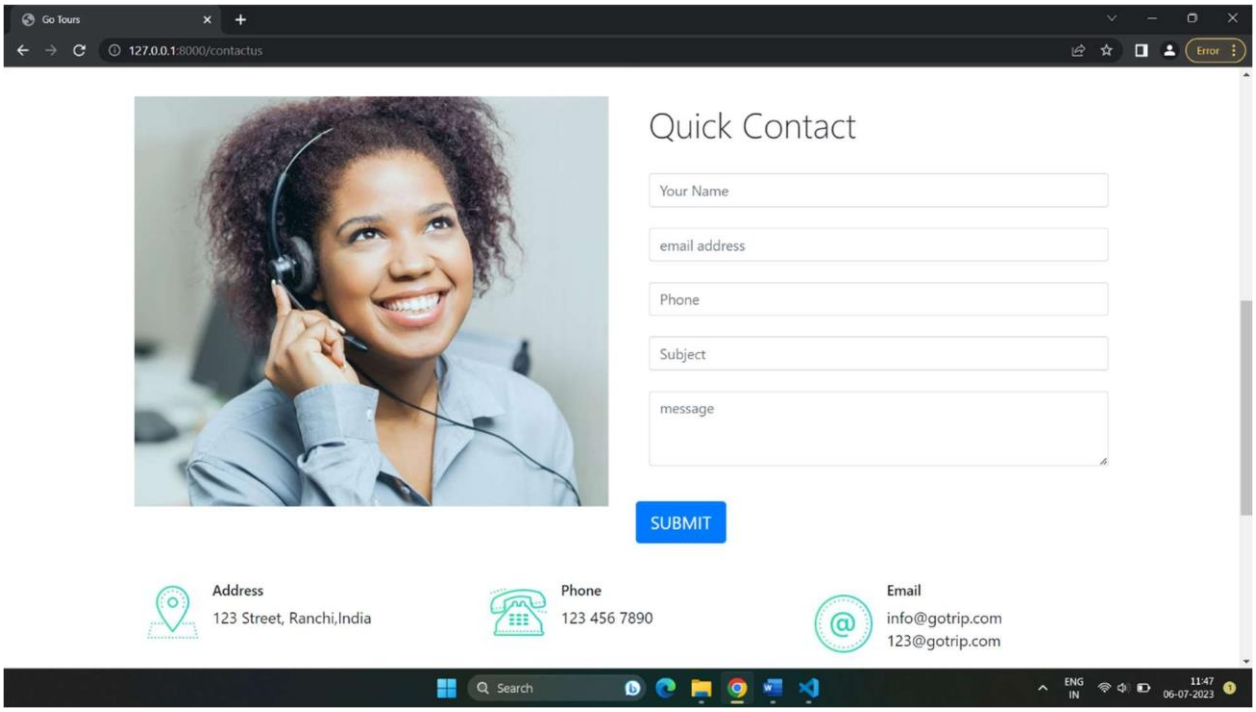
Login



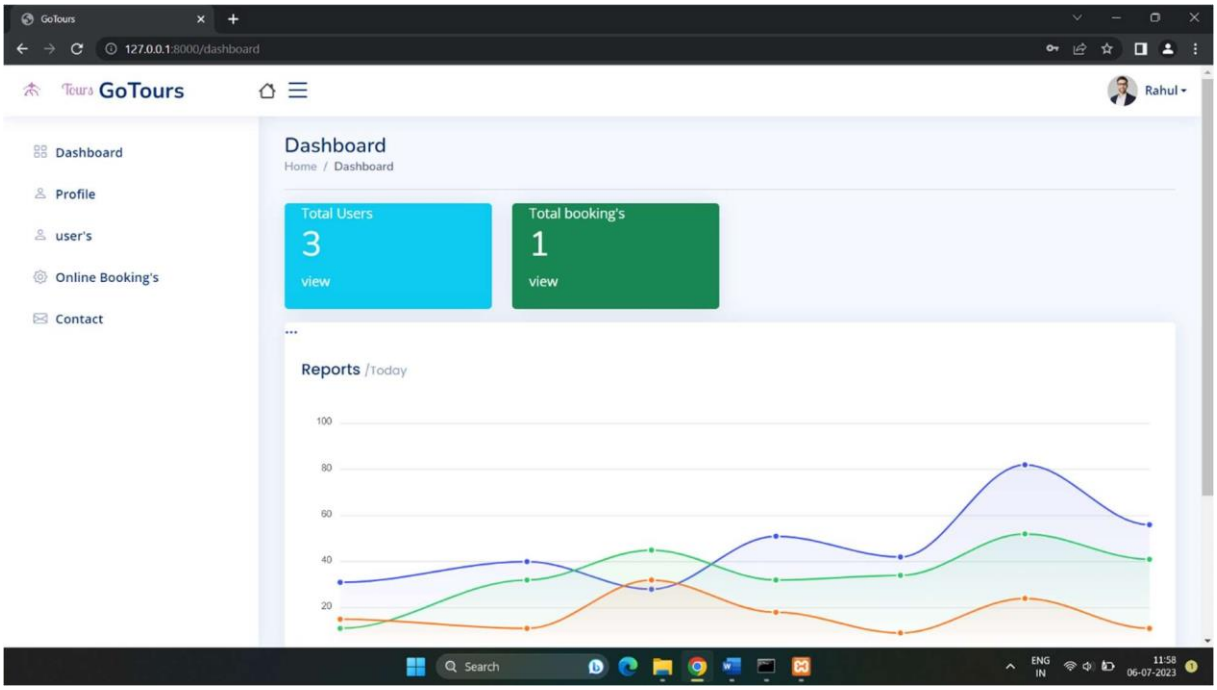
Register



Contact-us



Dashboard



Expanded Future Scope and Roadmap for Enhancement

This section outlines a detailed and strategic roadmap for the future development of the Online Tourism Management System. These recommendations go beyond the current implementation to transform the system into a comprehensive, scalable, and commercially viable platform, addressing the evolving needs of both tourists and tourism management.

6.1. Implementing a Fully Functional Reservation Platform

The initial project's scope excluded a booking system, but its implementation is a critical step towards monetization and enhanced user experience. A fully functional reservation platform would allow users to book packages directly through the website, turning the TMS into a one-stop solution for travel planning.

6.1.1. Core Components and Technical Requirements

- Database Schema Extension: **A new database table, `Bookings`, would be required. This table would store details such as:**
  - **`booking_id` (Primary Key)**
  - **`user_id` (Foreign Key to the `User` table)**
  - **`package_id` (Foreign Key to the `Package` table)**
  - **`booking_date`**
  - **`travel_date`**
  - **`number_of_adults`**
  - **`number_of_children`**
  - **`total_price`**
  - **`payment_status` (e.g., 'Pending', 'Paid', 'Failed')**
  - **`booking_status` (e.g., 'Confirmed', 'Cancelled')**
  - **`created_at`**
- Frontend Development: **A user-friendly booking form would be designed using HTML, CSS, and JavaScript. This form would dynamically calculate the total price based on the number of travelers and package details. A dedicated confirmation page would display the booking summary, and a "My Bookings" section would be added to the user's dashboard.**
- Backend Logic (PHP): **A PHP script would handle the form submission. This script would perform server-side validation to ensure all required fields are present and the dates are valid. It would then insert the booking data into the `Bookings` table. Upon successful database insertion, it would generate a unique booking ID and redirect the user to the payment gateway.**

6.1.2. Payment Gateway Integration

Integrating a secure payment gateway is paramount for handling financial transactions. Instead of building a custom payment solution, which is complex and requires strict PCI compliance, the project should use a trusted third-party API from a provider like Stripe, PayPal, or Razorpay.

- Technical Flow:
  1. **The user clicks "Pay Now" on the booking summary page.**

2. **The backend PHP script generates a payment token and redirects the user to the payment gateway's secure page.**
3. **The user enters their credit card details on the gateway's page.**
4. **Upon successful payment, the gateway sends a confirmation webhook to a dedicated URL on our server.**
5. **Our server-side script processes this webhook, updates the `payment_status` and `booking_status` in the `Bookings` table to 'Paid' and 'Confirmed', and sends a confirmation email to the user.**
6. **If the payment fails, the status is updated to 'Failed', and the user is notified.**

This approach offloads the complexity and security risks of handling sensitive credit card information to the payment gateway provider.

