TOURISTA: TOURIST ARRIVAL REPORTING AND TRACKING SYSTEM FOR THE MUNICIPALITY OF MABINI, BATANGAS

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Major in Service Management

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ABSTRACT

The main intent of the capstone project entitled "*Tourista*: Mabini Arrival Reporting and Tracking System for the Municipality of Mabini Batangas" was to help the Mabini Tourism Office to gather tourist information from resorts and generate reports on how many tourists entered and stayed in resorts within the municipality of Mabini and provide analytic graphs regarding on tourist profiles. *Tourista* web-based software was a project developed would make the workload of the Tourism office of Mabini facile. The main function of the project was to collect and store tourist information from each resort front desk such as name, age, sex, address, vaccination status, nationality, and the number of nights of tourist stay which would be used by the Tourism Office requirement for their quarterly regional report on Department of Tourism(DOT) and for Department of Health (DOH) contact tracing. The system would generate charts which visualize the data particularly on their profiles and what month the tourists visited most. The Tourism office administrator can monitor, view, update and download the data on the system as well as search and filter tourist information. The developed system "*Tourista*: Mabini Arrival Reporting and Tracking System " would give an efficient way of processing all critical information and would keep track of records, particularly on monitoring and collecting data from resorts. The implementation of the system would make all of the flaws in the manual approach be addressed, and an electronic method would be implemented, making operations more efficient and effective.

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DEDICATION

To the Big Guy,

To their beloved parents and siblings,

To their dearest and ever treasured friends,

And to their loved ones,

This humble work is wholeheartedly dedicated to all of YOU.

MLD

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CHAPTER I

INTRODUCTION

Background of the Study

Tourism is one of the world's largest and fastest-growing industries, creating new opportunities for many countries, cities, and regions while also posing numerous new challenges (OECD, 2020). The tourism industry has emerged as a key force for sustainable socioeconomic development globally (Manzoor et al., 2019). It is now recognized as being an economic activity of global significance. The tourism industry requires meticulously planned policy-making interest, as well as a strategy for implementation., in order to provide a country with long-term economic benefits. Tourism is critical to the overall socioeconomic development of an archipelago country like the Philippines, which is endowed with world-class beaches and coastal resources. Considered as part of a country's export industry with importers as tourists visiting the country, tourism has the potential to unlock innumerable economic opportunities for a country, from increased foreign currency receipts to the generation of jobs from allied industries such as the hotel, entertainment, transportation, and food industries.

The municipality of Mabini, Batangas is a first-class Municipality in Batangas province known for its diving and snorkeling spots, consisting of 34 barangays with a population of 50,858 people, according to the 2020 census. It is a place of golden sunsets, green hills and valleys, and calm blue waters embraced by a 32-kilometer stretch of rugged coastline. With a land area of 4,296 hectares,

Mabini dominated the Calumpang peninsula, the strip of land dividing Balayan bay west from Batangas bay in the east. To the north is the town of Bauan, and on the south is Maricaban strait, across which is the island municipality of Tingloy. With its proximity to urban centers, Mabini is a popular destination for beach lovers who could come even for the day to a place that seems far away from the noise and congestion of Luzon's urban centers.

At present, Municipality of Mabini is progressive in terms of socio-economic growth. Tourists continuously visit Mabini, Batangas because of the richness and diversity of marine life in this area. Resorts have different percentages of Filipinos and foreigners as guests. Still, all agree that peak season ran through the Philippine summer months of March to June, increasing numbers of foreign guests picking up at the onset of winter in the northern hemisphere and international holidays such as Chinese new year. For the most part, diving in Anilao is a weekend activity for locals, although foreign guests tend to stay through the week. The changing face of the landscape as a result of resort and infrastructure development was accompanied by a corresponding change in the local areas.

The coronavirus (COVID-19) pandemic was, first and foremost, a humanitarian crisis that had impacted people's lives and precipitated a global economic crisis. Considering the sector's rapid and massive shock, it had triggered an unprecedented crisis in the tourism economy. The Covid-19 impact will result in a 60% drop in international tourism in 2020, according to revised OECD estimates. This had a very tangible impact on the tourism sector, which was critical for many

people, places, and businesses, with the impact being felt most acutely in countries, cities, and regions where tourism was a major economic driver.

The Department of Tourism (DOT) revealed several significant variations in the nation's primary tourist services in the Health and Safety Guidelines Governing the Operations of Accommodation Establishments under the New Normal. This was in line with the implementing rules and regulations of the Ordinance no. 120 series of 2017, which mandates the establishments to religiously submit standard data on tourist arrivals. This was also in compliance with Republic Act no. 9593 or the Tourism Act of 2009, which stresses local tourism development planning and mandates local government units to provide reports periodically on the status of tourism statistics to the department of tourism to ascertain the economic and social impact of tourism. It was also asked to ensure that these establishments were periodically submitting their reports.

The Tourism Office requires tourists' information from resorts to comply with the Department of Tourism Batangas Office monthly. According to the Mabini Tourism Office, more than 120 to 130 registered resorts were scattered throughout the town. Still, not all of them comply with the ordinance and religiously submit data. Other resorts submit their guest information to the tourism office late, once a year or when it is on their clearance, making it difficult for the tourism office of Mabini to gather data that they needed in their monthly report and monitoring and tracking of tourists visits from the resort.

The lack of information on tourist arrival from resorts had already been cited as a problem because it hinders the accurate assessment of the number of tourist visits that entered the municipality of Mabini and tracking patients who got covid19. Currently, the main mode of communication between the resorts and the tourism office was through email, where they provide a copy accommodation establishment form given to them by the department of tourism. Then the front desk of the resort around the municipality of Mabini would fill up the information of the tourist they accommodate. After that, they would bring it to the tourism office in person or take a picture of it and send it back to the email of the tourism office. As an outcome, the tourism office had trouble compiling and encoding the given data due to the enormous quantity of messages received from the resorts. The Mabini tourism office's mailbox had become overcrowded, prohibiting other resorts from sending them emails, and some documents were misplaced. It was also difficult to tell which messages had been read and recorded, and they're not always displayed, making it tough to work on them.

The developed a system entitled "*Tourista*: Mabini Arrival Reporting and Tracking System", which addressed the difficulties of the Mabini Tourism Office. By having the developed systems, it allows resorts front desk to easily encode their tourist information, while the Mabini tourism office could easily manage tourist information coming from resorts, as well as monitor and had a graphical representation of tourist visits based on their age, sex, and nationality, which is a

great use for their report to the Department of Tourism and Health regarding on contact tracing of Covid patients.

The main goal of this project was to develop a technological solution for the problems that the resorts and tourism offices encountered in handling data processes. The developed system entitled "*Tourista*: Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas provides information, especially on the number of tourists that visited resorts within the Municipality of Mabini.

Implementation of the developed system for the Tourism Office of Mabini would efficiently process all critical information and keep track of records, particularly monitoring them. All of the old and manual flaws had been addressed, and an electronic method had been implemented, making operations more efficient and effective.

The developed system provides reports on tourist number of visits per month and a graphical presentation of age, sex, and nationality. This system showed analytical reports of tourist visits for the whole year, which helps the tourism office determine the month of highest tourist arrivals and lowest and monitor and assess how many tourists entered the municipality of Mabini Batangas. It's important to note that tourist arrival statistics can fluctuate due to various factors, including global events, economic conditions, natural disasters, health concerns, government policies, and travel restrictions. These factors can significantly impact the tourism industry and the number of tourists visiting a specific destination.

Objectives of the Study

This study developed a tourist arrival and reporting system for the tourism office in the Municipality of Mabini, Batangas. This is to help the office in handling data processes.

Specifically, the study aims to achieve the following objectives:

1. To provide up-to-date tourist information from the resort to the Tourism Office by giving account to the resort owner.
2. To develop a dashboard module to show the total number of tourists from resorts.
3. To integrate analytical reports:
    3.1 Number of resorts
    3.2 Number of tourists
    3.3 Profile of the tourists

Significance of the Study

The generalization of the study was a significant contribution to the development of the arrival and tracking system throughout the entire resorts within the Municipality of Mabini, Batangas. This project is significant and beneficial to the Tourism Office as it saved them time and eliminated the needs for additional paperworks. It also makes work simple to monitor and record the number of tourists.

On the other hand, the Tourism Office administrator benefits the most since they are the ones who are in charge of recording and monitoring the number of tourist visits. Moreover, the resort front desk task had been made easier by the system since the encoding of the profile of their guest was now computerized. It would not be a problem for them to preserve the records on individual files instead, they would just encode the name and other information because it is already computerized. They could also provide effective reports and it would gain a better insight and knowledge of the project as a result of the study.

Scope and Limitation

This study focused on implementation of a web-based system that would make the gathering of tourist information of the Tourism Office in the Municipality of Mabini, Batangas, easier and handle data in a faster and more efficient manner. The administrator of the developed system is the tourism office, while the users are the resort's front desk. This system only covers all of the resorts within the Municipality of Mabini, Batangas. However, the system could not be used by other resorts since the tourism office administrator could only create an account for resorts that were registered within the Municipality of Mabini. The developed web-based system would solve the problem of the tourism office of Mabini, Batangas regarding managing and gathering information about tourist resort visits within the Municipality of Mabini, Batangas. The developed system only included all of the resorts located within the Municipality of Mabini, Batangas. Each resort would have access to the developed system. The tourism office admin has a dashboard

that displays and generates the basic statistics reports of the system, such as the number of resorts, number of tourists, and the total tourist visits per day, month, and year which could briefly view how many tourists visits in a particular period, particularly since it is the report they needed in their office.

Only resort accounts that were created by the tourism office administrator would be able to utilize and access the developed system. The developed system works by storing important information about the tourists' stays in resorts. In addition, the users should have to fill in the necessary information with valid data.

Definition of Terms

The following terminology was specified to help understand and explain the terms used in this project.

Attraction. It is a physical or cultural feature of a destination that can satisfy the leisure needs of tourists. (Merriam-Webster, 2023.)

Administrator. Person who is responsible for managing a computer or network and who has full control over hardware and software used are generally administrators of their own computers, because fresh out of the box, whoever sets up the privileges for the user. In this study the assigned tourism officer would act as admin who is computer literate and has the ability to cope up with the system (Administrator, 2022).

Destination. It is a destination where visitors stay for at least a day. The area offers accommodations, tourist destinations, and tourist information (Merriam-Webster. 2023).

Ecotourism. A responsible visit to a natural area that involves interpretation and education, preserves the environment, and maintains locals' quality of life (*What Is Ecotourism?,* 2023). In this study ecotourism is used to describe the tourist destinations. as well as how they are educated on ecological issues.

Graphical User Interface (GUI). A program that allows a person to work with a computer by using a mouse to point to small pictures and other elements on the screen. In this study, GUI is used as a definition as the layout of the system's graphic and textual controls where it serves as the point of interaction between the computer and the administrator (Computer Hope, 2021).

Mean Absolute Percentage Error. Forecast of the monthly tourist arrival.

Nonparametric Regression. The trend between a response variable and one or more predictors. In this study this would be used to predict the number of foreign tourist arrivals in Indonesia and data correlation (Hazelton, 2017).

Ordinance. A city or town government law or regulation. The term ordinance is used in the regulation that is mentioned in the study such as Ordinance No. 120 series of 2017 which requires establishments to submit standard data on tourist arrivals on a regular basis.

Open-source. A code that is intended to be publicly accessible. In this study open-source is used to define the software that is used in the developed system such as PHP and MySQL (Peterson, 2018).

Religiously. Defined as something regularly. In this study, the term religiously is used to describe how resort staff submits their reports to the Mabini Tourism Office.

Republic Act No. 9593 or Tourism Act of 2009. A regulation determining a national tourism strategy driver of investment, employment, growth, and national development; strengthening the department of tourism and its affiliated agencies to effectively and efficiently carry out the regulation authorizing appropriations (Durano, 2017).

Socio-economic growth. A top-down process that concentrates social power in direct proportion to cultural scale. In this study socio-economic growth is used to describe the state of the tourism industry in the Philippines (Roser, 2021).

Stakeholders. An individual, group, or organization that is impacted by the outcome of a project or business venture is referred to as a stakeholder. In this study, stakeholders are defined to attempt to meet or exceed visitor expectations at their destination (Fernando, 2023).

Tourism. The act and process of spending time away from home for recreation, relaxation, and pleasure while using commercially provided services. This study is used to describe the effects of tourist arrival in the Philippines in its history of political instability (Walton, 2023).

Tourist Arrival. The number of international visitors who arrive during a given year in a given country and who are staying at least one night (Collins, 2023).

Tourism Office. An office where visitors to a place can get information about what to see and do, especially while on holiday (Collins, 2023).

CHAPTER II

REVIEW OF RELATED SYSTEMS AND STUDIES

This chapter presents the source regarding their overall relation to the project. Also covers systems and studies relevant to the developed system. Thus, it gives the better ideas while pursuing the project. Furthermore, it discusses the technicalities of the developed system.

Technical Background

A technical background refers to a person's educational and professional experience in technical or scientific fields. It typically includes knowledge and skills in areas such as mathematics, physics, computer science, engineering, or any other specialized technical discipline. Someone with a technical background has likely acquired a deep understanding of concepts, theories, and practical applications related to their field of expertise. They may have received formal education, such as a degree or certification, in a technical discipline or have gained extensive practical experience through work or personal projects.

A technical background can be diverse and encompass various areas, including software development, hardware design, data analysis, network administration, artificial intelligence, robotics, and more. The specific skills and knowledge acquired within a technical background depend on the individual's focus and the specific industry or domain they are involved in. Having a technical background is often advantageous in many professions, especially those that require problem-solving, critical thinking, and the ability to work with complex systems or

technologies. It provides a solid foundation for individuals to excel in technical roles, such as engineers, scientists, programmers, technicians, analysts, or researchers.

A system refers to a collection of interconnected components or elements that work together to achieve a common objective or perform a specific function. It can be a physical or abstract entity designed to carry out a set of tasks or processes.

In a broad sense, a system can be any organized or structured arrangement of parts that interact and operate together to produce a desired outcome. Systems can be found in various domains, including engineering, technology, biology, social sciences, and more

This section provided the technicalities and concepts used in the system. The Tourism Office in the Municipality of Mabini, Batangas, achieves efficiency and effectiveness for both offices and resorts. PHP, JavaScript and Bootstrap was used as the programming languages, which runs on different platforms compatible with the current servers. It is incorporated with MySQL as the database system because of its flexibility and rapid development in the database. They conducted in-depth research and study that ensured the effectiveness of each tool in developing the system.

Technology plays a significant role in gathering data by providing tools, platforms, and methodologies to collect, process, and analyze information. Here are some ways technology helps in gathering data. Technology provides various tools and devices for collecting data efficiently. For example, online surveys, data entry

forms, mobile applications, or specialized data collection apps can be used to gather data directly from users. These tools often have features like validation checks, skip logic, and data encryption to ensure data accuracy and security. IoT devices and sensors can collect real-time data from physical objects or environments. These devices can monitor various parameters, such as temperature, humidity, motion, location, or even health metrics. The collected data can be transmitted wirelessly and stored in databases for further analysis.

Technology enables the extraction of data from websites and online sources through web scraping techniques. Web scraping involves automatically retrieving data from web pages and saving it in a structured format for analysis. It is useful for gathering information from multiple sources simultaneously, such as product prices, reviews, news articles, or social media data. Also, it facilitates the handling of large volumes of data through big data platforms. These platforms, like Apache Hadoop or Spark, allow for distributed storage and processing of massive datasets. By leveraging technologies like MapReduce or parallel computing, organizations can collect and analyze vast amounts of data from various sources to uncover patterns, insights, and trends.

While social media platforms generate a tremendous amount of data, including user-generated content, comments, shares, and interactions. Technology provides tools for monitoring and collecting data from social media platforms, enabling businesses to analyze user sentiment, track trends, and gather feedback or insights about their products or services. Then integration of data from different sources or

systems. Data integration tools and platforms enable organizations to combine data from databases, APIs, cloud services, or legacy systems.

This unified data can provide a comprehensive view for analysis and decision-making. It empowers machine learning and artificial intelligence algorithms to analyze and make sense of vast amounts of data. These algorithms can identify patterns, predict outcomes, classify data, or uncover hidden insights. By leveraging machine learning and AI, organizations can automate data analysis processes and extract valuable information from complex datasets.

Meanwhile, it provides scalable and secure data storage solutions, including cloud computing platforms. Cloud-based storage allows organizations to store and access data flexibly, ensuring data availability, security, and reliability. Cloud platforms also offer advanced data processing and analytics services, simplifying the analysis and extraction of insights from data.

In general, technology provides a wide range of tools, platforms, and methodologies for gathering data efficiently and effectively. From data collection tools and IoT devices to web scraping, big data platforms, social media monitoring, data integration, machine learning, and cloud computing, technology empowers organizations to collect, store, process, and analyze data to drive informed decision-making and gain a competitive edge.

Software can assist in recording and managing tourist data in the tourism industry in the following ways. Applications can enable tourists to create user profiles or accounts where they can provide their personal information, contact

details, travel preferences, and other relevant details. This data can be securely stored and used for personalized services, targeted marketing, and communication purposes. When tourists make bookings and reservations through software platforms, their data, such as travel dates, accommodations, tours, and activities, can be recorded and stored. This information helps tourism businesses manage bookings, track availability, and provide efficient customer service. Software can maintain a record of a tourist's travel history, including destinations visited, previous bookings, and preferences. This data can be used to offer personalized recommendations, loyalty programs, and tailored services based on the tourist's travel history and preferences.

Also, software platforms often collect feedback and reviews from tourists about their experiences with accommodations, tours, restaurants, and other services. This data helps businesses evaluate customer satisfaction, identify areas for improvement, and make informed decisions to enhance the quality of their offerings. It can analyze tourist data to gain valuable insights into customer behavior, preferences, trends, and patterns. By utilizing data analytics, businesses can identify popular destinations, peak travel periods, customer demographics, and purchasing patterns. These insights enable businesses to make data-driven decisions, optimize their offerings, and develop effective marketing strategies. On the other hand, Customer Relationship Management (CRM) software can be used to manage tourist data and facilitate effective communication.

CRM systems allow businesses to maintain a centralized database of customer information, track interactions, and manage customer communication. This helps in delivering personalized messages, targeted marketing campaigns, and timely customer support. In accordance to this, the tourism industry must prioritize privacy and data protection. Implementing robust security measures, encryption techniques, and adhering to data protection regulations helps ensure that tourist data is handled securely and responsibly.

By leveraging software for recording and managing tourist data, tourism businesses can streamline operations, offer personalized services, improve customer satisfaction, and make informed business decisions. However, it is crucial to handle tourist data ethically and transparently, ensuring compliance with privacy regulations and providing clear data usage policies to maintain trust with tourists.

HTML (Hypertext Markup Language) is a standardized markup language used for creating the structure and presenting content on the World Wide Web. It forms the foundation of web pages and defines the elements and their organization within a document. HTML uses a system of tags (enclosed in angle brackets) to define the structure and semantics of content within a web page. These tags are interpreted by web browsers to display the content to users. HTML is not a programming language but rather a markup language focused on defining the structure and presentation of content. To add interactivity and dynamic behavior to web pages, HTML is often combined with CSS (Cascading Style Sheets) for styling and JavaScript for scripting.

Web use HTML to create web pages, organizing content into a logical structure that is semantically meaningful. By using appropriate HTML tags and attributes, they can enhance accessibility, optimize search engine visibility, and facilitate the overall user experience on the web.

Notwithstanding, the use of elements, tags, and attributes, HTML allows web users to create and structure sections, paragraphs, and links. It is worth noting, however, that HTML was not considered a programming language because it cannot create dynamic functionality. (Belina, 2022). It is commonly used for designing and creating the user interface (UI) of software applications. It allows to structure and present the application's interface elements, such as buttons, forms, menus, and layouts. HTML, in combination with CSS, enables to style and format the UI, making it visually appealing and user-friendly. Also, HTML is the primary language for developing web-based applications. With HTML, can build the front-end of web applications, defining the structure and layout of web pages. HTML is combined with CSS for styling and JavaScript for adding interactivity and dynamic functionality to web applications. Most often it is commonly used to create documentation and help systems for software applications. It can create web-based documentation, tutorials, and knowledge bases using HTML to provide users with comprehensive and interactive resources for understanding and using the software.

Moreover, is utilized for creating visually appealing and formatted email templates for software applications. Email templates allow software systems to send automated and customized messages to users, such as welcome emails,

notifications, or newsletters. HTML ensures that the emails are well-structured, styled, and compatible with different email clients. It can be used to present data and generate reports within software applications.

By combining HTML with CSS and JavaScript libraries or frameworks like D3.js or Chart.js, it can create interactive and visually appealing data visualizations, charts, and graphs, making it easier for users to understand and analyze complex data. Furthermore, is crucial when integrating software applications with web APIs. Web APIs often return data in HTML format, and need to parse and extract relevant information from the HTML response to display it within the software application or perform further processing.