6.1.3. Admin Management and Reporting

The admin dashboard would be extended with a new section to manage bookings. Admins would be able to:

- **View all bookings with their status (e.g., Confirmed, Pending, Cancelled).**
- **Search for bookings by user, package, or booking ID.**
- **Update the status of a booking manually (e.g., in case of a phone booking).**
- **Generate reports on booking trends, popular packages, and revenue.**

6.2. Developing an Automated Content Scheduler

A major challenge for any content-rich website is keeping information fresh and relevant. The current system relies on manual updates, which is unsustainable. An automated content scheduler would address this by streamlining content management.

6.2.1. The Problem with Stale Content

Outdated information, such as expired package deals or closed tourist sites, can lead to a poor user experience and erode trust. Manually checking and updating hundreds of entries is time-consuming and prone to human error.

6.2.2. Technical Implementation using Cron Jobs

A robust solution involves using a server-side scheduler, such as a `cron` job on a Linux server.

- Cron Job: **A `cron` job is a time-based job scheduler in Unix-like operating systems. It would be configured to run a PHP script at a regular interval (e.g., once every 24 hours).**
- PHP Script Logic: **This script would be designed to:**
    1. **Query the `Package` table to find all packages where a new field, `end_date`, has passed.**
    2. **Update the `status` of these packages to 'Archived' or 'Inactive', ensuring they are no longer displayed on the public-facing website.**
    3. **Query the `Advertisement` table to find all ads with an `expiry_date` in the past.**
    4. **Update the status of these ads to 'Expired'.**

5. **(Optional) Send a summary email to the admin, listing all content that has been automatically archived.**

This automated process would guarantee that the content displayed to tourists is always current, enhancing the reliability and professionalism of the TMS.

6.3. Expanding the Database of Tourist Locations

The current limitation of 100 tourist sites is a good starting point, but for a system targeting all of India, this needs to be vastly expanded.

6.3.1. Data Sourcing Strategies

- Manual Expansion: **The admin team could continue to add locations manually, focusing on key tourist hubs and popular destinations.**
- Crowdsourcing: **A more scalable approach would be to implement user-generated content. Users could submit new tourist sites, which would then go into a 'Pending' status. The admin would review and approve these submissions, ensuring quality control. This would require a new `PendingLocations` table in the database and a new interface for admins to manage these submissions.**
- API Integration: **The system could integrate with third-party travel APIs (if available and cost-effective) to pull in location data, descriptions, and images automatically.**

6.3.2. Database and Performance Considerations

A larger database will introduce new performance challenges. To maintain the system's responsiveness, the following enhancements are necessary:

- Database Indexing: **Ensure that all columns used in search queries and lookups (`name`, `category_id`, `state`, etc.) are properly indexed. This will drastically speed up data retrieval.**
- Query Optimization: **Refactor complex queries to be more efficient. Avoid `SELECT *` and only select the columns you need.**
- Caching: **Implement a caching mechanism (e.g., using Memcached or Redis) to store frequently accessed data (like popular locations) in memory, reducing the number of database calls.**

6.4. Conducting a Comprehensive Security Audit

The initial security tests were a basic check for SQL injection. A more thorough security audit is necessary to protect the system and its users from a wider range of threats.

6.4.1. Key Vulnerabilities to Address

- Cross-Site Scripting (XSS): **Implement robust input sanitization on all user-facing forms (e.g., enquiry forms, future review sections) to prevent malicious scripts from being injected and executed in other users' browsers.**
- Cross-Site Request Forgery (CSRF): **Use CSRF tokens on all state-changing forms (e.g., login, registration, package management) to ensure that requests originate from a legitimate source.**

- Broken Authentication and Session Management: **Ensure that session tokens are securely generated and destroyed upon logout. Implement a session timeout to prevent session hijacking.**

6.4.2. Security Best Practices

- HTTPS: **Enforce the use of HTTPS (SSL/TLS) for all pages to encrypt data transmitted between the user's browser and the server.**
- Input Validation: **Implement both client-side (JavaScript) and server-side (PHP) validation for all user inputs. Server-side validation is the ultimate safeguard.**
- Password Hashing: **The current implementation uses password hashing, which is excellent. Continue to use modern, strong hashing algorithms like `bcrypt` or `Argon2` to store passwords.**

6.5. Implementing an Automated Testing Framework

As the project grows in complexity with new features, manual testing becomes inefficient and error-prone. An automated testing framework is crucial for maintaining quality and enabling rapid, continuous development.