To sum up, HTML plays a crucial role in software development by providing a standardized and flexible markup language for creating user interfaces, web-based applications, documentation, email templates, data visualizations, and integrating with web APIs. It allows to create visually appealing and interactive software systems that are accessible and user-friendly.

Similarly, they used CSS or Cascading Style Sheets that allowed the format of the design, style, font, and color of text; set margins and padding; background colors, and border styles. It is also used to position content on a page.. (Gupta, 2021) CSS (Cascading Style Sheets) is a styling language used in web development to define the appearance and visual presentation of HTML elements. CSS can greatly help in building a system in the following ways. It enables to style and customize the visual design of a system. It provides control over various aspects of

presentation, including colors, fonts, sizes, layouts, backgrounds, and more. By applying CSS styles to HTML elements, can create a consistent and visually appealing user interface for the system.

Also, it offers powerful layout capabilities, allowing to position and arrange elements on a web page or within the system's UI. CSS provides flexible and responsive design techniques, such as media queries, flexbox, and grid layout, which enable the system to adapt and display optimally on different devices and screen sizes.

In addition, it allows to establish a consistent visual identity and branding for the system. By defining reusable CSS styles and classes, can ensure a unified look and feel across different components and pages of the system. This consistency enhances the user experience and strengthens the system's brand recognition. On the other hand, it promotes the separation of presentation and content. By separating the styling instructions in CSS files, can maintain a clear distinction between the visual design and the underlying structure or functionality of the system. This separation makes the codebase more maintainable, modular, and easier to collaborate on.

Mostly, provides the flexibility to create different themes and allow users to customize the system's appearance. By changing the CSS styles dynamically, can enable users to personalize the system according to their preferences, such as choosing color schemes, layouts, or font sizes. It includes animation and transition capabilities, allowing to add subtle or dynamic visual effects to the system. CSS animations can be used to create interactive elements, hover effects, page

transitions, or eye-catching animations that enhance the user experience and engage users.

For most part, it supports the creation of print stylesheets, which define the specific layout and formatting for printing system content. This allows to optimize the printed output of the system, ensuring that it is well-structured, legible, and suitable for printing on paper.

This reflects that CSS is a powerful tool that complements HTML and JavaScript in building systems by controlling their visual appearance, layout, consistency, responsiveness, interactivity, and customization. It contributes to a polished and user-friendly system interface while providing maintainability and flexibility for future enhancements.

JavaScript scripting is a language for programming based on text that can be used on both the client and server sides to make pages on the internet interactive. Whereas HTML and CSS provided structure and style to pages on the internet, JavaScript provided interactive elements that engaged users (Reactor H, 2021). Which provides access to browser APIs, allowing to manipulate the browser window, handle browser events, manage cookies, store data locally, and perform other browser-related operations. This capability is particularly useful for developing web-based software applications.

JavaScript facilitates the integration of different components, libraries, and frameworks within the software. It allows to interact with third-party APIs, embed external content, or connect with backend systems. JavaScript frameworks, such as

React, Angular, or Vue.js, provide extensive tools and libraries for building complex and scalable software applications.

Moreover, it enables to enhance the user experience by adding animations, transitions, sliders, carousels, drag-and-drop functionality, and other visual effects. These interactive elements improve engagement, usability, and overall satisfaction with the software. This supports various testing frameworks and tools that help ensure the quality and reliability of software. It can write unit tests, perform automated testing, and debug JavaScript code using browser consoles or dedicated debugging tools. JavaScript's versatility and wide-ranging capabilities make it a valuable language for building software applications. Its ability to handle interactivity, dynamic content, data manipulation, form validation, asynchronous operations, browser manipulation, integration, user experience enhancements, and testing contribute to the development of robust and user-friendly software systems. Bootstrap is a set of template design languages that made it possible to create responsive websites that were optimized for mobile devices (Zola Andrew, 2022).

Bootstrap is a popular front-end framework that provides a collection of pre-built HTML, CSS, and JavaScript components, as well as a grid system and styling utilities. It can significantly aid in building a system in the following ways: It offers a responsive grid system that allows to create responsive layouts and ensure that the system's interface adapts and displays optimally on various devices and screen sizes. It simplifies the process of building a responsive design, reducing the need for custom media queries and CSS rules.

Also provides a set of pre-designed CSS styles and components that follow a consistent and visually appealing design language. By leveraging Bootstrap's styles, can ensure a cohesive and professional appearance throughout the system, achieving a consistent branding and visual identity. Along with, it offers a comprehensive library of UI components, such as navigation bars, buttons, forms, modals, alerts, carousels, and more. These components can be easily incorporated into the system's interface, saving development time and effort. The components are pre-styled and responsive, reducing the need for custom CSS coding. While Bootstrap provides ready-to-use components and styles, it also allows for customization. It can modify Bootstrap's default settings, variables, and styles to match the system's specific requirements and branding. This flexibility ensures that the system maintains its unique look and feel while leveraging Bootstrap's functionality and responsive capabilities. Moreover, it designed to ensure cross-browser compatibility, meaning that the system's interface will display consistently across different web browsers.

It handles browser-specific CSS quirks and provides a consistent experience for users, irrespective of their choice of browser. It includes a range of JavaScript plugins that enhance the functionality and interactivity of the system. These plugins offer features like dropdown menus, modals, tooltips, carousel sliders, and more. By leveraging Bootstrap's JavaScript plugins, can add interactive elements and dynamic behavior to the system with minimal coding.

Moreover, it has a large and active community of who contribute to its ongoing development and provide support. This community offers resources, tutorials,

documentation, and forums where it can seek assistance and learn from others' experiences. This support network can be valuable when building and troubleshooting the system.

By using Bootstrap, it can leverage its responsive grid system, pre-designed components, consistent styling, customization options, cross-browser compatibility, JavaScript plugins, and community support to build a visually appealing, responsive, and feature-rich system efficiently. Bootstrap simplifies the front-end development process, allowing to focus on the system's functionality and core logic.

In the developed system, the scripting language had been used because of its compatibility with the database. PHP or Hypertext Preprocessor is a server-side scripting language where Static websites were created using this method. Web applications or dynamic websites. PHP is an abbreviation for Hypertext Preprocessor, which was previously known as Personal Home Pages. PHP scripts could only be run on servers with PHP installed. The client computers accessing the PHP scripts require a web browser only. A PHP file contains PHP tags and ends with the extension ". php". (Jackson, 2022).

MySQL is a widely used relational database management system (RDBMS) that can be highly beneficial in building software applications. It provides a robust and scalable database solution for storing and retrieving data. It allows to define tables, organize data into rows and columns, and perform efficient queries to retrieve specific information. MySQL can handle large volumes of data, making it suitable for software applications that deal with substantial amounts of information.

It offers features such as data integrity constraints, transactions, and ACID (Atomicity, Consistency, Isolation, Durability) properties. These features ensure the reliability and consistency of data within the software application. It can define relationships between tables, enforce rules for data validation, and maintain data integrity throughout the system.

Also, it provides various optimization techniques to enhance query performance and improve the overall system performance. It can use indexes, query optimization techniques, and caching mechanisms to speed up data retrieval and processing, ensuring that the software application performs efficiently even with large datasets.

Moreover, it supports scalability and concurrent access to the database, allowing multiple users or processes to work with the system simultaneously. It can handle concurrent read and write operations efficiently, ensuring that the software application can handle a high volume of user interactions and data updates without performance degradation. Other than that, offers security features to protect the system's data. It supports authentication and access control mechanisms, allowing to define user roles, permissions, and privileges. This ensures that only authorized users can access and modify the data, maintaining the confidentiality and integrity of the system.

Furthermore, it provides powerful features for data analysis and reporting. It can perform complex queries, aggregate data, and generate reports based on specific criteria. This allows for data-driven decision-making within the software application

and enables users to gain insights from the system's data. On the other hand, it can integrate with backend systems and provide a seamless connection between the software application and other components or services. It allows for data exchange and synchronization with other systems, enabling the software to interact with external resources and provide comprehensive functionality.

Besides it has a large and active community of, administrators, and users. This community offers resources, documentation, forums, and support channels where it can seek assistance and learn from others' experiences. The community-driven nature of MySQL ensures that it has access to a wealth of knowledge and solutions when building their software applications.

Overall, MySQL's capabilities in data storage, retrieval, integrity, performance optimization, scalability, security, data analysis, and integration make it a valuable tool for building robust, data-driven software applications. Its widespread adoption and extensive community support contribute to its popularity and reliability in the software development industry.

In addition, MySQL or Structured Query Language is an open-source relational database management system. A database server's main purpose was to retain and retrieve data when other software requested it. MySQL was a fast, easy-to-use RDBMS or Relational Database Management System being used for many small and big businesses. MySQL is becoming popular because of many good reasons: MySQL released under an open-source license. It is a very powerful

program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

MySQL supported a wide range of operating systems and languages, including PHP, PERL, C, C++, JAVA, and others. MySQL was especially welcoming to PHP, the most common programming language for web development. MySQL database server was used for scalability supporting the capacity to handle deeply embedded applications. It gradually evolved to support higher scale needs as MySQL operates well with PHP.

Additionally, they used bootstrap, a free and opensource front-end programming platform for building websites and web applications. Where the it only needed to insert the code into a predefined grid system because bootstrap was a framework that already includes the fundamentals for developing responsive websites. The bootstrap framework was built on Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), and JavaScript. Web designers can create websites much faster using bootstrap because they don't have to worry about basic commands and functions.

HTML, JavaScript, Bootstrap, and MySQL are essential components in making software due to their respective roles and capabilities. HTML is the foundation of web development and is crucial for creating the structure and content of web pages or web-based software applications. It defines the layout, elements, and semantic structure of the user interface, allowing to organize and present information. Along with JavaScript is a powerful scripting language that adds

interactivity, dynamic behavior, and client-side functionality to web applications. It enables to handle user events, manipulate the DOM, perform data processing, and interact with APIs. JavaScript is vital for creating interactive user interfaces, form validation, data manipulation, and asynchronous operations.

Meanwhile, Bootstrap is a front-end framework that provides pre-designed components, responsive grid systems, and CSS styles. It simplifies the process of building a visually appealing and responsive user interface for software applications. Bootstrap offers ready-to-use UI components, layout structures, and styling options, reducing development time and effort while maintaining a consistent and professional design.

In addition, MySQL is a widely used relational database management system (RDBMS) that handles data storage, retrieval, and management. It provides a reliable and scalable solution for storing and organizing data within a software application. MySQL offers features for data integrity, security, performance optimization, and data analysis. It ensures data persistence, allows for efficient data retrieval, and facilitates seamless integration with backend systems.

In conclusion, these technologies form a powerful stack for building software applications. HTML structures the content and layout, JavaScript adds interactivity and dynamic functionality, Bootstrap enhances the visual design and responsiveness, and MySQL handles the storage and retrieval of data. By combining these technologies, it can create robust, user-friendly, and feature-rich software applications for various platforms and devices.

There are several advantages of using software over manual processes in various industries. Software automates repetitive tasks, resulting in increased efficiency and faster processing times. Tasks that may take hours or days to complete manually can be done in a fraction of the time with software, allowing for greater productivity and reduced turnaround times. Manual processes are prone to human errors, such as data entry mistakes or calculation errors. Software, on the other hand, can perform tasks with high precision and accuracy, minimizing the risk of errors. This leads to improved data quality and reliable outcomes.

It can handle large volumes of data and scale up to accommodate growing business needs. Manual processes often have limitations in terms of scalability, requiring additional resources and time-consuming adjustments. With software, businesses can easily expand operations without significant disruptions. Also, it enforced standardized procedures and workflows, ensuring consistent outcomes. Manual processes are susceptible to variations in execution, leading to inconsistencies. It follows predefined rules and algorithms, promoting uniformity and reducing the risk of deviations. Software enables efficient data storage, retrieval, and analysis. It allows for structured organization of data, quick search capabilities, and powerful data analysis tools.

This facilitates better decision-making, trend identification, and insights generation from large datasets. Then it can generate automated reports and documentation, saving time and effort compared to manual report generation. Reports can be generated at regular intervals or on-demand, providing real-time

insights and accurate information for decision-makers. It fosters collaboration among team members and improves communication channels. It allows for seamless sharing of information, project updates, and document collaboration. This enhances teamwork, coordination, and efficiency in a distributed work environment.

Moreover, it provides audit trails and tracks changes made to data or processes, ensuring transparency and accountability. It helps in meeting regulatory and compliance requirements by maintaining a record of activities, authorizations, and data modifications. While there may be upfront costs associated with developing or acquiring software, it can result in long-term cost savings. Software automates tasks that would otherwise require manual labor, reducing staffing needs and minimizing the potential for human errors. It also reduces expenses related to paper, printing, storage, and other manual process requirements. And it can be easily updated, upgraded, and integrated with other systems and applications. This enables businesses to leverage new features, technologies, and industry standards, staying competitive and future-proofing their operations.

In conclusion, there is a significant advantage over manual processes, including increased efficiency, accuracy, scalability, data management capabilities, collaboration, and cost savings. It empowers businesses to streamline operations, make data-driven decisions, and achieve higher levels of productivity and performance. It provides individuals with the foundation to excel in technical roles, such as engineers, scientists, programmers, IT specialists, system administrators, or

technical consultants. Furthermore, automated processes often result in improved customer experiences, faster response times, and enhanced service quality.

Related Systems and Studies

This phase explained the different related systems and studies that expound on how the developed system worked which had been helpful in the development of the system. In order to complete the system, they gathered data and information which helped them to build the said project. Library and online research and several studies contributed a lot in the development of the project.

Foreign Systems

(Listyorini & Meimaharani R, 2018) discuss the web-based prototype portal students and lecturers of UPT PSI Muria Kudus University. They claimed that the evolution of the internet of things must be monitored. Web-based task were now required for all activities, which was no longer unusual. It also applies to Muria Kudus university, where both lecturers and students had online access to all information. Furthermore, the prototype portal students and lecturers of UPT PSI Muria Kudus University was created to allow the Muria Kudus University academic community to more efficiently and centrally access the university's existing information system. This application consolidates all of the information systems used by students and lecturers into a single location. It was expected that Muria Kudus university students and lecturers did not require to memorize the current information system.

UPT PSI Muria Kudus University Students and Lecturers Use the Prototype Portal by (Listyorini & Meimaharani R, 2018) is related to the developed system because it had the same information for the current system where admin and resort are need in one system.

(Chiravirakul, 2017) created the MYSRT Management System for Senior Project Document Repository and Tracking for the Faculty of ICT at Mahidol University. It was one of the facilities that required students to finish their senior projects before graduating from university. Currently, the Faculty of ICT thesis submission process was paper-based, with hardcopies of senior projects, theses, student information forms, CD-ROMs, and some information stored on a single desktop computer. A database contains some information about the senior projects. MYSRT was a web-based application designed to help faculty keep track of senior project submissions and procedures, much like NFA did when they needed to track necessary documents within the organization.

This system had evolved from a paper-based to a database-based system. It also assists students in keeping track of the senior project process and the deadlines for each process. Mysrt also had some features that allowed users to search for senior projects and track the status of submissions. Furthermore, the administrator had the ability to update the status, send the notification, and delete the announcement. These features were included in the NFA system that had been developed.

MySRT Management System for Senior Project Document Repository and Tracking was similar to the present system in terms of the past process and the current process of handling data where it is improved from the paper-based to the database system.

The system developed by (Farsole et al., 2017), E-Police: Police Record Management System, states that an e-government related service makes the communication process a possibility, an outstanding achievement for contemporary times that improves professionalism and productivity for the government law enforcement agency. The article discusses the framework of an e-police system, such as its phases, difficulties with implementation, and necessity. E-police is designed to provide complete electronic data support for police work. This system collects complaints from the public and makes them available to the police branch over further investigation. E-police reporting and management system which is easily accessible to the public, the police department, and the administrative department.

E-police also provides department heads and senior officers with management information on crime prevention, administration, and support services like payroll and human resources. This allows the public to interact with police in an indirect manner while also providing higher-up police officials with a view of the investigation's status.

This system is related because it intended to provide total computerized information system support for the workload.

The system of (Asefa, 2019), the Addis Abeba Police Commission's Online Crime Reporting System stated that users must first access the system online and register for a user account before they may report a criminal incident. The Administrator provides user accounts to a Dispatcher police officer, Vice Commissioner of the Commission for Crime and Traffic Accident Investigation, Manager of the Division of Criminal Investigation, Manager of the Division of Criminal Investigation Coordination, and Detective Officers who work in the Main Police Station or Sub-City Police Stations. A commander in chief officer, also known as a CIO, is a manager of a police station who has been given permission by the administrator to post crime updates and critical security advice for each sub-city police station. This system is similar in a way that they can generate a report.

The system of (Mkhwanazi et al., 2020), An Automatic Crime Reporting and Immediate Response System, has different forms of crimes that are happening every day in different regions. A huge number of these crimes go unreported either because there is no law enforcement in the region or people are sometimes scared to reveal their identity to the police. Also, crime goes unreported, because people don't have enough evidence to help police with the investigations. To address this problem, this paper proposes an automatic crime reporting and immediate response system that is developed based on system integration which combines Raspberry Pi, Microsoft IoT, mobile application, and web application. An automatic crime reporting and immediate response system not only guarantee the secrecy and safety

for the informant, however, it also prevents cases and claims from being eliminated or removed and ensures data integrity.

Computerized crime reporting systems have huge help to informers in reporting crimes undetected information via mobile phones. It also assists police to provide proper security and reduces the manual work in crime reporting. This system uses a non-Structured Query Language (non-SQL) database that allows crime evidence such as pictures, videos, and audio to be retrieved more quickly. The image and video quality video evidence never degrades, it is always 99.9% accurate when retrieving and saving to the database and 97% accurate concerning detecting location automatically. Additionally, the system guarantees that the average amount of time it takes to report a crime to send out center is under thirty seconds. The developed system shortens the time required to complete crime research or investigation. This system has connection to the present system because of automatic reporting and the manual work in reporting and encoding data.

In the system developed by (Sharma et al., 2017), Design of a Novel Online Crime Reporting System, He explained that it is an undertaking that aids in the management of all police station operations and is a software program which addresses a full handling of cases system. By keeping track of all the information regarding complaints, the most wanted criminal, the police station, etc., Computers can be utilized to file crimes and manage every operation in a police station. Majority of tasks are currently carried out manually, but by computerizing every

activity inside a police station, the operational systems was controlled quickly and efficiently. This project's modules include login for both users and administrators, as well as complaint registration., viewing complaint status, management of the criminal register, management of case history details, management of the most wanted criminals list, most recent information with regard to criminal activity in the local area, and security advice for individuals.

The developed system facilitates the automation of Police Station Records, such as Complaints, Criminal Records, Admin, User, and Police Station Management System, among others. This system resembles the current one because the modules involved in this project are: Login for user and admin, registration, view status where for the system of the researcher admin and its user has their own dashboard.

The system of (Jesil et al., 2018), titled "Crime Reporting System Using Android Application". In the 21st century where mobile and information technology has become an integral part of lives. A new area where mobile technology is integrated with technology is useful for crime reporting since readily accessible information is not available at any point in the investigation; this is a key drawback for communication in the police department. Thus, using the cloud, tries to make all the information related to the criminals available on the Android Application to the police during their investigation which speeds up the entire process of tracking down the criminals. A mobile application is made available to the common people

to track down the safest path to reach their destination by giving notifications when choosing a crime-affected area and also providing an alternate route.

This is similar to the current system because it is always available to the common people though it is a mobile application and the developed system is a web-based.

The system of (Nawaz et al., 2019), Crime Management and Reporting System is used by police stations throughout the country. It focuses on crime prevention and detection in particular. Conviction of criminals is dependent on a highly responsive Information Management backbone. The efficiency and effectiveness with which the police combat crime were determined by the quality of information derived from existing records and the speed with which it can access it. This project's various modules are wanted module, complaint module, and province module, city module, union council module and Administrator's module. Each of them must first register with the software.

For the registration part each enter their details like user name, address, phone number, and get a user Id from the software. Each phase of this is accomplished in the module. The crime module is where you enter all of the details about the crime. It includes the date and time of the crime, the location of the crime, the police station where it was reported, and so on. The File System is a system for reporting crimes, was used to report crime. This project is mainly useful for police

stations. This system makes it possible to easily handle all of the activities inside a police station using computers by computerizing all of those activities.

This system was comparable because it aids in the easy management of all computer-based operations in a tourism office by computerizing all incoming visitor data from the resorts.

The system of (Sahana et al., 2019), a web-based program called "Online Crime File Management System" exists. This software offers the ability to report crimes, file complaints, track the status of those complaints, and learn about subsequent legal actions. This project was created to assist the entire crime department in accurately and efficiently storing all of the crime file records. This online Crime File Management portal applies to forces all across the state and specifically looks into the subject crime and violation prevention, detection, conviction of criminals depending on a highly responsive backbone of Information Management.

This system was identical to the developed system because it is also a web-based application. Aside from that it has a register feature as well as it stores records.

REDCap system was developed by a small team of academics dedicated to assisting all in collecting and storing the data in a protected and completely transparent manner. It is, first and foremost, a programmable data collection tool

with an easy-to-use data entry interface. Access privileges can be assigned to users based on their roles in a study. It is especially helpful for clinical trials since it is capable of handling participant randomization procedures in a hidden but completely transparent manner. It also allows for double-data entry, making it essential for decreasing data entry errors. It has a formally defined data querying interface, which allows any data that provides a fully transparent record of decisions or data changes. The advanced tracking system of REDCap ensures that every user's actions are completely documented. By creating a thorough audit trail, this stops data from being modified unintentionally. It also avoids corrupting files or accidentally overwriting files with the most recent version of data. Additionally, Case Report Forms (used for data gathering) can be stored on the database using REDCap's scanning feature. Similar to the widely used Survey Monkey software, REDCap has the ability to collect data from users via online surveys. Anyone with authorization from a local administrator can access a REDCAP database that is located at one institution from any location according to (Harvey, 2018).

This system was closer to the developed system since it is also a web-based application as well as it assists all them in collecting and storing their data in a secure and completely transparent manner and stores records.

(Kiran Limbu, 2021), stated that the process of developing software includes software testing as a crucial step. To manage issues found throughout the software testing process, businesses utilize bug tracking solutions. Fortunately, there are

several bug tracking tools available. They do not, however, adhere to the same standards. If the tool is not thoroughly examined before being considered for the project, it may end up causing more problems than it solves. In order to determine what makes a strong bug tracking system, this essay examines previous research from a variety of sources. A good bug tracking system must generate a decent report, according to research. The bug tracking system has to gather precise data in order to provide an excellent report. A bug tracking system should have crucial questions that a reporter must respond to while creating a report in order to gather clear information. Those trying to develop a bug tracking system that gathers precise and significant information finds this information useful. A web-based bug tracking system called "BugsPot" that asks reports to include features that deem crucial was created as a proof-of-concept.

The Web Application: Bug Tracking System much the same as the developed system of the researcher since it also includes a tracking system and gathering and storing important information along with reporting features.

In the major part of the organizations, the file tracking system has been one of the areas of concern. The issue of file monitoring systems in the institutions has been the focus of extensive study throughout the years. As is common knowledge, most educational institutions today produce substantial amounts of data. Most of our administrative employees at such schools find that locating files manually is a tedious and time-consuming task. The goal of this study is to examine and

recommend a file tracking system that resolve the issue brought on by a manual file monitoring system. Interviewing the employees in charge of the institution's file monitoring system helps accomplish this. The goal of this study is to examine and recommend a file tracking system that would resolve the issue brought on by a manual file monitoring system. Interviewing the employees in charge of the institution's file monitoring system helps accomplish this.

The suggested system was created using UML diagrams, such as use case diagrams and the easy designer to generate a database diagram, based on the data gathered from the staff. This aids in successfully and efficiently controlling the file flow. The system is capable of processing and tracking all files, including reports, choices, requests, and location history, at any time according to (Bala & Muhammad, 2020). Analysis and Design of File Tracking System resembles the system since it has a monitoring system. It is capable of processing and tracking all files, including reports.

An online software called the Alumni Tracking System assists in keeping track of college graduates. The project intends to enhance current graduate tracking practices and provide faculty members with alumni data. It seeks to create a web portal that is helpful for both the college and the alumni to keep track of each other and to update their current status about college activities. The goal of this system's proposal is to offer an efficient method for gathering and managing alumni data. The system is a one-stop site for managing alumni data, facilitating contact between alumni and the university, and offering fantastic configurable capabilities to keep

track of the data. By simply filling out the forms and uploading their documents, users can update their information. The recommended approach also has the advantage of not requiring any maintenance work from the alumni side. Normally, a group of alumni handles the alumni forum, which is a burden for them (Bala & Muhammad, 2020). The Analysis and Design of File Tracking System resembles the system since it has a monitoring system. Also it is capable of processing and tracking all files, including reports.

An online software called the Alumni Tracking System assists in keeping track of college graduates. The project intends to enhance current graduate tracking practices and provide faculty members with alumni data. It seeks to create a web portal that is helpful for both the college and the alumni to keep track of each other and to update their current status about college activities. The goal of this system's proposal is to offer an efficient method for gathering and managing alumni data. The system is a one-stop site for managing alumni data, facilitating contact between alumni and the university, and offering fantastic configurable capabilities to keep track of the data. By simply filling out the forms and uploading their documents, users can update their information. The recommended approach also has the advantage of not requiring any maintenance work from the alumni side. Normally, a group of alumni handles the alumni forum, which is a burden for them (Jaiswal et al., 2021).

The Alumni Tracking System was connected to the developed system because of the tracking feature as well as the gathering and managing of the data recorded.

According to (Anjum & Kamble, 2017) the goal of his paper is to track students on campus and improve the attendance monitoring system. RFID tags and readers are used in the system. RFID readers are installed throughout campus, including in classrooms. When a student comes in the vicinity of the reader then a location can be found which sends that location to the server. A student inserts an RFID card into an RFID card reader. The RFID card reader reads down the student details. The Interface software is in charge of controlling the software's attendance marking. The system can also generate a number of students who have been assigned to detention. It is a small-scale application that is completely automated, simple to control, time efficient, and dependable.

Student Tracking and Attendance Monitoring System Using RFID was related to the developed system because of the tracking and monitoring feature of the system.

(Borisov V. et al., 2019) stated that many decisions must be made when performing data mining, including the selection of methodology, the selection of data parameters, the selection of tools, and the selection of algorithms. The goal of this paper is to identify opportunities for designing an information system for predicting student track. Schematically, such a prediction entails either forming a set of specific recommendations for the student (or his curator) on his learning

activities, or forming an individual student's learning path. This issue is devoted to a large amount of opensource literature. In general, this approach to education is a new and modern pedagogical methodology and is actively being introduced into universities.

Design of an Information System for Student Track Prediction by (Borisov V. et al., 2019) was connected to the present because of the tracking and gathering of data of the system.

The study of (Rusdi J, 2019), the Travel Bureau's most important services are the tour guides. Particularly for the services they offer travelers. Therefore, a real-time system is required for communication between the two parties, especially when it comes to processing information for the Bureau and service records in the field. Unfortunately, until there existed a reporting method that facilitated both sides and was recorded in real time, there was no ScienceDirect library. This paper talks about software development tools that let employees take different kinds of field notes, which employers may access online right away. This study takes the shape of a reporting model, which offers the Travel Bureau a way to collect data and store it digitally on a server.

This system was related to the developed system because it is a real-time system required for the two parties which are the resorts and the tourism admin. Therefore, it offers to collect data and store it digitally on a server.

(Jian et al., 2017), explained that it has been difficult to forecast tourism demand in the global tourism market due to the rapid growth of the international

tourism industry. Due to the high volatility, erratic movements, and non-stationarity of the tourist time series, traditional forecasting techniques frequently have prediction accuracy issues. To forecast the demand for tourism in this study, a novel single dendritic neuron model (SDNM) is suggested. In order to reconstruct the time series into appropriate phase space points, we first use a phase space reconstruction to analyze the characteristics of the tourism.

The inefficient characteristics of time series are then identified using the maximum Lyapunov exponent, which is used to establish the prediction limit. To make a short-term prediction, we then use SDNM. According to experimental results of the forecasting of the monthly foreign tourist arrivals in Japan, the SDNM is superior to other neural networks, such as the multi-layered perceptron, the neuro-fuzzy inference system, the Elman network, and the single multiplicative neuron model.

Using a Single Dendritic Neuron to Forecast Tourist Arrivals to Japan by (Jian et al., 2017) is connected to the system because of the monitoring of tourism arrivals in the country.

Local Systems

According to (Isip, 2017), the creation of an Electronic Document Management System aims to provide an Electronic Document Management System that improves document clustering, categorizing, searching, and retrieval. The system was built with Microsoft Visual Basic 6. 0 and was capable of managing documents or texted files such as reports such as TUP Ordered, Office Ordered,

Implementing Ordered, Memorandum Thesis and Dissertation, Faculty Files, and Downloaded Files.

The Electronic Document Management System was related to the mentioned system in terms of managing documents. The project designs as well as the procedures of the operation and testing of the project were also the same as the current system.

(Yunanto et al., 2021), aimed to develop a web-based, accessible alumni data information system for Universitas Negeri Jakarta. Feasibility testing and usability testing were conducted in this study, with the latter occurring after the web was finished and tested using a questionnaire as a research tool. Data processing revealed that the percentage values for each of the five usability variables that were included in the questionnaire were greater than 80%. (Learnability, Efficiency, Memorability, Errors, and Satisfaction).

The Web-based Alumni Data Information System was comparable to the developed system in terms of a data information system that can be accessed anywhere as long as the user is connected to a network.

The Agile development method is advocated by (Al-Saqqa et al., 2020) comprises a systematic procedure for designing, creating a prototype, assessing educational programs, and implementing a system that must satisfy project effectiveness requirements. The prototype includes algorithms that are used to produce accurate data. The Wireless Sensor Network (WSN) Algorithm is used to connect the sensor nodes spread throughout the riverbed in order to measure the

parameters of the river. The device used machine learning to forecast by gathering raw data to run in a Voting Algorithm. The Cabuyao River Monitoring System (CRMS), a web-based tool that uses a Decision Tree Algorithm for monitoring, is provided by the prototype and informs and warns the community. With the use of advanced information on its behavior, this tool and system aims to provide early warnings to the communities in a timely and systematic manner, better preparing the government and disaster response team.

The Web-based Riverbank Overflow Forecasting and Monitoring System was closed to the developed system since they also used the Agile Methodology for the development of the system.

The study's goal was to develop a web-based information and monitoring system for the Cagayan de Oro Academy for International Education that was able to handle all of the school's business. An online information and monitoring system is intricate, adaptable, and created to satisfy specific needs. The Prototyping Life Cycle Model was utilized to create the system. These applications enhanced the efficiency of conventional transaction processing systems. The repetitive tasks involved in filling up and updating records make it onerous for staff to search for and prepare reports on student information.

The suggested system allows for the publishing and viewing of grades, lesson plans, student, parent, and staff profiles, as well as other crucial data required by the system. The Web-based Information and Monitoring System is an improvement over a basic information system that was made possible by connecting two or more

information systems functionally or technically. The academy was able to offer its students high-quality services thanks to this. This thesis study provides significant implications for school monitoring and information and reduces the workload of school administration while also saving time.

The Web-Based Information and Monitoring System of Cagayan de Oro City Academy for International Education was similar to the developed system since it has the same goal which is to provide high quality of service to reduce the workload of their target users.

Foreign Studies

Also the article entitled An Alumni Portal and Tracking System by (Bista et al., 2021). They stated that for any institution that had been in operation for a long time, keeping track of alumni was difficult. The majority of the department was unmanaged and outdated. This study describes a web-based system for integrating alumni data into a well-managed database and serving as a portal for alumni to update their current status and view online yearbooks.

The An Alumni Portal and Tracking System connected to the study because it's about keeping track of records and aims to create a portal for its users.

According to (Jisha et al., 2017) ensuring safety and security of school students was a prime concern for society, the world over. There had been numerous reports such as kidnapping of school students on their way home or to school and delaying school buses due to road traffic. A recent study shows that the number of missing children, across the country, increased by 84 percent between 2013 and

2016. Technology could provide a comprehensive solution to this vexing problem. School vehicle tracking systems played a major role in the safety of school children. For tracking a school bus, an IoT-based school bus monitoring system. IoT was defined as the intercommunication of "connected devices" and "smart devices", and other items embedded with electronics, software, sensors, actuators, and network connectivity, which enable these objects to collect and exchange data.

The study school vehicle tracking system was associated with the developed system since it also has tracking and monitoring features which can help users to collect and analyze the data regarding tourist arrivals in an automated way.

Moreover, the article document management system by (Ugale et al., 2017). Similar to NFA, businesses that use physical paper files and filing systems suffer losses as a result. These losses were eliminated through the use of paperless document management systems. This paper discusses some of the technologies that were assisting professionals in the transition to a paperless workplace, including a DMS that organized digital documents to facilitate document searching, document storage, and paper reduction. Most of the workplaces consist of a variety of documents having a mixture of handwritten and printed text. The detection of such documents was a crucial task for optical character recognition (OCR). This paper describes different steps for processing different documents using scanning, tagging, and indexing for effective data retrieval with OCR and indexing techniques.

The study about the article Document Management System by Paperless Document Management System was similar to the developed system in terms to eliminate the paper files and filing systems as well as on addressing shift toward a paperless which is built on organizing digital files for search, storage, and paper reduction.

The study of (Wairimu & Nyaoga, 2018), claimed that a researched automated information system captures and converts data from transactions and events into useful information that can be used for business planning, control, and operation. Kenya's economy was expanding, and external pressure had compelled it to adopt e-governance procedures. As a result, suggestions for how to make their operations better were made. The purpose of the study was to determine how automated information systems (ais) would affect county government operations. For the purpose of this study, data were gathered from each of the twelve sub-countries in Kiambu, Kenya, using a complete enumeration survey method.

Besides, the findings, the study's findings show that the country's government's operations were significantly improved by the implementation of automated information systems. In relation both aimed to improve the operations using an information system that records and processes data in the daily operations in the current manual system.

As well as, according to the article Issues and Concerns in the Implementation of the Students' Information System by (Gamao & Rebortera, 2018)

he stated that the advancement of information and communication technologies, as well as touch screen technologies. Had altered the computing experience and environment for end-users. These advancements had changed the way information and services were delivered.

The study of (Gamao & Rebortera, 2018), was relevant to the developed system since it plays an essential role in resolving issues so that the expected services can be delivered and implemented more effectively.

According to (Alessandrini et al., 2019), it became possible to manage maritime operations, enforce maritime surveillance, and guarantee the safety of maritime traffic as data from ship reporting systems like the automatic identification system (AIS) and long range of identification and tracking (LRIT) became more widely available. In this paper, a data-driven model for estimating vessel arrival times in port locations was developed. The suggested method relies on an improved data-driven path-finding algorithm and makes use of historical marine traffic data from both ais and LRIT that was gathered across a specific area of interest. The methodology was tested on actual cases using actual data sets, demonstrating how a list of arrival times for preset ports could be automatically calculated and then gradually modified. It was anticipated that this information would improve port operations efficiency and security.

The devised system, which included reporting and tracking characteristics, was linked to a study of the expanding availability of data from ship reporting

systems including automated identification system (AIS) and long range of identification and tracking (LRIT).

The study of (Gowtham et al., 2019) stated that, radio frequency identification (RFID) cum biometric based on access-controlled system (ACS) was gaining popularity for authenticating the employees of any organization, which ensures that only the employees are granted permission to get into the organizational complex. However, visitors from various organizations needed to be granted entry into the complex, without which the organization did not function effectively as all the organization invariably depend on other organizations/ companies/firms for their growth. Contrary to this, most of the terrorist attacks were accessed, planned and implemented through visitors. Thus, it became highly essential to implement a highly effective method/system to ensure the genuineness of visitors to any organization. One such system, namely Visitor Gate Pass Management System [VGPMS] was illustrated with its features.

The study stated that nowadays, radio frequency identification (RFID) biometric based on accessed controlled systems (ACS) were interconnected to the present system since the RFID can make the tourist entry information faster.

(Liu et al., 2021) stated that the ability to generate precise estimates was vital for stakeholders and policy-makers in a situation where the tourism industry was threatened by the Covid-19 epidemic and maybe by other pandemics in the future. This study makes an effort to predict the demand for tourism in 2021 across 20 different global locations. To get beyond the drawbacks of conventional forecasting

techniques, the creation of a Covid-19 risks exposure index served as the foundation for the creation of a novel scenario-based judgmental forecast. Projections were produced for each of the three situations using a baseline forecast, the created index, and a subjective approach. This new forecasting model's limits and future directions were then covered.

The strategy was in line with the study's correct predictions of the tourism sector because it likewise sought to do away with the drawbacks of conventional forecasting techniques.

Web-Based Crime Management System by (Cletus, 2017) stated that in today's global context, the requirement for good record-keeping and information-sharing methods had increased important. As law enforcement agencies increasingly need to communicate between agencies and across States to safeguard the nation's inhabitants, effective records also give essential internal information. An accessible Web-based query tool that delivers up-to-date, accurate information on criminals has been developed as part of the crime record management System.

The client-server architecture-based software implemented a conventional automated crime record management system that permits data storage and criminal record exchange between the police. Due to the difficulties in manually maintaining criminal records, doing so results in a significant cost for data storage and is primarily related to paperwork. Data redundancy has resulted from frequent instances of lost files caused by improperly secured forms and inadequate storage media. Retrieving records is stressful as a result. In order to improve the efficiency

and efficacy of police security measures in maintaining criminal records and to give crime detectives rapid and precise information about a specific crime in a specific place, the author has created an application.

This study has similarity with the present one since both systems have the same objectives which is to provide a web-based system to their client and assist them on keeping records of important information as well as avoid human errors.

For (Mishra, 2022) study about Website Development of Crime Management System, since more and more individuals are using online systems in this generation, online resources can be effectively used for personal security or other types of protection. As a result of the crimes that have been occurring nearby, new websites have been created to offer security solutions online that are simple to use. This software offers the ability to report crimes online, file complaints, input missing persons, display information about those who are most wanted, report news, and communicate. This program allows police to handle a variety of offenses, some of which are handled manually in police stations. The admin personally provides the police with their login information.

As a result, without having to physically visit the police station, this website aids in the investigation of societal issues. The server is accessible to any number of clients. Every user must first log in to the server to demonstrate their availability. To enable the processing facilities, a XAMPP Server must be kept up for the database's temporary storage. This essay explains how the website was created using straightforward HTML and PHP coding. After that, we looked at the opportunities

and problems associated with this fundamental technology, which is poised to completely transform our digital universe.

This study was similar to the system because it both provides reporting information online, registering records and it also manages its users. Also, any number of users can connect to the server.

The study conducted by (Mustafa et al., 2019), The Criminal Record Management System, as seen from Somalia's perspective, is a system for keeping track of criminal activity. Reports of criminal activity are made using it. The primary beneficiaries of this project are Somalia's law enforcement organizations. The system is used by the law enforcement agency to keep track of criminals and find anyone who is wanted. Using this online web application and database system, police keep track of criminals who have been apprehended. The authors built this system with HTML, JavaScript, CSS, PHP, MySQL, and Bootstrap, and they also used a binary search algorithm to find a criminal in the database. The interface of the project is very user-friendly and beneficial to authorities.

This research is similar to the developed system because both are good systems that aid in the development of security and monitoring controls to ensure that only authorized personnel have access to the system's information. In addition, the system was built with HTML, JavaScript, CSS, PHP, MySQL, and Bootstrap.

The study of (Kn & Perera, 2021) Impact of Crime Reporting System to Enhance Effectiveness of Police Service, Police offer the service of reporting crimes. By the point that more crimes are being reported, However, law enforcement

discovers a discrepancy in crimes that are both reported and unreported. There could be several causes for this difference. Giving criminals a chance to live in safety as innocent members of society is bad because it encourages them to commit more crimes. As a result, there is a significant danger of victimization in the neighborhood. Also, because so many crimes go unreported, law enforcement is unable to do its job. It occasionally has an impact on ongoing investigations as well. Some law enforcement agencies started online tools for the public to use to report crimes in order to cover this crime report vacuum.

Therefore, this essay explores how crime reporting systems aids in ongoing investigations and law enforcement. Moreover, the public is involved in these systems. In this research, the efficacy of the policing system is also explored. In order to demonstrate the effect of crime reporting systems in contemporary policing, this paper has integrated earlier studies.

This system connected to the developed system because this launched online web-based reporting systems that were dedicated to public servants.

(Debnath et al., 2021), Online Crime Reporting System- A Model, says that crime, an illegal act, is becoming more prevalent in our society every day. The development of technology has given criminals new tools with which to commit crimes. There are a few typical causes of crime, including money, mental imbalances, and emotions. Victims must go through a very difficult and drawn-out process to report a crime to the police after it has occurred. The crime branch finds maintaining the records and performing it manually to be a highly demanding task.

Hence, the crime reporting system serves as both the victims' and the police department's answer. In addition to making the task simpler, this enables customers to access numerous services like news feeds and all the updates regarding crimes occurring in the neighborhood. It boosts security by bringing the victims and police closer together. This shortens the registration process for FIRs and makes it quick. The solution aids the crime department in maintaining the database effectively and acting as promptly as feasible. By this method, the police can even notify the public about the most sought individuals, lost property, and other emergency situations. As a result, this system would offer users, police, and victims a long-term solution for more effective and organized crime management.