6.5.1. The Role of Automated Testing

- Regression Testing: **Automated tests can be run whenever new code is deployed to ensure that the changes have not broken any existing functionality. This is a massive time saver.**
- Unit Testing: **Use a tool like PHPUnit to write tests for individual functions and classes in the backend PHP code. This helps developers catch bugs early.**
- End-to-End (E2E) Testing: **Use a tool like Selenium or Cypress to simulate real user interactions, such as navigating the site, logging in, and submitting forms. These tests verify the entire application flow from start to finish.**

6.5.2. Benefits of Automation

- Faster Feedback Loop: **Developers get immediate feedback on whether their code changes have introduced bugs.**
- Improved Code Quality: **The practice of writing tests encourages better, more modular code.**
- Increased Confidence: **The team can deploy new features with confidence, knowing that the core functionality is still working.**

6.6. Adding User-Generated Content and Community Features

To make the TMS more engaging and interactive, the system can evolve from a static information provider to a dynamic community hub.

6.6.1. Features to be Implemented

- User Reviews and Ratings: **Allow users to write detailed reviews and give ratings for tourist locations and packages. This would require a new `Reviews` database table linked to `User` and `Package` tables.**

- Photo and Video Uploads: **Enable users to share their travel photos and videos. This would require a secure file upload mechanism and a storage solution (e.g., an S3 bucket or cloud storage). All content would need to be moderated by the admin.**
- Travel Forums: **Create dedicated forums where users can ask questions, share tips, and connect with other travelers. This would involve a new set of database tables for forums, topics, and posts, along with a user interface for creating and replying to posts.**

6.7. Mobile Application Development

While the current website is responsive, a native mobile application for Android and iOS would offer a superior user experience and unlock new features.

6.7.1. Advantages of a Native App

- Push Notifications: **Send timely alerts to users about their bookings, new package deals, or travel updates.**
- Offline Access: **Allow users to download information about a location to access it without an internet connection, which is invaluable when traveling.**
- Better Performance: **Native apps are generally faster and more responsive than web-based applications.**
- Device Integration: **Access device-specific features like GPS, camera, and local storage.**

6.7.2. Technical Strategy

- Backend API: **The existing PHP backend could be refactored to expose a RESTful API, which the mobile app could consume. This would separate the frontend and backend, making the system more modular.**
- Frontend Technology: **The mobile app could be built using a cross-platform framework like React Native or Flutter, which allows for a single codebase for both Android and iOS. Alternatively, separate native apps could be built using Kotlin for Android and Swift for iOS.**

6.8. Advanced Analytics and Reporting

Data is a powerful tool for business intelligence. By implementing a more sophisticated analytics and reporting system, the project can gain valuable insights into user behavior and market trends.

6.8.1. Data to Track

- User Behavior: **Track which pages users visit, how long they stay, and which links they click.**
- Search Queries: **Analyze what users are searching for to identify popular destinations and create new packages accordingly.**
- Booking Funnel: **Track the user's journey from landing on a package page to completing a booking, identifying any drop-off points.**

6.8.2. Implementation of a Custom Dashboard

- Database Tables: **Create new tables to store event data, such as `page_views`, `search_queries`, and `booking_steps`.**
- Backend Logic: **A PHP script would handle the ingestion of this data.**
- Admin Dashboard: **The admin dashboard would feature new graphical reports and charts, providing a visual representation of key metrics. This would empower the admin to make data-driven decisions.**

Conclusion

In conclusion, this software will solve many problems in India relating to management of product and information pertaining to tourism. Tourists will get acquainted with all the tourist sites in India and information pertaining to those sites without physically extracting information from people or having to travel long distances to see what the location has to offer. With the availability of the Internet, users have access to TMS application;hence they are empowered with current and relevant information pertainingto tourism in India. The application will go a long way in assisting tourists indecision making, and also as a source of revenue to the country. TMS will make tourism round the country fun and easy because of easy access to relevant information.

BIBLIOGRAPHY

The following books were referred during the analysis and execution phase of the project

- Books Referred:

- BEGINNING PHP 5 --- DAVE MERCER

- BLACK BOOK HTML --- WILEY DREAMTECH

- PHP AND MYSQL WEB DEVELOPMENT --- LUKEWELLING,LAURA

- MICROSOFT SQL SERVER-2000 --- RANKIN, PAUL & JENSEN

- SQL SERVER-2000 --- DUSAN PETKOVIC

- PHP IN A NUTSHELL --- PAUL HUDSON

- Websites Referred: http://www.projectworlds.in