This system was built in close proximity to it since it was not only make work simpler for users, but also give them access to numerous services including news feeds and information on tourism activities in their area.

Also, the system helps the tourism office and maintain the database efficiently.

The study by (Arushi & Shivani, 2021), Online Crime Reporting System for India, specifies that they are creating an online crime reporting system software that can be accessed by people's departments. In India the public was afraid of the false grievances regarding the department of government. With the Online Reporting System, the public can report a crime without any fear and they can easily contact the department where they can effectively solve the problem and the department can easily catch the criminals by checking the previous record from inferior data. This

computer software is safe and protective for the user as well as for the department and admin because there was no leakage of any information.

It resembles the developed system because it is also a reporting system where the user can input details and they can easily contact them when it comes to tracking.

The study of (Kumar D, 2018), The growth of the Indian economy is aided by the tourist sector. The industry's contribution to creating the required foreign reserves has improved. Therefore, it is crucial to research the pace of increase in foreign travel to India. Studying additional seasonal variation is necessary because it affects tourism significantly. The seasonal study might be useful in developing a suitable policy framework that could expand the potential for tourism in India. The study's objectives were to determine the seasonal variance in tourist arrivals in India, evaluate the pace of increase of international visitor arrivals, and determine how the expanding tourism sector affected changes in foreign exchange revenues. The timing of tourist arrivals appears to depend on the season.

As a result, numbers that account for seasonality have also been calculated. The seasonal adjusted graph demonstrates that, over time, visitor arrivals in India are less season-sensitive. Information on these aspects is crucial from a government perspective since it helps plan the development of the necessary infrastructure. The government must immediately develop a strategy based on the anticipated influx of tourists, otherwise this significant industry and its range of industries won't be viable.

This study was similar to the developed system since the goal is to determine the total variance in tourist arrivals in India. Moreover, the timing of tourist arrivals appears to depend on the season.

According to (Chow & Kan, 2019), cross-border tourism between Russia and China has increased over the past two decades, but few studies examine this development. The gravity model is used in this study to determine whether tourism, political, transportation, and economic variables affect Russian visitors to China. Russian tourists crossing across the border to visit China have been linked to the real GDP and volume of exports of Chinese prefecture level cities, as well as the infrastructure used to connect Russian visitors to Chinese destinations, according to the findings. A clear understanding of these factors enables both governments to develop policies that facilitate visitor flows and increase cross-border business activity.

Cross-border tourism: Case study of inbound Russian visitor arrivals to China by (Chow & Kan, 2019), was connected to the developed system because of the visitor tracking.

According to (Balli et al., 2019), international tourism is one of the key drivers for boosting New Zealand's aviation industry as well as its economy through the generation of goods and services, the attraction of foreign currency, and the stimulation of tourism-related employment and investment. The contribution of this study to policy institutions, policy-making, and the academic literature stems from

an accurate estimate of the volatility of monthly international tourist arrivals to New Zealand.

Modeling the volatility of international visitor arrivals to New Zealand by (Balli et al., 2019), was connected to the system because they record the total number of tourist arrivals.

The study of (Jangra R & Saini S, 2021), was about the effects of tourism on society are varied and complex. However, they are essential to the various societies, communities, and people who rely on their values, perspectives, and resources for the growth of tourism. A rise in tourism also carries with it a host of issues. Therefore, the tourist experience is essential for the growth and image of a destination. This study looks into how visitors perceive and react to the effects of tourism in Kinnaur's Chitkul, Kalpa, and Nako. Tourist responses on a variety of factors relating to the development of the tourism industry have been measured using random sampling.As a result, evaluating visitor perceptions can be used to gauge how competitive a site is as a travel destination and to help create laws and infrastructure improvements that would promote tourism.

This study was relevant to the system because they are essential to the various societies, communities, and people who rely on their values, perspectives, and resources for the growth of tourism.

The comparison of survey and social media data, according to (Heikinheimo et al., 2017), demonstrated that geotagged social media content provides relevant information about visitors' use of the national park. Because social media platforms

are a dynamic source of data, they have the potential to supplement and enrich traditional forms of visitor monitoring by providing more insight into emerging activities, temporal patterns of shared content, and visitor mobility patterns. Geotagged social media data could potentially provide an overview of spatiotemporal activity patterns in other areas where systematic visitor monitoring is not carried out.

This study was related to the developed system because of the visitor monitoring feature.

According to (Moreira & Burns, 2017), the Amazon region of Brazil's non-urban centers are still largely undeveloped, and public use management is a new concept to its forest managers. It has been well documented that visitation to Brazil's parks/protected areas (PPAs) has increased in recent years. Furthermore, as a result of the 2014 FIFA World Cup and the 2016 Summer Olympics, Brazil's tourist influx is expected to double from just over 5 million in 2010 to more than 10 million in many of these visitors visited Brazilian PPAs. It is critical to understand who visits the forest and what visitors' perceptions are in order to provide the best possible outdoor recreation experience while minimizing negative environmental impacts. This chapter provides an in-depth discussion of visitor monitoring in a PPA in Brazil's Amazon region. Visitor monitoring in the Tapajós National Forest was connected to the developed system because of the collecting data of the visitor and the monitoring feature.

Local Studies

The study by (Naingue et al., 2018), aimed to develop a system that creates a Guidance Service System of Saint Joseph College Rosario Batangas to lessen the paperwork of the guidance counselor so that they could easily record every report. The system with a student database helps the guidance counselor to easily organize the reports and generates forms such as good moral certificate, referral slip, admission slip, information sheet and counseling intake form. The objective of the system was to easily retrieve student records and to show the counseling intervention done, to generate the vital reports easily and in a timely manner and to easily integrate records of new enrollees and transferees.

The study was somewhat similar to the present system in creating a better and paperless record. The study focuses on computerizing and retrieving records.

(Belino J.E et al., 2018), aimed to help manage data storage to easily find the records of complaints especially the previous records and it could generate monthly reports. Complaint Management System provides to solve the problems faced by the school in saving time and in finding the records and space for storing, and the ability of generating reports that could help the principal in maintaining a good quality system and process of submitting complaints and preserving records. The system also provides a possible solution to a complaint if it already existed. The students could evaluate the performance of the faculty members, to help them express the excellence or deficiency of service provided by the school. The student could complain if there was a problem in school likewise bullying a fellow student,

malpractice of an instructor, low ratings, and others. The main objective of the studies was to help the school in assessing its complaints and easy evaluation.

The study was used as one of the references of the present system because of the similarities that can manage data storage to easily find records of the information and it can generate reports. It provides a way of solving the problems faced by the Tourism Office by saving time in finding and storing records and space for storing records, and the ability of generating reports when it comes to decision-making.

The study of (Antonio, 2020), enhances Barangay Justice System through the Development of a Web-Based Crime Monitoring Module. A secure and harmless environment is a very important aspect in promoting investment and economic growth. In a community, in particular, peace and order have always been a pressing issue. To do the things people need to survive, everyone should feel safe all the time. Public safety officials are aware that protecting people, their properties, and the environment and solving disputes are among the utmost important responsibilities they need to perform. To perform such functions efficiently, the study focused on developing a Web-based Crime Monitoring Module, which enhances the barangay justice system through record keeping and management of offenses in the community. The system provides a more effective way of monitoring offenses and blotter cases in the selected barangays, leading to better administration of peace and order. Through this, the crime hotspot can easily be determined.

This study was similar to the current system because it is also a web-based system that is helpful to every barangay in monitoring crime records.

The study of (Kiseo, 2018), An Assessment of the Philippine National Police's Crime Incident Reporting System: Towards an Improved Program Application. In her study, she states that the main objective of this study is to assess the Philippine National Police's Crime Incident Reporting System and the problems encountered in order to improve its program application in terms of economy, efficiency, and effectiveness. The researcher utilized the descriptive method using a researcher-made questionnaire. This was distributed to two sets of respondents that included the crime registrars and statisticians who operate the system, and the chiefs-of-police and staff of the Directorate for Investigation and Detection Management (DIDM) who use the information extracted from the system.

To determine the profile of the respondents, as well as the analysis of data, the descriptive statistical measures like frequencies, weighted mean, and percentages were used. Based on the results and findings derived from this study, the researcher concludes that in terms of economy, the annual budget allocation of the PNP for the CIRS is not sufficient. For efficiency, the biggest challenge is the weak Wi-Fi connection, that cannot accommodate the memory capacity usage of the CIRS, that delays the encoding of cases, lengthens report preparation time, and delays the gathering of information; Lastly for effectiveness, the researcher concludes that the CIRS helped in increasing the Crime Solution Efficiency and decreasing the crime rate in the country. This means that the goal of CIRS to be an effective tool in helping decision makers and security strategists in enhancing crime solution efficiency and reducing the crime rate in the country is being achieved.

This study helps the developed system because the goal of CIRS is to be an effective tool in helping decision makers.

In the system developed by (Oden, 2022), Crime Records Management System – PHP Project, stated that the project is a web-based application that provides a facility for reporting online crimes. The system specifically looks into the subject of Crime Records Management. Users can register their complaints online. The system at any point in time can provide the details of existing charge sheets and their statuses. People can check missing persons' details online using this system. The system at any point in time can provide the details of the police station and the employees. This system also shows the most wanted person details online on the police website. At any point in time it can provide the details of victims and the registered FIRs. Using this system any Number of clients can connect to the server. The system at any point in time can provide the details of evidence and their sequence. This system also allows users to view all most wanted persons which can be given by the administrator.

The system was similar when it came to its efficiency. Both of the developed systems try to eliminate or reduce these difficulties to some extent. Also, they both help the user to work user-friendly and he can easily do his jobs without time lagging.

According to (Eder, 2018), One of the main blood providers in the nation is the Philippine Red Cross (PRC). The PRC Blood Centers are having trouble managing and transferring their data from one blood center to another across the

nation. They also struggle with producing monthly reports because of the disorganized records and the time-consuming data retrieval. The Philippine Red Cross Online Blood Bank Management Information System (PRCOBBMIS) was created as a solution to the problem. It is a web-based platform that offers effective data retrieval and management for profiling. It is a system made to handle blood stock requests through the internet and even through SMS (SMS). In order to reduce errors during the system's development, the V-model was used.

The database tool was created using MySQL, and the PHP programming language was employed during development. SMS was integrated into the system using Ozeki and Visual C#. Having been designed using the web architecture, the system gave a more effective networking ability that supports PRC staff in successfully profiling their donors, keeping their blood stock data updated and creating statistical reports.

The Philippine Red Cross online blood bank management information system was linked to the developed system since it serves the same function which is to produce monthly reports and organized records as well as reduce errors and data retrieval. Which include providing analytical and statistical reports

For (Acoba, 2019), the advancements in information technology (IT), schools are now able to use databases and programs like the Online Student Information System (OSIS), which centralizes record access. Applications that are accessed online are one of the modifications that occurred. These programs enhanced systems for handling conventional transactions. Thus, because it is so

effective at gathering, processing, storing, and retrieving information from the Internet, the majority of colleges have switched to an online-based system. In both universities and colleges, it is crucial to create and manage accurate, current information about a student's academic career.

The student information system handles all types of student information, academic reports, college information, course information, curriculum, batch information, placement information, and other resource-related information as well. It keeps track of a student's information from the start of the course until the end, and it can be utilized for all reporting requirements.

The Online Student Information System (OSIS) was associated with the developed system since it also aims to centralize the process of gathering and storing tourist information.

Based from (Loverio et al., 2021), this study explores tourism in the resort town of Sagada, the Philippines, which has experienced an influx of tourists over the past few years. Qualitative methods – including in-depth interviews, focus group discussions, participant observation, and informal conversations – were used to collect data from 2017 to 2019. A conceptual framework used systems theory guides the data analysis while social exchange and stakeholder theories were also employed. Researched findings suggested that although Sagada had immense problems, including inadequate facilities, lack of policies, and insufficient preparedness, stakeholder collaboration had helped mitigate the problems brought by mass tourists. This study found that when community cooperation was attained,

issues brought about by over tourism could be mitigated, and solutions could be crafted.

The study about tourism was related to the presentt system because it was also about the tourism particularly on tourist arrival, which the developed system can monitor and generate reports for the Tourism Office to be able to analyze how many tourist visits and stay within the Municipality of Mabini.

Synthesis

In general, the mentioned conceptual literature and related studies captivated the interest in following up on their capstone project, "*Tourista*: Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas". The project was built on the information and data given. The similarities and differences between the previous research and the current study was used to link them.

(Listyorini & Meimaharani R, 2018), was related to the developed system because it also had the information that admin and resort need in one system. As well as MySRT Management System for Senior Project Document Repository and Tracking by (Chiravirakul, 2017), because it was similar in terms of the past process and the current process of handling data where it is improved from the paper-based to the database system.

While (Farsole et al., 2017), provide total computerized information system support for the workload. The system of (Mkhwanazi et al., 2020). An Automatic Crime Reporting And Immediate Response System gives reference on automatic reporting and also the manual work in reporting and encoding data. Just like the

system developed by (Sharma et al., 2017), particularly the modules involved such as login for user and admin, registration, view status. Not only that, the system of (Jesil et al., 2018), gives an idea to make the developed system a mobile responsive and web-based system.

Comparably, the system of (Nawaz et al., 2019), which was Online Crime Records Management System states that it helps to manage all the activities in an office using computers by computerizing all of the incoming tourist data from the resorts which can be managed easily. Same as the system of (Sahana et al., 2019), because it is also a web-based application. Aside from that it has a register feature as well as it stores records. An identical to (Harvey, 2018), REDCap web-based application as well as it assists all in collecting and storing their data in a secure and completely transparent manner and stores records.

On the other hand, (Kiran Limbu, 2021), Web Application: Bug Tracking System includes a tracking system and gathering and storing important information along with reporting features. As much as, the Analysis and Design of File Tracking System to (Bala & Muhammad, 2020), since it has a monitoring system. Also it is capable of processing and tracking all files, including reports. Also the Alumni Tracking System by (Jaiswal et al., 2021), of the tracking feature as well as the gathering and managing of the data recorded. Along with the Student Tracking and Attendance Monitoring System Using RFID by (Anjum & Kamble, 2017), in the case of the tracking and monitoring feature of the system.

Inline with this was the Design an Information System for Student TrackPrediction by (Borisov V. et al., 2019), since it was about gathering data of the system. But the system of (Rusdi J, 2019), offers to collect data and store it digitally on a server. And the use of a Single Dendritic Neuron to Forecast Tourist Arrivals to Japan by (Jian et al., 2017), helps the monitoring of tourism arrivals in the country just like the system developed.

When it comes on the local systems, the Electronic Document Management System by (Isip, 2017), differs in the platform used since the developed system used PHP as the scripting language. But terms of managing documents the project designs as well as the procedures of the operation and testing of the project were also the same as the current system. Apart from this, the Web-based Alumni Data Information System by (Yunanto et al., 2021), can be accessed anywhere as long as the user is connected to a network. And (Lozañes, 2020), used Agile Methodology for the development of the system. Also the system of (Asefa, 2019). Online Crime Reporting System that generates a report like the developed system.

Related studies serve as guides in the development of ideas, principles, techniques and concepts of the system.

The An Alumni Portal and Tracking System by (Bista et al., 2021), keeps track of records and aims to create a portal for its users. Comparably, the study of (Jisha et al., 2017), regarding school vehicle tracking systems also has tracking and monitoring features which can help users to collect and analyze the data regarding arrivals in an automated way. Also the study of (Ugale et al., 2017), about the article

Document Management System by Paperless Document Management System eliminates the paper files and filing systems as well as on addressing shift toward a paperless which is based on organizing digital documents to search and store documents and to reduce paper.

Aside from this, the findings from the study of (Wairimu & Nyaoga, 2018), indicate that implementing Automated Information Systems had a significant positive effect on the country government's operations. In relation both aimed to improve the operations using an information system that records and processes data in the daily operations in the current manual system. In addition, the study of (Gamao & Rebortera, 2018), stated that the developer plays an essential role in resolving issues so that the expected services can be delivered and implemented more effectively. Likewise, the study of (Alessandrini et al., 2019), according to the growing availability of data coming from ship reporting systems, such as automatic identification system (AIS) and long range identification and tracking (LRIT) was associated with the developed system since it also had reporting and tracking features.

In contrast, the study of (Gowtham et al., 2019), stated that nowadays, radio frequency identification (RFID) biometric based access controlled systems (ACS) were interconnected to the developed system since the RFID can make the tourist entry information faster. In comparison, the study of (Liu et al., 2021) according to accurate forecasts about the tourism industry since it also aimed to overcome the limitations of traditional forecasting methods.

The study by (Cletus Igbe, 2017), entitled Web-Based Crime Management System has the same objectives which is to provide a web-based system to their client and assist them in keeping records of important information as well as avoid human errors. Just like (Mishra, 2022), Website Development of Crime Management System, that both provides reporting information online, registering records and manages its users. Also, any number of users can connect to the server.

Together with, the study conducted by (Mustafa et al., 2019), Criminal Record Management System that helps build security and monitoring control to ensure only authorized personnel have access to the system's information. Also, the system used HTML, JavaScript, CSS, PHP, MySQL, and Bootstrap in developing the system. In the same as the study of (Kn & Perera, 2021), Impact of Crime Reporting System to Enhance Effectiveness of Police Service, Crime reporting because it launched online web-based reporting systems that identical to the study of (Debnath et al., 2021), it not only make the work easy but also it would help the users to access many features like news feed and all the updates.

Respectively, the study by (Arushi & Shivani, 2021), and (Kumar D, 2018), has also a reporting system where the user can input details and they can easily contact them when it comes to tracking. Along with (Chow & Kan, 2019), Cross-border tourism: Case study of inbound Russian visitor arrivals to China that has visitor tracking.

Undoubtedly, (Balli et al., 2019) and (Jangra R & Saini S, 2021) as well as (Heikinheimo et al., 2017), studies are similar because it all record the total number

of tourist arrivals and value resources for the growth of tourism also they have visitor monitoring feature. Along with Visitor monitoring in the Tapajós National Forest, Brazil by (Moreira & Burns, 2017), of the collecting data of the visitor and the monitoring feature.

Furthermore, the study by (Naingue et al., 2018), focuses on computerizing and retrieving records. (Belino J.E et al., 2018), that can manage data storage to easily find records of the information and it can generate reports and the ability of generating reports when it comes to decision-making. Likewise (Antonio, 2020), study where it is also a web-based system that is in monitoring records. However, the study of (Kiseo, 2018), helps the researcher when thinking of how the system can contribute to decision makers.

Whereas, in the system developed by (Oden, 2022), shows its efficiency when eliminating or reducing these difficulties to some extent where it both helps the user to make it user-friendly. Although, (Eder, 2018), Philippine Red Cross Online Blood Bank Management Information System (PRCOBBMIS) serves the same intention which is to produce monthly reports and organized records as well as reduce errors and data retrieval it also include providing analytical and statistical reports just like the Online Student Information System (OSIS) of (Acoba, 2019), that aims to centralized the process of gathering and storing tourist informations. For this reason, (Loverio et al., 2021), study is very crucial to the development of the system as much as the mentioned studies and system but, it has features about

the tourism particularly on tourist arrival which the developed system can monitor and generate report for the Tourism Office to be able to analyze how many tourist visits and stay within the Municipality of Mabini.

Conceptual Framework

A conceptual framework is a structure or model that provides a foundation for understanding, analyzing, and interpreting a particular concept, phenomenon, or theory. It serves as a guide or framework for organizing ideas, concepts, and relationships to facilitate research, analysis, and decision-making in a specific field of study or discipline

The concept of the developed system was shown in Figure 1. It demonstrated the use of various fields of works in the system, in order to understand and explain the key concepts and their relationships. A conceptual framework is a theoretical structure or model that helps to organize and understand complex concepts or phenomena. It provides a foundation for studying, analyzing, and interpreting a subject matter by establishing the relationships between various elements or variables. It helps researchers to organize their thoughts, establish a theoretical foundation, and guide their research process. They can also be used in other contexts, such as business planning, policy development, or problem-solving.

Conceptual frameworks are utilized in various disciplines, including social sciences, natural sciences, engineering, business, and more. They provide a roadmap

for research, analysis, and theory development, guiding scholars and practitioners in their exploration and understanding of complex concepts and phenomena.

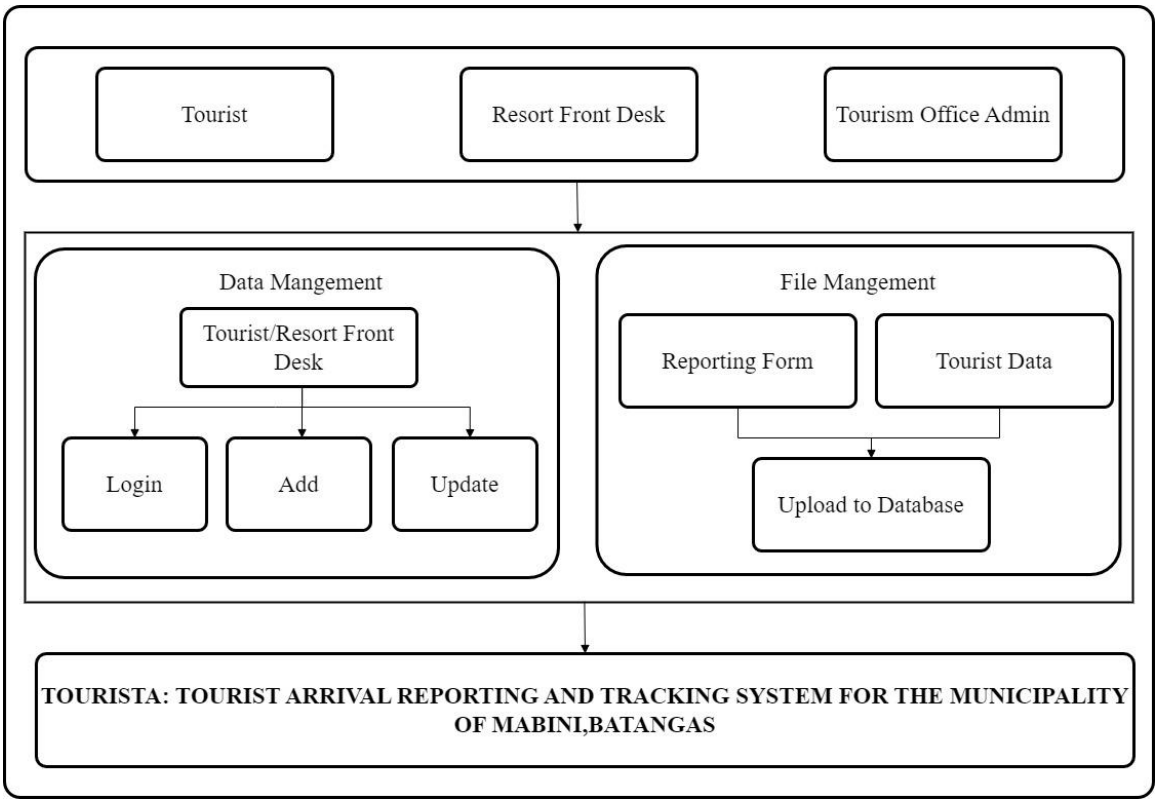

Figure 1. **Conceptual Framework**

Figure 1 illustrates the process flow and features of the developed system, Tourist Office Admin could log in to the system, access a dashboard that shows the report analytics of tourist numbers and profile, receive and view tourist information from resorts as well as download reports. While the resort front desk could log in to the system and fills out the necessary information about the tourist they accommodate. It serves as a roadmap for researchers, helping them to define the key concepts, identify the relationships between variables, and establish the boundaries of their investigation.

CHAPTER III

DESIGN AND METHODOLOGY

This chapter discusses and identifies the strategy and methods undertaken within the development of the system. The technical and theoretical inputs in the development model and approach, functional and non-functional requirements, and system, agenda, and timeline were provided and discussed in tables and figures.

Development Model

The researchers employed the Agile Application Development Model approach, as depicted in Figure 2. The Agile Methodology provides opportunities to assess the direction of the project throughout the development cycle.

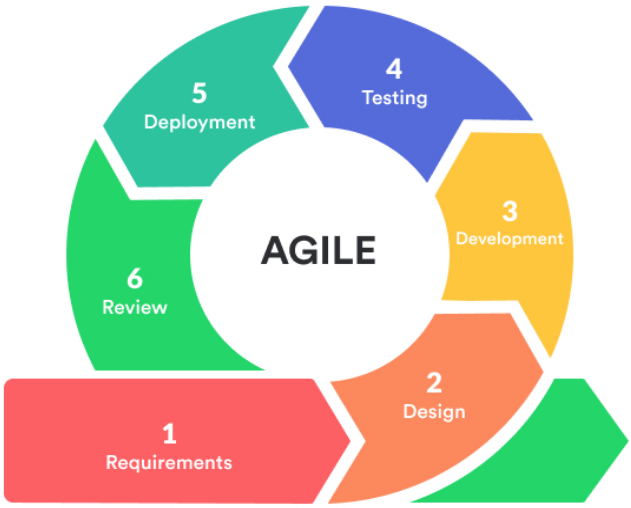

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***Figure 2*. Development Model**

Agile development model was used to evaluate the project's direction at any stage during the development cycle where it covered every aspect of requirements, design, development, testing, deployment, and review throughout the development

cycle of the project. The agile development model went through an arbitrary number of cycles, this paradigm allows continual improvement. Throughout the improvement cycle, each issue of development, requirements, and layout had been revisited as shown in the diagram of the Agile Application Development Model method.

Requirements Analysis

This phase defines the tasks that have been completed as well as precise information about the problem and how it was solved. They studied the current process and found out that the manual gathering of tourist information from resorts is a significant problem for the Mabini Tourism Office. Also discovered that submitting tourist arrival reports to the Tourism Office by the resorts was done manually, where the resorts write down their tourist guest information in a printed document. With this, there is definitely a high chance to misplace the paper or get damaged. The current system is also prone to human errors and mishandling as well as it is difficult to compile and to manage information gathered.

The created system helped the Mabini Tourism Offices to collect data from each resort within the municipality which eliminates those problems by avoiding time-consuming processes and large volumes of paper works as well as it was easy to monitor and manage each resort and tourist information. It also determined what the user requirements for the system were. Defining the system requirements significantly satisfied the needs of the user. After the investigation conducted from

the literature review and journals, it has been revealed that a tourist arrival system was beneficial when implemented to track and monitor the tourist arrival.

Analysis of the Existing System

Tourism Office assists the implementation of the local government code regarding the taxes and licenses of tourism-related establishments in the locality, monitoring and inspecting to ascertain safe and enjoyable stay of visitors and travelers. Currently, the tourism office in the municipality of Mabini has a problem with their manual system of collecting tourist arrival reports, as the resorts still need to fill out the form manually that was given by the Department of Tourism and submit it to the Tourism Office.

The tourism office of Mabini was having difficulties obtaining the number of tourists who checked in and out from the resorts, especially during holidays and peak seasons such as summer, because most of them do not provide real-time information, and the other resorts was not cooperative at all since some resorts are far from the tourism office as well as resorts find it difficult to bring tourist arrival report to the tourism office. In accordance with this, the main mode of communication between the resort and the tourism office was through email, which makes it difficult for the tourism office to encode and compile all the submitted data.

Fishbone Analysis

To identify the root of the problem of the existing system, the Ishikawa Diagram, also known as the FishBone Diagram, was chosen for the case analysis as it helps visualize the many potential causes of a problem or effect in a display. The

fishbone diagram was useful since it allows to dig deeper, and go beyond the initial incident report, and better understand what was causing the problem in the organization's systems and procedures in order to fix it.

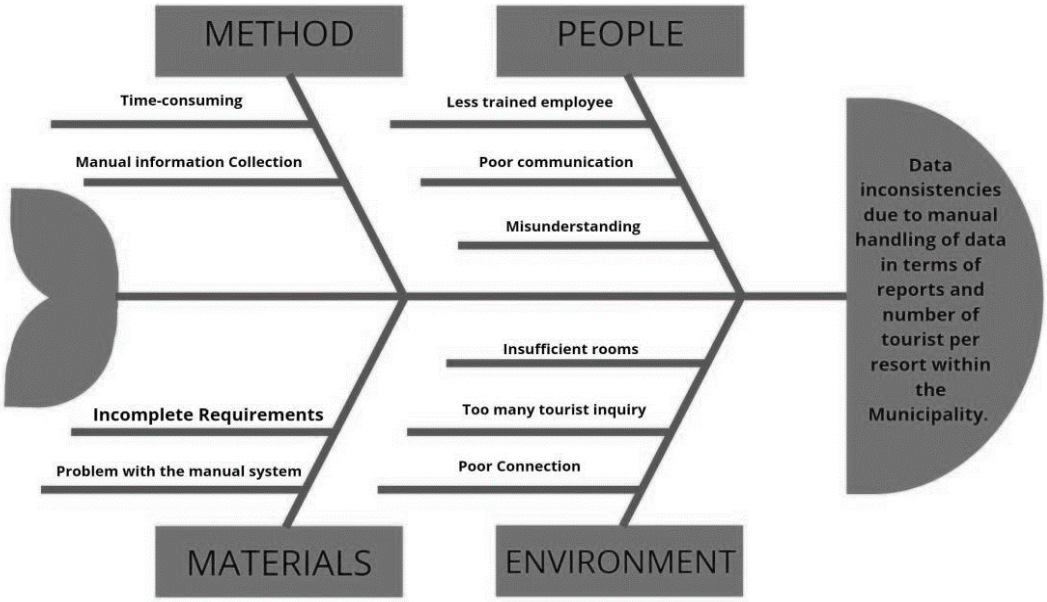


Figure 3. **Fishbone Analysis**

Figure 3 depicts all of the major issues that could arise in various settings, as well as all of the possible factors that lead to the major issue. It displayed all of the necessary data to figure out why Mabini tourism office was having difficulties when it came to gathering information about the tourist's arrivals from the resorts.

A fishbone diagram was used to visualize the various factors that assist the Mabini tourism office and the resorts to collect information more accurately and efficiently. In the diagram, the main problem is the issue in the data gathering and management of the existing system. It affects the Method, People, Material and Environment factors. In the case of Method and Material, the current method lacks function and development because currently the Tourism Office does not have

enough budget to make a developed system. While in the case of the Environment and People, the Tourism office stores the paperwork until the essential records are filed and lost, especially the old records.

System Boundary

Shown below was the system boundary of the developed system. It includes the delegation of authority to all users or administrators. As indicated in Figure 3, the function and status of the Municipality of Mabini and other government affiliations was also emphasized. A system boundary refers to the line or boundary that separates a system from its external environment. It defines what is considered part of the system and what is considered outside of it. The system boundary helps to establish the scope of the system and determine which components, interactions, and processes are included within the system's context.

The purpose of defining a system boundary is to establish a clear understanding of what is being analyzed, designed, or managed as a system. It helps to focus attention on the specific elements that are relevant to the system and its objectives, while excluding elements that are not directly related.

The system boundary is typically represented by a physical or conceptual boundary, such as a dashed line or a diagrammatic representation. It helps stakeholders and system designers to identify the inputs, outputs, interfaces, and dependencies of the system, as well as understand the interactions and constraints imposed by the external environment.

Defining a system boundary is an important step in system analysis and design as it provides clarity and context for understanding the system and its behavior. It aids in identifying the system's requirements, defining its functional and non-functional aspects, and assessing its impact on the surrounding environment.

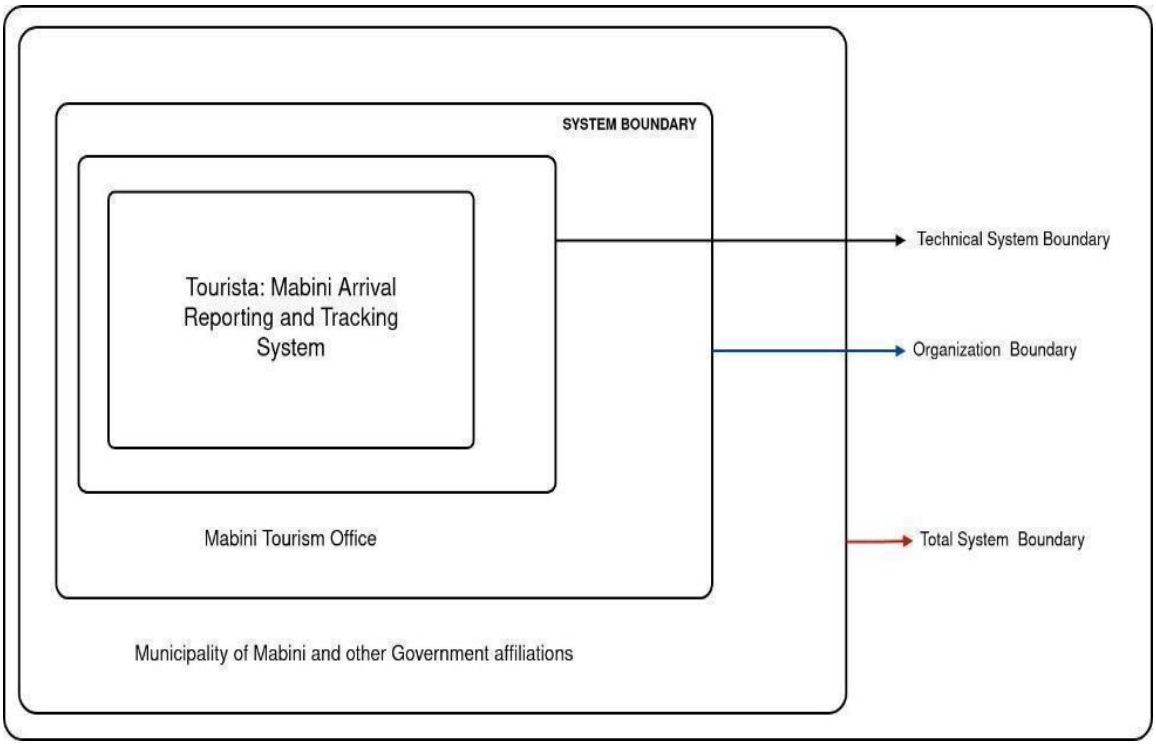


***Figure 4*. System Boundary**

Figure 4 illustrated the boundary of the project where the system provided services that could assist the tourism office of Mabini in tourist arrival reports and monitoring of the number of tourists that visited the resorts within the municipality of Mabini. The system created would assist the Tourism Office in monitoring the number of tourists, based on report analytics visualization. The system also would benefit those outside the organizational boundary because it could be used in future preferences that could help them in monitoring data or information.

The system has a significant impact on the Tourism Office of Mabini as it could help the Tourism Office administrators in a variety of ways. It allows them to finish their tasks in less time and under less pressure. This assists the Department of Tourism, or DOT, in monitoring the number of tourists that visits the resorts within the Municipality of Mabini. Because of the number of resorts and the increased number of tourists particularly on holidays and peak seasons, it makes it easier and faster for them to gather necessary data from resorts and tourists.

On the other hand, this system would also assist the Department of Health, or DOH, in tracking the people with Covid-19 since the system contains data that was necessary when it came to contact tracing of patients.

Hardware Requirements

The system requires a minimum set of hardware specifications to meet the system's requirements Hardware requirements refer to the specific hardware components and specifications needed to run a particular software application or system effectively. These requirements are determined based on the software's functionalities, performance needs, and compatibility with various hardware configurations.

When developing or purchasing software, it is essential to consider the hardware requirements to ensure that the software can run optimally on the target systems. Hardware requirements typically include aspects such as:

It's important to review the hardware requirements provided by the software vendor or developer to ensure that the target system meets or exceeds the minimum

specifications. In some cases, the software may have recommended or optimal hardware requirements that provide a better user experience or enhanced performance. . Table 1 shows the minimum hardware requirements for running the system.

Table 1

Hardware Requirements

Hardware	Minimum Requirements
Processor	A minimum of Intel Core i3 or higher
Storage	A minimum of 512GB HDD/SDD or higher
Ram	A minimum of 4GB or higher
Others	Mouse
	Keyboard
	Laptop

For the hardware requirements, laptop was used with Intel® Core™ i3-10110u processor 2.1 Ghz (4m cache, up to 4.1 Ghz, 2 cores) processor. For the memory, they used 8gb RAM and 512 GB SSD for the storage. While for the end user to be able to run and use the system developed. The required devices are laptop, and desktop as well as smartphone since the system is made to be mobile responsive. For the laptop and desktop to run the system the processor must be a minimum of Intel® Pentium® Silver n5030 processor 1.1 Ghz or higher. For the memory, at least 4GBor higher and for the storage, the device must have at least 512GB or higher. Hardware requirements refer to the specifications and capabilities that a computer system or device must meet in order to run a particular software application or perform specific tasks effectively and specific use cases may have additional or different requirements. It's important to consider the software or applications that

will be used and their recommended hardware specifications for optimal performance.

Table 2

Hardware Requirements for Implementation

Hardware	Implementation	Laptop/Desktop	Mobile
Processor Speed	Intel® Core™ i3-10110U Processor 2.1 GHz (up to 4.1 GHz, 2 cores)	2.7 GHz	Quadcore 1.8 GHz
Storage	512GB SSD	256 GB SSD/HDD or higher	16 GB and 32GB or higher
RAM	8GB	4GB or higher	2 GB or higher

Table 2 displays the hardware requirements fo implementation, the researcher used Intel® Core™ i3-10110U Processor 2.1 GHz (up to 4.1 GHz, 2 cores) with a storage of 512 SSD and RAM of 8GB. While for the end-user that would be using laptp or dekstop the requirements for its processor is 2.7 GHz with as RAM of 8 GB and 256 GB SSD/HDD or higher. Moreover, for the mobile end user the requirements for its processor is Quadcore 1.8 GHz with 2 GB or higher RAM and 16 GB and 32GB or higher storage.

Hardware requirements for system implementation refer to the specific hardware components and specifications needed to support the installation, operation, and performance of a software system. These requirements ensure that the hardware infrastructure can adequately handle the system's processing, storage, and connectivity needs. It is crucial to review the hardware requirements specified by the system vendor or developers to ensure that the hardware infrastructure meets

or exceeds the recommended specifications. This ensures that the system can be implemented successfully and operates optimally.

Software Requirements

It summarizes the various software requirements for the system's correct operation. Software requirements are the functional and non-functional specifications and constraints that define what a software application or system should do and how it should behave.

It is crucial to gather, document, and prioritize software requirements effectively to ensure a successful software development process. Requirements engineering techniques such as interviews, surveys, workshops, and prototyping are often employed to elicit, analyze, and validate requirements with stakeholders. The software requirements were necessary for the developed system as shown in Table 3.

Table 3

Software Requirements

Software	Minimum Requirements
Programming Languages	PHP and Javascript
Operating System	Windows 8 or higher operating system
Database	MySQL

Table 3 depicts the software implementation, they used Windows 11 for their operating system and Google Chrome and Microsoft Edge for their web browser. For the end user to be able to run and use the system, the minimum required operating system for laptop and desktop is Windows 8 for its compatibility or higher. While for mobile devices, the required operating system is android. For the

end user web browser, the recommended browser is Google Chrome and Microsoft Edge as the best search engine for the system.

Sofware Implementation

Software implementation refers to the process of translating software requirements into a working and functional software system. It involves the actual development, coding, configuration, integration, and testing of the software to ensure that it meets the specified requirements and performs as intended. The implementation phase typically follows the software design and planning stages

Table 4

Software Requirements for Implementation

Software	Implementation	End User
Operating System	Windows 11	Android and Windows
Web Browser	Google	Google
	Edge	Edge
	Opera	Opera
	Mozilla Firefox	Mozilla Firefox
Database	MySQL	

Table 4 illustrates the software requirements for implementation where the required operating system is Windows 11 which can use web browser such as Google, Edge, Opera and Mozilla Firefox as well as MySQL database. While for the end users, the requirements for the software implementation of the system in operating system is Android and Windows as well as it can be accessible through Google, Edge, Opera and Mozilla Firefox.

Network Requirements

Network Requirements refer to the minimum requirements, such as software and/or hardware, internet connection, latency, or other requirements, that must be

met by the end user in order to access the implemented system. Network requirements refer to the specifications and considerations related to the network infrastructure and connectivity needed to support a software application or system. These requirements are essential to ensure reliable and efficient communication between different components of the system, as well as with external networks or services.

Table 5

Network Requirements for System Implementation

Network	Requirements
Hosting Service	Hostinger
Domain Name	mabinitourism.com
Cloud Storage	250 GB

Table 5 shows the network requirements for system implementation where the system was used hosting service such as Hostinger and domain name which is the mabinitourism.com for it to be accessed online through a web browser. Network requirements for system implementation refer to the specific network infrastructure and connectivity needs during the deployment and integration of a software system.

These requirements ensure that the system can operate effectively and securely within the network environment. It is essential to collaborate with network administrators, system architects, and IT personnel during system implementation to ensure that the network requirements are properly addressed. By considering these requirements, the system can be deployed and integrated into the network environment effectively and securely requirements refer to the specifications and

considerations related to the network infrastructure and connectivity needed to support a software application or system.

Table 6

Network Requirements for End User

Network	Requirements
Mobile Data Networks	4G or 5G
Wifi Connection	2.4 GHz or 5 GHz

Table 6 displays the network requirements for end user since the system were already uploaded online it can be accessed by the end user by connecting into a service provider. The required mobile data network connection for mobile users is 4G or 5G while for the wifi users is 2.4 GHz or 5 GHz.

Functional Requirements

This section contains a summary of the features that the developed system offered to beneficiaries. The following requirements were taken into account to support specified user requirements and system features.

1. **Tourism Office Administrator**

1.1 Ability to add, update, and archive resort records.

1.2 Ability to download and export tourist reports.

1.3 Ability to search and filter tourist records

1.4 Ability to view resorts information

1.5 Ability to view data visualization regarding tourist profiles and numbers.

1.6 Ability to view the total number of tourists from resorts within the municipality of Mabini and view tourist information from each resort.

2. **Resort Front Desk**

2.1 Ability to add and update tourist information.

2.2 Ability to add multiple tourists.

2.3 Ability to view tourist information

Non-Functional Requirements

The following non-functional requirements would be made for the better outcome for the study such as Accessibility, Effectivity, Security, Reliability, and performance.

Accessibility

Resort front desks would have complete access to the system where they can update tourist information. On the other hand, Tourism office administrators have complete access to the database's reading and writing functions, allowing them to view and update all necessary information for all resorts while also monitoring the total visits of all tourists from resorts throughout the municipality of Mabini.

Availability

The system is available anytime for the users as long as they have an internet connection. User details and some recent browsing activities are cached in the device so that the website could still be able to provide information to the user. However, data is synced with the online storage as soon as it is connected to the internet. It pertains to the presence, functionality, and accessibility of products, services, or systems.

Compatibility

The website is compatiblewith any computer device as long as it has a web browser such as Google Chrome, Microsoft Edge, Opera, etc.

Usability

The system is user-friendly that even without a manual or instructions, the user could navigate and use it correctly. The system included labels for each button indicating its function, and the information was displayed in the user interface.

Validation

The system only displays valid data and does not permit changes to data that does not belong to the currently logged-in user.

Constraints and Tradeoffs

They considered various application designs that could be used to develop the project. The design choices are shown in Table 7.

Table 7

Considered Design and Technology Stacks

Options	Minimum Requirements
Design A	Ruby Access Django
Design B	Javascript PHP CSS
Design C	MySQL Python MongoDB MySQL

Design A, was considered Ruby because of its reputation as a slow language, even though it was simpler and produced more productive results, this could affect overall performance if used. Unlike MySQL, Access allows users to create table

queries by dragging and dropping icons, whereas MySQL only provides a user command. MySQL had far superior specifications to Access. Access databases can be up to 2 gigabytes in size, whereas MySQL databases can be up to 16 terabytes in size.

For Design B, PHP was used as a scripting language to create the website, and CSS was used for the front-end design. MySQL was used for database management in the development of the website because it was far more convenient to use when developing structured data. This design was implemented because it was easier to use and considering the time frame for development. When the developer was building the web application, the first thing that came to mind was performance because they did not want the users' productivity to be hampered by the performance of the webpage.

For Design C, there were two programming languages which were Python and MongoDB that use a database MySql. Their main concern with using Python was that the operational and update costs were significantly higher than in designs B and A. Additionally, due to the limited time frame for development, using two databases may be too expensive and time-consuming.

Table 8 presented the comparisons between considered languages in development. The criteria that was used are speed and flexibility, with 5 as the highest score and 1 as the lowest in speed categories.

Table 8

Evaluation of Programming Languages

Considered	Speed	Flexibility
Ruby	2	2
Javascript	5	5
PHP	3	4.5
Python	3	3

The speed and flexibility of the most widely used programming languages in website development was assessed in Table 8.

The first was Ruby, although Ruby was named the slowest programming language, it was taken into consideration as it may display the graphics and data needed in the study. After testing its speed and flexibility, it performed poorly when tested for speed and flexibility.

Javascript was the second. Javascript performed the best out of all the languages tested. A timer was used to assess their speed.

Although there were small complications due to the same input, Javascript were able to handle many commands at the same time.

The third was PHP, while PHP has the ability to handle several commands at once, it claimed that this has an impact on the programming language's ability to execute the system more quickly.

Finally, Python has fewer lines of code than Javascript. Unfortunately, this language has more issues in terms of displaying the graphics of the system. Regardless of its speed and flexibility, if it could not display the needed result, it could affect the overall performance of the system.

Design B was used for the developed system, which includes Javascript, PHP, CSS, and MySQL. This was because Javascript performs the best of all the languages tested. Despite minor complications caused by the same input, Javascript was able to handle multiple commands at once. In addition, PHP was used as a scripting language to create the website because it has the ability to handle multiple commands at once, this improved the programming language's ability to execute the system more quickly, and CSS was used for front-end design.

Furthermore, MySQL was used for database administration in website creation because it is the most user-friendly when producing structured data. Design B was implemented since it was more user-friendly and fits within the development timeline.

Cost

Design B which consisted of JavaScript, CSS, PHP, and MySQL was the most ideal decision to be used for the developed system since it is free to download and use. Also, they have enough knowledge and are more familiar with the application.

Security

MySQL was used for the database since it has exceptional security features that ensure complete data security. MySQL has provided powerful mechanisms for ensuring that only authorized users have access to the database server, with the ability to block users down to the client machine level. A granular object privilege framework was present to ensure that users only see the data they should see, and

powerful data encryption and decryption functions protect sensitive data from unauthorized viewing. Finally, backup and recovery utilities offered by MySQL and third-party software vendors enable full logical and physical backup as well as full and point-in-time recovery.

Memory

In terms of memory, MySQL would make use of buffers and caches to speed up database operations. Increased the values of several caches and buffer-related system variables to increase MySQL performance. These settings could also be changed to run MySQL on computers with limited RAM. MySQL provides the ultimate in scalability, sporting the capacity to handle deeply embedded applications with a footprint of only 1MB to run massive data.

Speed

MySQL meets the most demanding performance expectations of any system. With high-speed load utilities, distinctive memory caches, full-text indexes, and other performance-enhancing mechanisms, MySQL offers all the right ammunition for today's critical business systems.

Design

The presented the design and architecture of the developed system in this phase. The design phase relied on the requirements phase's work; the external and internal stages of design from the ground up.

System Architecture

System architecture plays a crucial role in the development and success of software systems and other complex systems. A well-designed system architecture is essential for building robust, scalable, and maintainable systems. It provides a solid foundation for system development, ensuring that the resulting system meets the desired functionality, performance, security, and reliability requirements.

The system architecture is a graphical representation that depicted the physical implementation of software system components. Figure 5 portrayed an outline of the *Tourista*: Mabini Arrival Report and Tracking System.

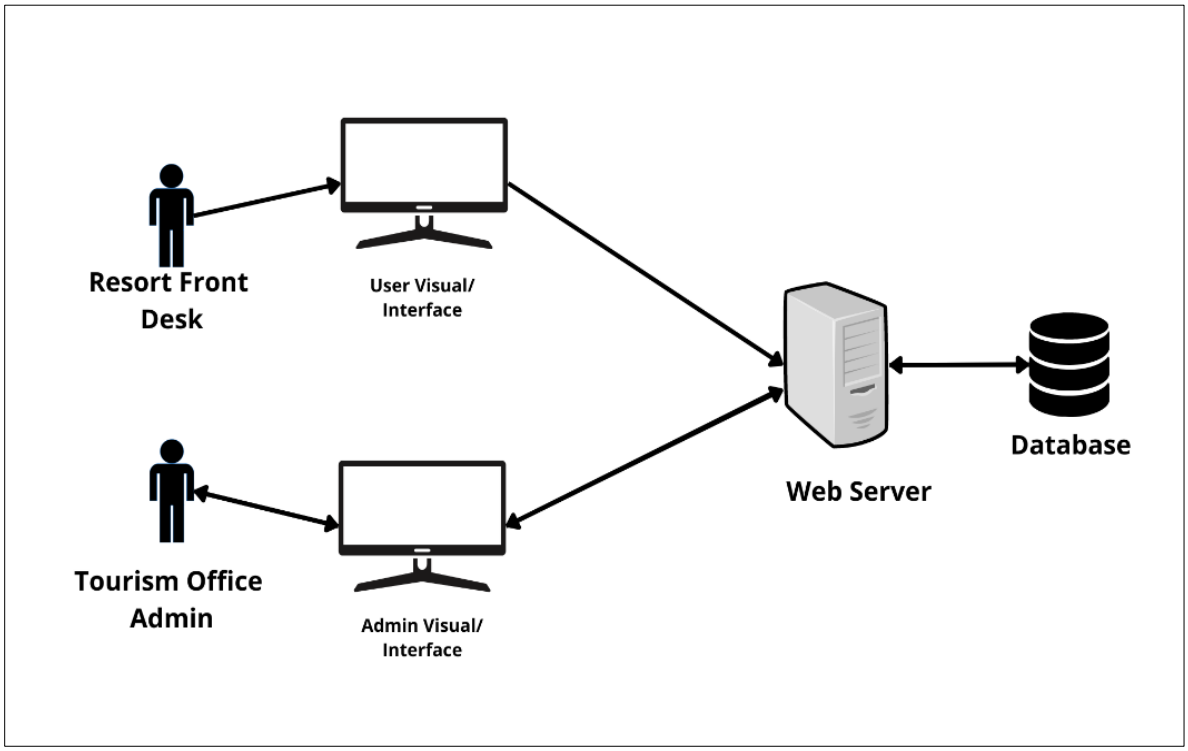


***Figure 5*. System Architecture**

The developed web-based system requireds an internet connection. The system employes different functions for its users and administrators. From the

hardware from which the data would be gathered, an internet connection would be used to submit tourist reports from resorts to the Tourism office of Mabini. Then, after the data were collected the system would generate a report on tourist numbers and profiles that would be displayed in the Tourism office admin dashboard. In summary, system architecture is important because it establishes the structure, communication, and understanding of a system. It influences system integration, performance, security, and reliability. A well-designed architecture improves system development efficiency, facilitates system evolution, and contributes to the overall success of the system.

Use Case Diagram

Use-case diagrams depicts the high-level functions and scope of a system. These graphics also demonstrated how the system and its actors interact. As seen in Figure 6, use cases and actors in use-case diagrams define what the system does and how players should interact with it, but not how the system runs internally. Use case diagrams help stakeholders understand the functionality and behavior of a system at a high level. They provide a visual representation of how users or actors interact with the system to accomplish specific tasks or goals. Use case diagrams serve as a starting point for requirements analysis, system design, and communication between stakeholders, such as business analysts, developers, and clients. It's important to note that a use case diagram focuses on the what of the system, capturing the functional requirements and user interactions, rather than the how or implementation details.

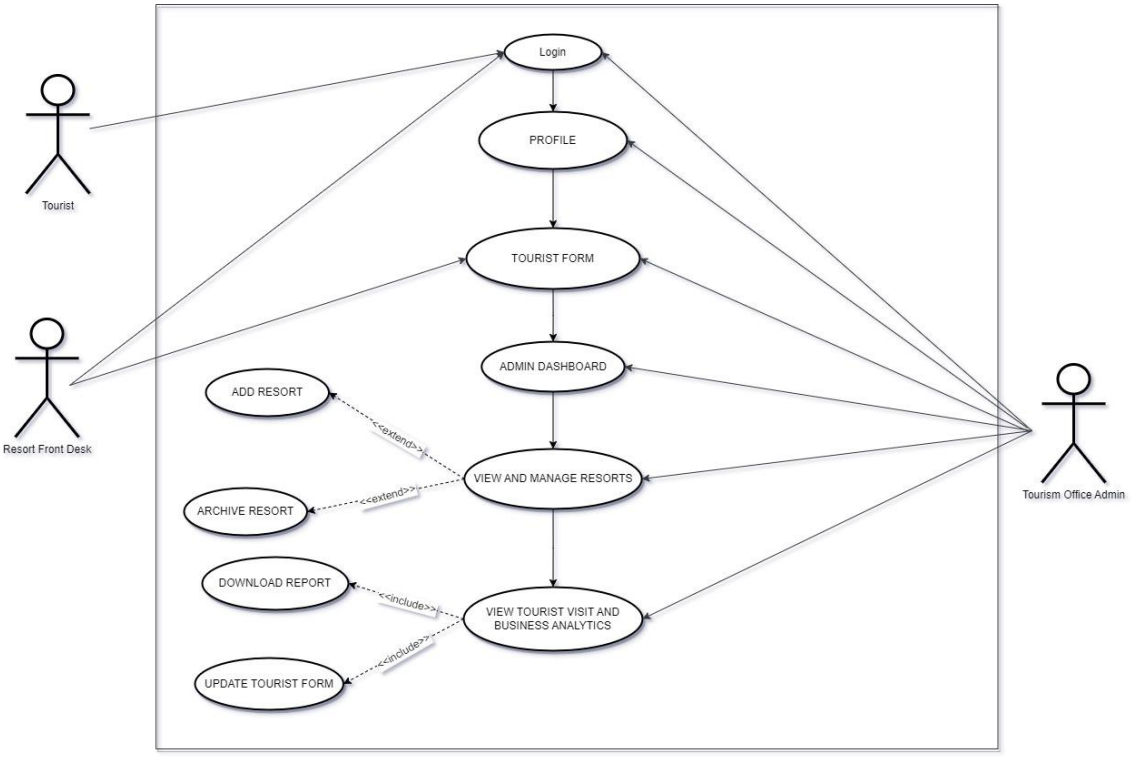


Figure 6. **Use Case Diagram**

Figure 6 illustrated the use case diagram for the Tourism Office Administrator, who could only access the website. The functions that would be available for Tourism Office Administrator would be adding, viewing, deleting, and updating forms. Additionally, it has been searched as a tool to view the total number of tourist resorts within the Municipality of Mabini, and view data visualization.

The Tourism Office Administrator could access various features including a dashboard, manage resort, view, search, filter and download reports of tourists. As well as, update records, archive tourist resort records, view data visualizations, and view the total number of tourists from resorts within the Municipality of Mabini.

For the Resort Front Desk, they would have the access for the tourist form from the Tourism office. They could add tourists details form such as name, age, sex, nationality, and other more. Then after they submit the information of the tourist they accommodate it would be automatically added to the database of the system. The records listed could always be synchronized with the database, providing up-to-date information. For the archive of tourist and resort records, the administrator has the authority to place a specific tourist/resort record in an archive if they are no longer active.

Sequence Diagram

Sequence Diagrams are interaction diagrams that depicts the flow of operations. They captured the interaction of items during a joint activity. Sequence diagrams described interactions between classes as a series of messages exchanged over time. A sequence diagram was a good way to visualize and validate various runtime scenarios. These could help to predict how a system would behave and identify responsibilities that a class may need to have while modeling a new system.

Development

In the third phase of the of the system, at this point, the development of the web-based system for Mabini Tourism Office started. It began with developing and coding the stated system, taking into consideration all of the functionalities given in previous chapters, in order to produce the intended outcome, *Tourista*. The requirements for this procedure were determined at the planning stage and guided the process.

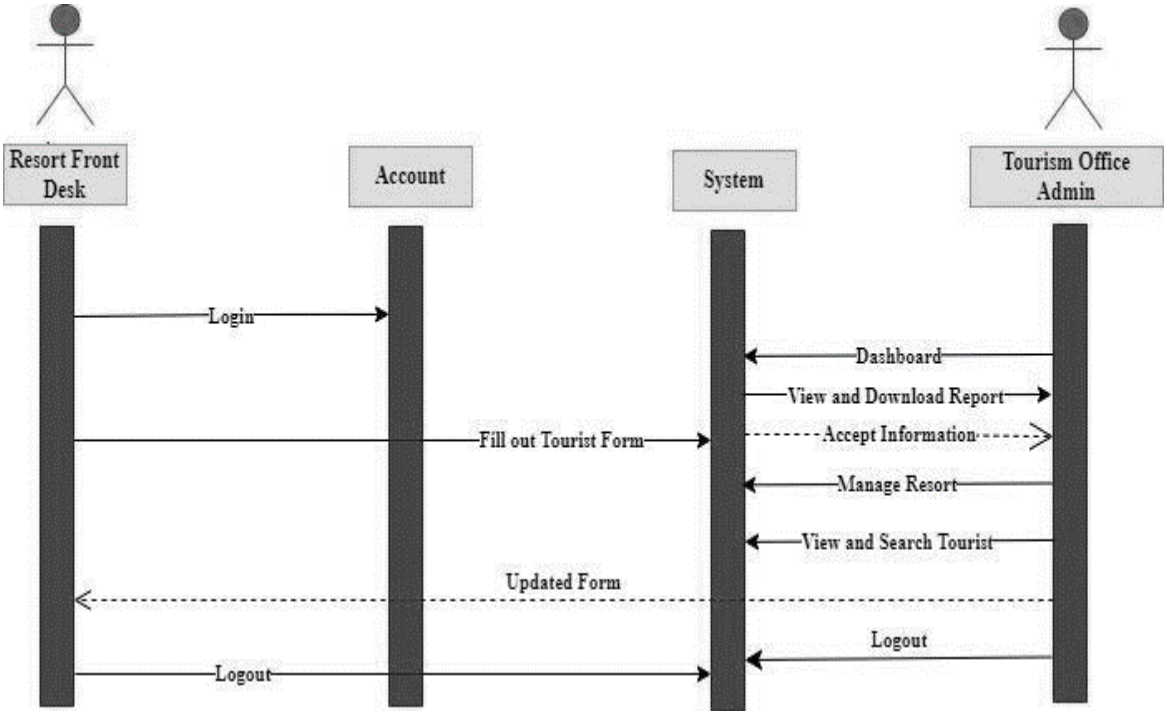


Figure 7. **Sequence Diagram**

Figure 7 illustrated a sequence diagram which consisted of two actors: The resort front desk and the Tourism office admin. The resort front desk could access, sign up and log in to the account, fill out the tourist form and log out in the system. The tourism office admin could access the dashboard, manage resorts, view and search tourists and log out in the system and also update the form at the resort front desk. The system accepts the information from the resort's front desk. Then the tourism office admin could view and download reports from the system. It depicts the flow of messages exchanged between these objects, showing the order in which, they occur.

Also are useful for visualizing the dynamic behavior of a system, understanding the order of interactions between objects, and identifying potential

issues or bottlenecks in the system's logic or communication flow. They are commonly used during the design and analysis phases of software development to model and communicate the behavior of a system or a specific functionality. Sequence diagrams provide a visual representation of how objects collaborate and communicate with each other to accomplish a specific task or scenario. They show the order in which messages are sent and received, allowing developers, designers, and stakeholders to understand the flow of control and data during the execution of a system.

Moreover, the participants or objects involved in the interaction are represented as vertical lifelines. The lifelines are ordered from top to bottom according to their involvement in the sequence. Horizontal arrows, called message arrows, are used to represent the flow of messages between the objects. Messages can be synchronous, asynchronous, or even self-referential. Also it provide a visual representation of how objects collaborate and communicate with each other to accomplish a specific task or scenario. sequence diagrams are important in software development for visualizing interactions, analyzing requirements, aiding in design decisions, facilitating collaboration and communication, assisting in debugging, and serving as documentation. They play a vital role in understanding and representing the dynamic behavior of a software system. Also, provide a visual representation of how different objects or components interact and communicate with each other over time.

Database Design

Database design refers to the process of defining the structure, organization, and relationships of a database system to effectively store, manage, and retrieve data. It involves determining the database schema, identifying entities and their attributes, establishing relationships, and defining data integrity constraints.

The database design of the system shows the flow of data in the system as presented in Figure 8.

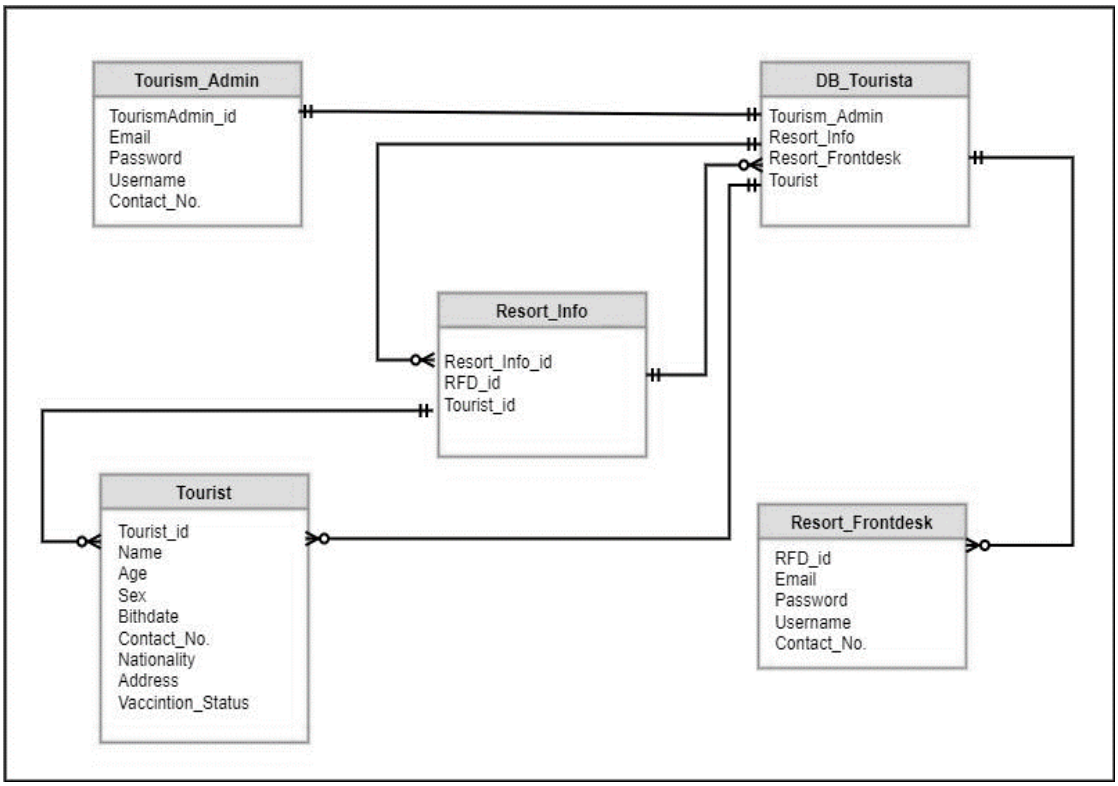


***Figure 8*. Database Diagram**

Figure 8 shows the database design of the system wherein the data of the user's account that is stored in the database, such as their name, email, password, contact number and etc,. The admin can view the system's list of users

and can also delete or archived accounts of the users of the system. Data of the user's sent forms also be stored in the database.

Context Diagram

As depicted in Figure 9, a context diagram displays the interactions between a system and the other actors it is supposed to engage.

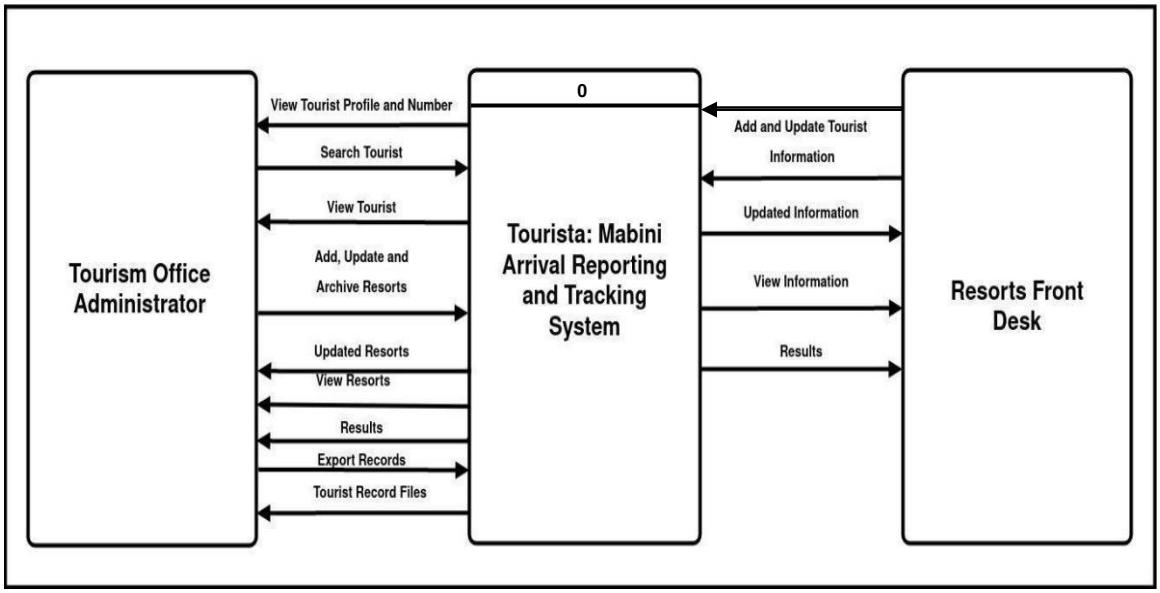


***Figure 9*. Context Diagram**

Figure 9 shown in the Context Diagram of the system. It briefly illustrated the interface between the Tourism office administrator and the Resort front desk. The Tourism office admin could access various features within the system. Furthermore, it depicts the overall structure as a single bubble. It comes with incoming and outgoing indicators showing input and output data. In this figure, the general functionalities of the developed system are presented. In addition, it serves as a guide into the deeper processes of the study in data flow diagrams.

Level 0 Diagram

As presented in Figure 10, Level 0 Diagram breaks down the main process into subprocesses that can then be seen on a more deep level. Also it contains data stores that are used by main process.

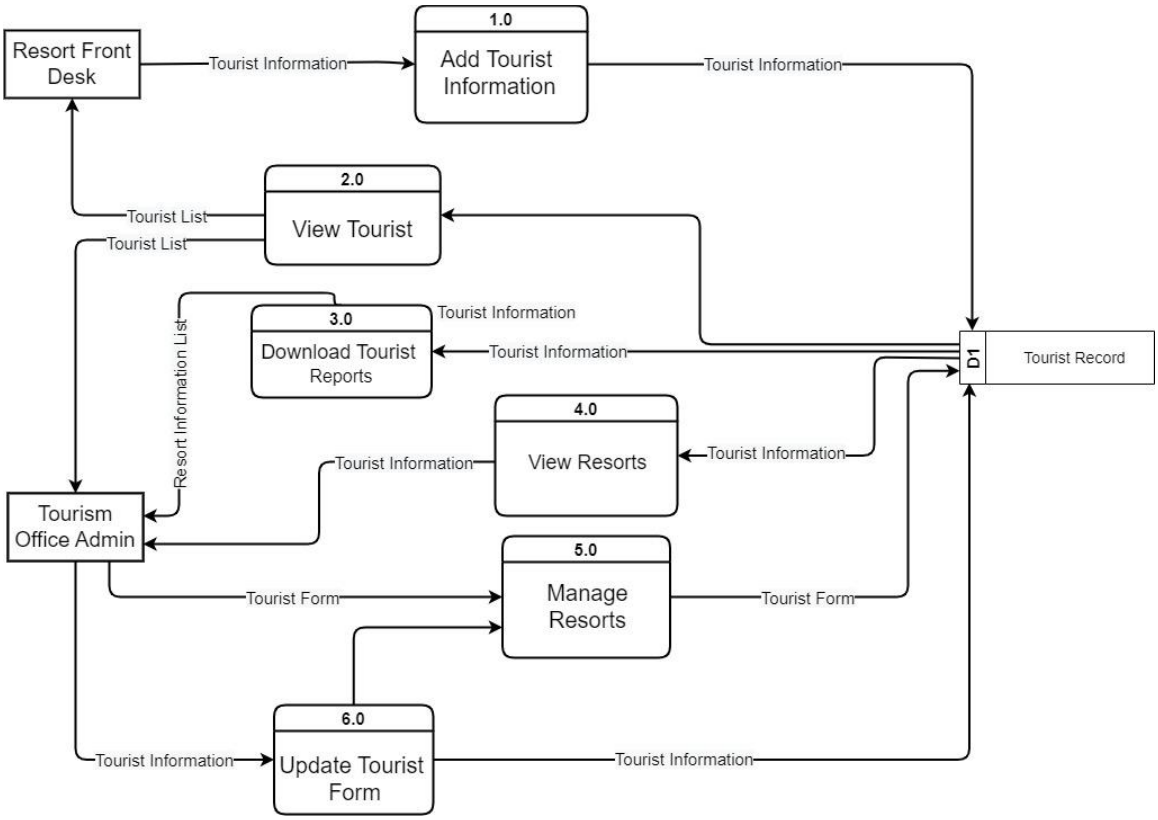


Figure 10. **Level 0 Diagram**

Figure 10 depicted the Resort front desk and Tourism office administrator's process flow and how data flows from the user to the database, as well as the entities involved in the process. The Resort front desk would add the tourist information then the Tourism office administrator has access to view, search, update, and archive tourist and resort information. Then they could see the total number of tourists in resorts within the municipality of Mabini.

Development

In this phase, it discussed the development tools and the specifications used in the development process.

The scripting language for the development of the software is written in Javascript and PHP during the development phase. This phase takes the most time in the project's development timeline.

Software

The scripting language for the development of the software is written in Javascript and PHP during the development phase. This phase takes the most time in the project's development timeline.

Operating System

The system would require the user to run the developed program with Windows 7 or higher operating systems. This enables users to interact with software components. This also serves as an interface between the user and the computer hardware that allows the user to exert additional control over the execution of various programs.

Web/ Mobile Platform

The system would use a web platform. Web apps were popular because they could be created for a wide range of functionalities and could be used by anyone, from an organization to an individual. Web apps were accessed through the internet and do not require downloading.

Database

MySQL is the database management system used in the system. Unlike Access, another database that could be used to store data, MySQL was far more user-friendly. The real-time database offered by MySQL was used in the developed system. This database can easily manage massive volumes of data. If data fields are programmed correctly, they are easily altered and reflected promptly in applications connected to the database.

Subscriptions

They prioritized the ".com" domain name for the system's deployment because it is the most used and valuable domain suffix as well as .com has become the default domain extension, and therefore the most memorable. This, in essence, is why .com is the best domain.

They subscribed to the domain name that only costs less since there is a hosting package available with it. The system used domain and hosting subscription would cost ₱ 3,776.00/per year from hostinger. Hostinger was a versatile web host that offers excellent uptime and customer service, as well as a mix of traditional and cloud-based hosting. Moreover, has flexible prices and plans that offered security and reliability at affordable prices as well as it has a wide range of payment method such as they accept a variety of Credit/Debit/Prepaid cards(Visa, MasterCard, Amex, Discover, JCB, DinnersClub, Maestro) , eWallets (PayPal, Google Pay, Globe cash, PayMaya) and Other Payment options(Seven Eleven, Cryptocurrency)

Hardware for Development

Hardware development refers to the process of designing, prototyping, testing, and manufacturing physical hardware components or systems. It involves translating hardware requirements and specifications into tangible products

These are the hardware development tools and specifications used in the developed system.

Table 9

Hardware Development Tools and Specifications

Hardware	Specification
Laptop	VivoBook_ASUSLaptop
Operating System	64-bit operating system, x64-based processor
Processor	Intel Core i3
RAM	8GB
Storage	512 SSD

Table 9 illustrates the hardware development tools and specifications that was used to develop the system. Also they used VivoBook_ASUSLaptop as hardware with 64-bit operating system, x64-based processor. As well as 8GB RAM with 512 SSD for its storage.

Hardware development requires interdisciplinary collaboration, involving engineers, designers, product managers, and manufacturing experts. Close coordination among team members, effective project management, and adherence to design and manufacturing best practices are crucial for successful hardware development. Overall, hardware development plays a vital role in shaping technology, driving innovation, and enabling the creation of new products and services. It encompasses various disciplines, including engineering, design,

manufacturing, and quality assurance, and it has a significant impact on multiple industries and the overall advancement of technology.

Software for Development

Software development refers to the process of designing, coding, testing, and maintaining software applications or systems. It involves transforming software requirements into functional and reliable programs that can run on various platforms. These are the software development tools and specifications used in the developed system.

Table 10

Software Development Tools and Specifications

Software	Specification	Description
Operating System	Windows 11	Used as a platform for software tools.
Programing IDE	VS Code Version 1.72.2	Used as a program development environment.
Programming Language	PHP, CSS, HTML, JavaScript	Used to implement methods and classes.
Framework	Bootstrap	Used for the front-end of the system.
Database	WampServer Version 3.2.6 MySQL Version 5.7.36	Used for storing data from the users.

Table 10 shows the development phase, the Operating System used is Windows 11 as it is the latest and recommended version. It has built-in capabilities and support for various third-party applications. VS Code with version 1.72.2 was chosen as a programming tool to develop the "*Tourista*: Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas," The tool-assisted them in building files needed in the Android mobile application development process, and it also offers the primary form of layouts. JavaScript is the

programming language used. It is the default programming language and the most popular for Web-based development. Also, it is object-oriented that allows the creation of modular programs and reusable code.

Since the system requires an interactive procedure that allows the user to monitor the records on a regular basis, Javascript would be deployed. The system would employ Javascript to display graphics in order to give accurate system views. PHP, or Hypertext Preprocessor, is a server-side scripting language for creating static and dynamic websites. The website was also designed with Bootstrap and CSS to make the graphical user interface (GUI) more appealing to the user and be mobile responsive.

Testing

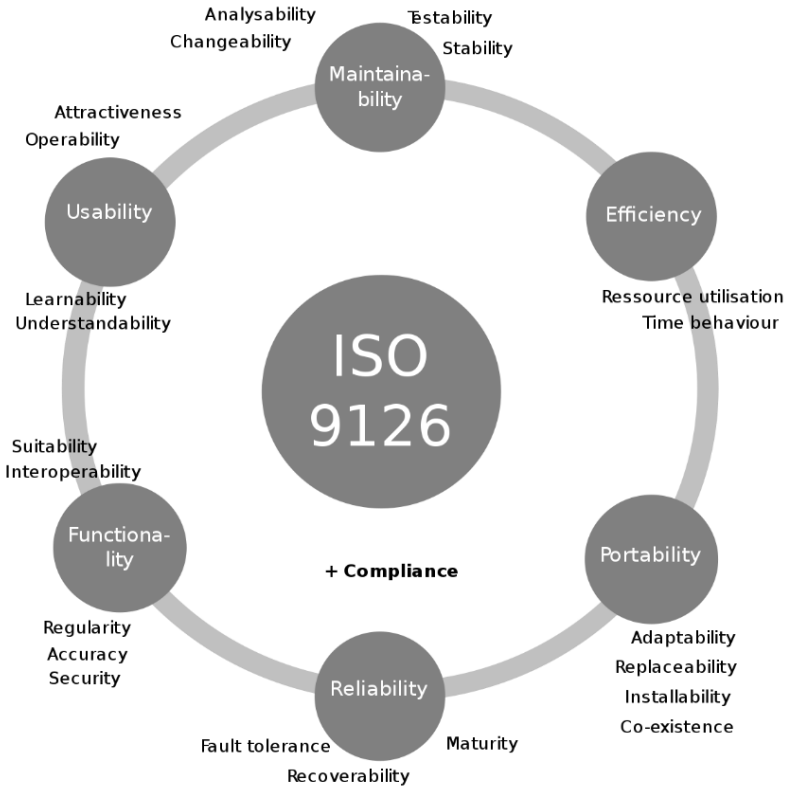
In this phase, they developed an end-to-end development and validation methodology that verified the functionality, reliability, portability, efficiency, maintainability, and usability of the developed system.

Testing and Evaluation Process

Testing and evaluation are crucial components of the software development process. They help ensure that the software meets the specified requirements, functions correctly, and performs reliably Testing and evaluation are iterative processes that should be performed at different stages of the software development life cycle. They help identify and resolve defects early, improve the software's quality and reliability, and ensure that it meets user requirements. Effective testing

and evaluation processes contribute to the successful delivery of high-quality software products.

ISO 9126 criteria was used to evaluate the developed system. These were: Functionality, Reliability, Usability, Maintainability, Efficiency and Portability



Source: https://en.wikipedia.org/wiki/ISO/IEC_9126

Figure 11. **ISO/IEC 9126**

The system used ISO/IEC 9126 to create a high quality of all software-intensive products' that is ensured, including systems like safety-critical, where lives are at risk from software failure. A product's internal qualities serve as the foundation for achieving the necessary external quality performance, which in turn serves as the foundation for achieving quality in use.

Functionality

The developed system is considered functional since the set of functions covers all of the specified user objectives and produces the correct results with the required degree of precision. The system carried out the tasks that the users have specified, such as searching for and visualizing information. The results of the user queries could be based on the criteria provided by the user and should correspond to the user's expected result.

Stress Testing

Stress testing, also known as load testing or performance testing, is a technique used to evaluate the performance, stability, and responsiveness of a system or application under extreme conditions. The purpose of stress testing is to identify the system's breaking points and understand how it behaves under heavy loads. During stress testing, the system or application is subjected to high levels of simulated user traffic, data input, or other demanding scenarios to determine how it performs under such conditions. The objective is to push the system beyond its normal operating limits and observe how it responds.

By testing software beyond the parameters of regular functioning, the stress testing technique analyzed the software's robustness. This test specifically evaluated the system's robustness and error handling under conditions of extremely high load. It even conducts tested that go beyond the typical operating point and examines how the system performed in challenging circumstances. Stress testing was done to make sure the system won't fail in a time of need. The main objective of stress testing was

to exercise software at and above its maximum design load in order to ascertain its behavioral boundaries and assessed its security mechanism in critical systems.

They conducted a stress test on the system where they used software tools such as Loader.io to make it possible. In their case since their developed system was client-based they gather information on how many users they had that used their system and the result was 96 users including the client. But for the stress testing they tested the system with 250 users per second within 1 minute.

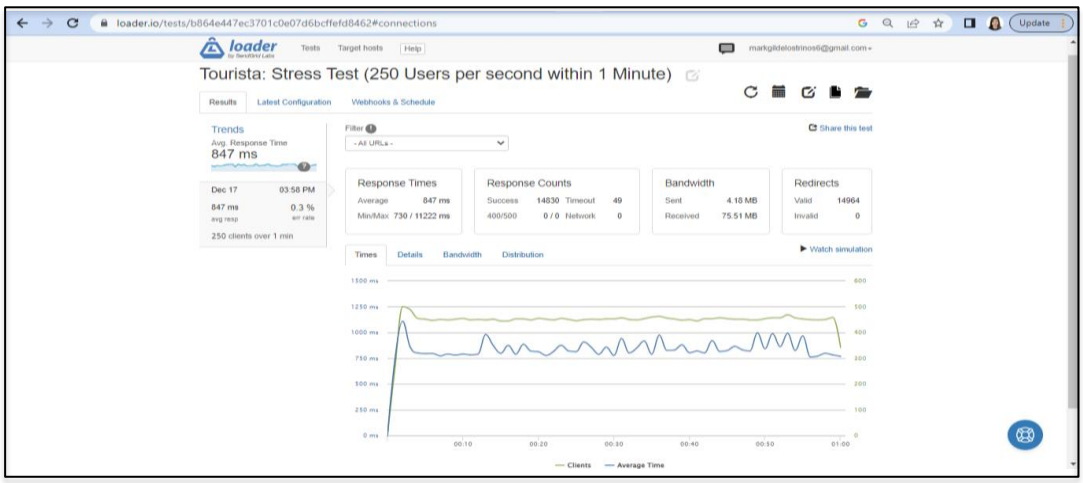


Figure 12. **Stress Test Result**

Figure 12 shows the stress testing had conducted to be able to test the developed system. To measure test conditions for information being pushed to the developed system, the researcher used the POST method. The result showed that if there were 250 users that used the system per second within 1 minute duration the average response time was 847 ms with 0.3% error rate. Stress testing is a valuable technique for evaluating system performance and identifying areas for improvement. By subjecting the system to extreme conditions, stress testing helps

ensure its reliability, scalability, and responsiveness, ultimately leading to a better user experience.

Maintainability

The developed system can be easily maintained by the administrator or anyone the admin gave permission to. The system remains stable for a long period of time.

Efficiency

The developed system has a database to collect and store information from the resorts. The system responds easily right after every transaction that was made.

Portability

Portability in the context of software refers to the ability of a software application to run on different platforms or environments without significant modifications. It involves designing and developing software in a way that allows it to be easily transferred or deployed across different systems, operating systems, hardware configurations, or cloud environments. The developed system performes its capabilities on what the user wanted to do without the hassle. The system has a user-friendly interface where it is easy to navigate.

Reliability

The developed system does the system's required task, for it’s reliability. Even if the Mabini Tourism Office does not have access to the internet, the system might be employed.

Usability

The developed system was useful in future deployments and that all functional requirements are met.

Testing Procedure

The system was put through its trials that confirmed that it functioned properly and achieved the required outcomes.

Table 11
Testing Procedure

Process Stages
Requirement Analysis Test Plan
System Testing
Test Design
Test Incident Report
Test Summary Report

Deployment

The system was uploaded online to test the website in the real-world scenario if the website needs adjustments or improvements. Then, users only need to search the site onto their devices.

Deployment Process

The deployment process refers to the set of activities involved in making a software application available for use in a production environment. It includes activities such as preparing the software, configuring the infrastructure, and releasing it to users. The deployment process may vary depending on the complexity of the application, the deployment environment, and the organization's specific requirements. From the project's baseline start to the system's planned completion,

The objectives, schedule, and approach for deploying project deliverable are all outlined in a deployment plan. It was a complete implementation strategy that considered the people, procedures, and technology required for the system to be implemented, embraced by the user community, and the system's benefits to be achieve. The deployment process refers to the activities and steps involved in making a software application available for use in a specific environment or system. It includes the preparation, configuration, and release of the application, ensuring its successful installation and functioning. It's important to note that the deployment process can be tailored and adjusted based on the specific requirements and complexity of the application being deployed.

To ensure a smooth and effective execution, the deployment procedure of *Tourista*, a reporting system created for the Mabini Tourism Office, is painstakingly designed and carried out. When choosing a web hosting company, the team took into account crucial elements including storage, bandwidth, security, and customer support. They ultimately decided on Hostinger. They registered the domain name "mabinitourism.com," which represents the tourist attraction of the Municipality of Mabini and is memorable and pertinent for the system. The team secured their account by establishing a strong username and password, prioritizing the security of their system, after supplying the relevant information, including contact data, payment preferences, and other required information. The web-based solution was meticulously set up for deployment by the team. They carefully examined the code to make sure there were no problems and that JavaScript, HTML, and other crucial

files were current. They also made that the database, if appropriate, was set up correctly and prepared to handle the system's data. The team then went ahead and uploaded the files to the server. They followed the instructions and used an FTP program to connect to the hosting provider's server.

After establishing the connection, they uploaded the website files to the specified directory, taking care to double-check that each file was in its proper location and that the appropriate permissions were in place. The team set up the domain settings to provide internet access to the web-based system. They connected the domain to their hosting account by entering the nameservers the hosting company provided. They carefully saved the adjustments, which allowed the DNS propagation process to take place. The web-based system's launch is the last step. The team entered the domain name into a web browser, checking if the system was online and ready to be accessed by users. Conducted extensive testing, ensuring that all functions, buttons, and the overall design were working seamlessly.

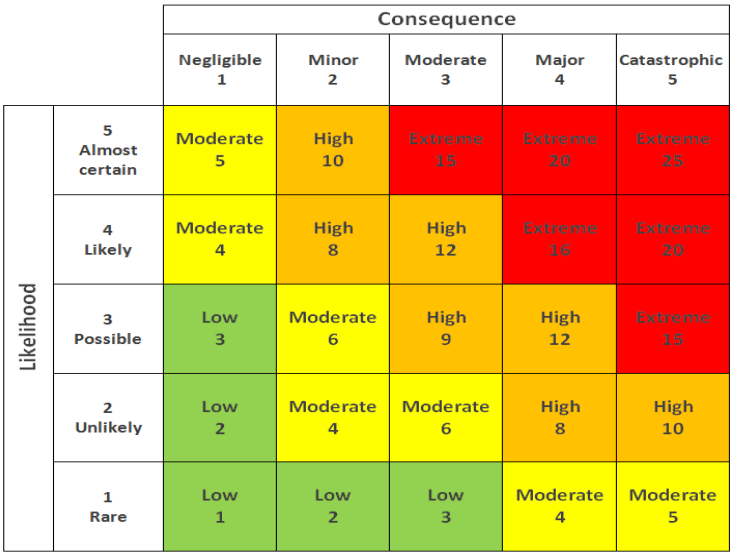
Overall, the team's well-planned and executed deployment process ensured the successful deployment of *Tourista*, providing the Mabini Tourism Office with a reliable and functional reporting system. It encompasses the preparation, packaging, distribution, installation, configuration, and verification of the software in the target environment. The deployment process may vary depending on the specific application, technology stack, and deployment infrastructure used.

Maintenance Plan

The system provided a maintenance plan to enhance the performance of the application for protection by keeping the application free from bugs and software issues.

Risk Management Plan

The severity of a potential failure and the likelihood of it occurring was combined to calculate the risks of the designed system as shown in Figure 13.



Note. Standard Risk Matrix - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/A-standard-risk-matrix_fig7_323570642 [accessed 24 Nov, 2022]

Figure 13. **Risk Assessment Matrix**

The better the risk assessment, the greater the overall remedy. This method helps stabilize the weight of severity and opportunity incidence of the risks in the improvement of the project. It's important to note that the specific scales, definitions,

and risk response strategies can be tailored to the organization's needs and the nature of the project or system being assessed.

Risk Matrix

A risk matrix, also known as a risk assessment matrix or probability-impact matrix, is a visual tool used to assess and prioritize risks based on their likelihood of occurrence and potential impact. It helps organizations identify and evaluate risks, determine their significance, and develop appropriate risk mitigation strategies. The higher the overall solution, the better the risk evaluation. This strategy aids in the improvement of the project by stabilizing the severity and potential incidence of dangers.

Table 12

Risk Matrix

RISKS	SEVERITY	PROBABILITY	RISK LEVEL
Technical Problem	Tolerable	Medium	High
Emergencies	Tolerable	Medium	Medium
Hardware Problem	Tolerable	Medium	Hidg
Financial	Tolerable	High	Medium

Risks are unexpected events that may or may not occur and impact the project outcome in some way. A risk matrix was essentially a tool that could help to understand the risks the organization faces, and their overall likelihood and severity, in a visual way. Risks that could appear related to the project included technical problems, unexpected emergencies, and financial problems as shown in Table 12.

It's important to note that risk matrices can vary in their design and complexity, depending on the specific needs and context of an organization.

Additionally, organizations may develop their own risk matrix templates or customize existing ones to align with their risk management processes and objectives.

Application of Service Management

Service management finds application in various industries and sectors to improve the delivery of services to customers and ensure efficient operations. Service management principles are applied to customer service operations to enhance the customer experience. It involves managing customer interactions, handling inquiries, resolving complaints, and providing support through various channels such as phone, email, chat, or self-service portals. Customer service management aims to ensure prompt and efficient service delivery, customer satisfaction, and customer loyalty.

The application of service management in the developed system, a management that enabled the integration and coordination of processes in order to achieve certain goals through the efficient use of the resources. It's a way for an organization to keep track of its user interactions. An organization may better plan and manage its user interactions when it has quick and easy access to client data. Businesses could achieve their goal by exceeding customer expectations with exceptional service. By adopting service management principles, organizations can enhance customer satisfaction, optimize service delivery, and drive operational excellence.

CHAPTER IV

RESULTS AND DISCUSSIONS

This chapter discusses the tests, evaluation, observation, and verification in developing the system with a different design in system coding, testing, and implementing the developed capstone project *Tourista*: Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas.

To provide tourist information from the resort to the Tourism Office by giving an account to the resort owner.

They created a web-based application for the Tourism Office of Mabini Batangas to allow the Tourism Admin to collect tourist information from resorts. Both Admin and Resorts can access the system anytime by connecting online and having an account.

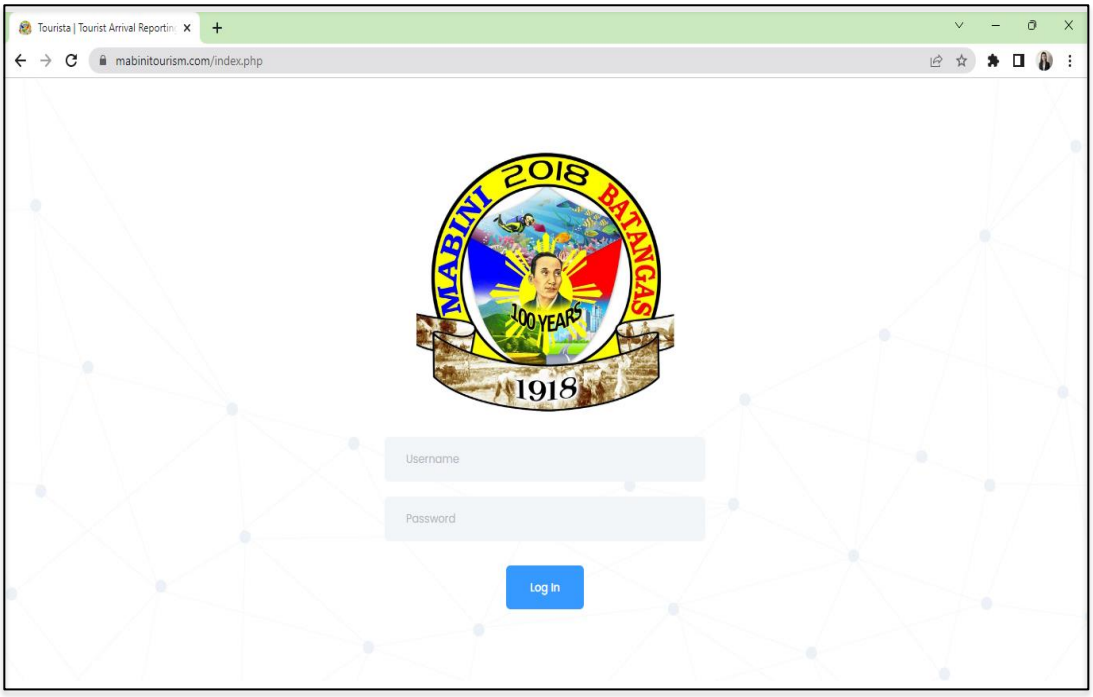


***Figure 14*. Tourista Login**

In this case, only the Admin can create the account for each resort. Moreover, they used web hosting and domain to be able to access the website or web page onto the Internet, as well the JavaScript, HTML and CSS for the frontend of the system. To store the collected data, and for the backend, the MYSQL database was used.

Figure 14 illustrates the Login Page of the *Tourista* system where admin and resort input their credentials to be able to login and use the system. The researchers made the login in one portal but with different login access since the account of admin and resort displayed different dashboard and modules.

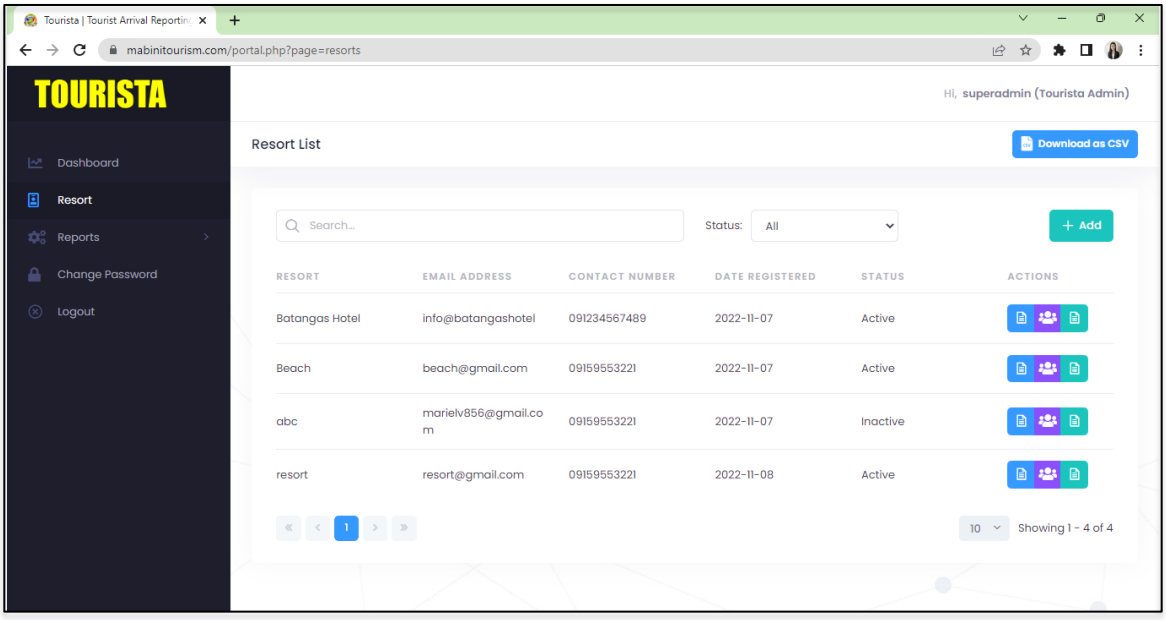


Figure 15. **Tourista Resort**

Figure 15 shows the resort module for admin where admin was the one who created an account for each resort that registered or renew their business permit to the Tourism Office. Also the admin can also download the list of resorts and

filter the status of the resort whether the resort was active, inactive or closed. Moreover, admin also updated the resorts information and viewed the list and monthly report of tourists they accommodated as well as download it.

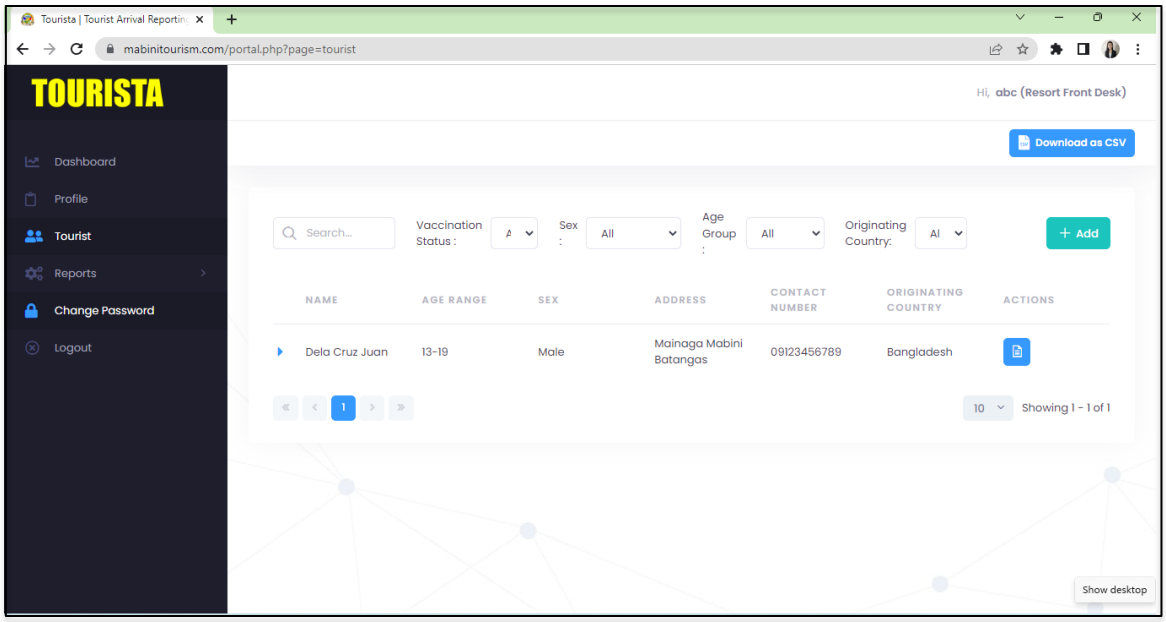


Figure 16. **Tourista Add Tourist**

Figure 16 displays the tourist module for the resort account where the assigned resort front desk staff had the ability to add tourist information regarding the tourist they accommodated. Also they filtered the data they wanted to view such as tourist vaccination status, sex, age group and originating country as well as they downloaded the list of the tourist.

To develop a dashboard module to show the total number of tourists from resorts.

The developed a dashboard module for both admin and users that showed the number of reports. For the Admin dashboard, it displayed the total registered

resort, total tourist visits today, total tourist visits this week, total tourist visits this month and total tourist visits this year. While for the dashboard of the user which was the resort, it displayed the total tourist visits today, total tourist visited this week, total tourist visited this month and total tourist visited this year.

Furthermore, to be able to make this possible the researcher used JavaScript, HTML and CSS for the frontend of the system.To store the collected data, and for the backend, MYSQL database was used.

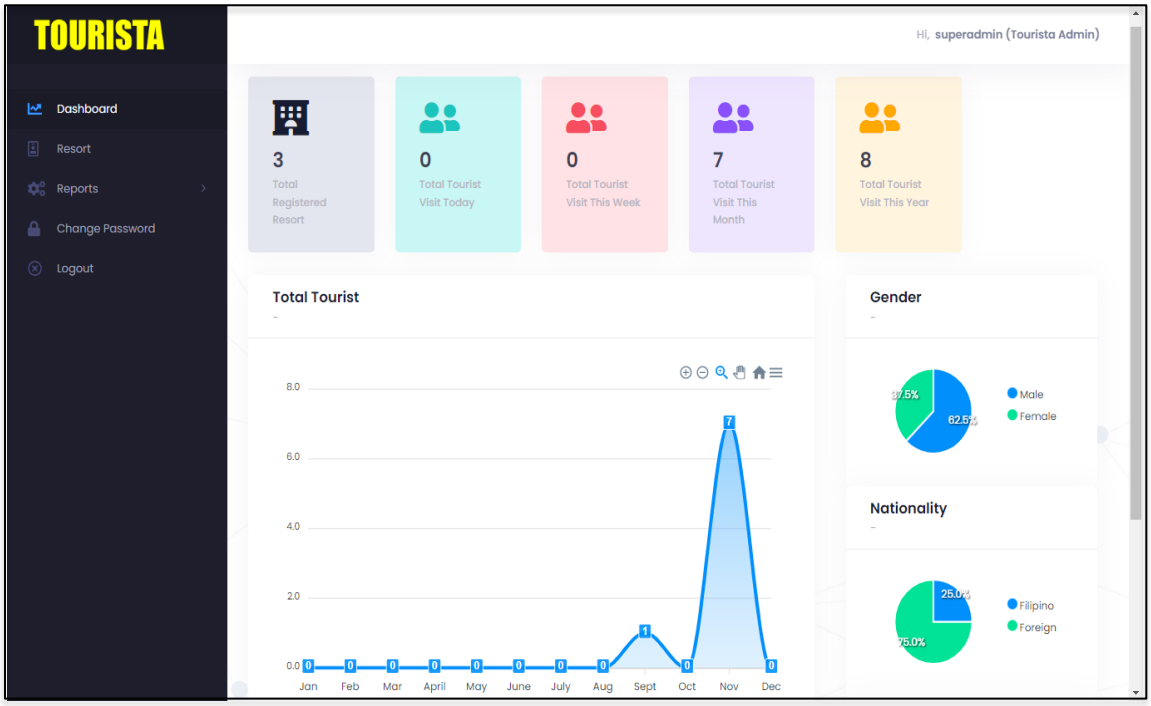


***Figure 17*. Tourista Admin Dashboard**

Figure 17 displays the dashboard for the admin account where it was composed of a menu that contained different modules such as the dashboard, resort, reports, change password and logout. The admin dashboard also showed different features

such as the numbers regarding the registered resorts, tourist and analytics about tourist profiles.

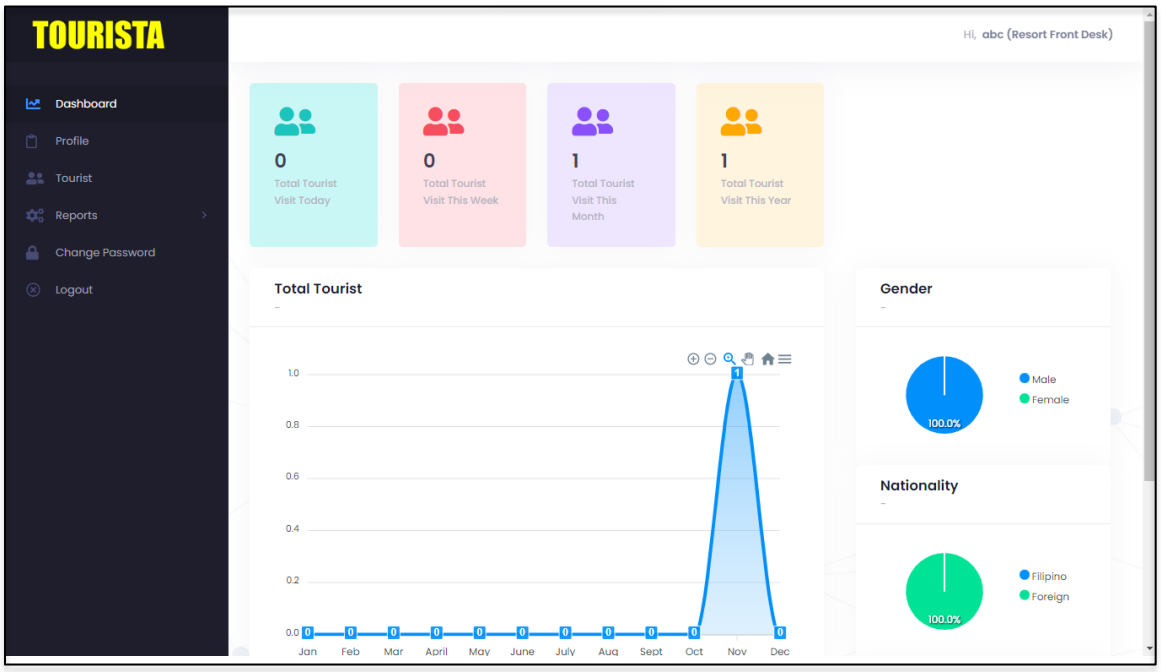


Figure 18. **Tourista Resort Dashboard**

Figure 18 displays the dashboard for the resort account where it was composed of a menu that contained different modules such as the dashboard,profile, tourist, reports, change password and logout. The resort dashboard also showed different features such as the numbers regarding the number and analytics of tourist profiles they accommodated.

To integrate analytical reports regarding the number of resorts, tourists and profile of the tourist.

The system incorporated analytics and was made reports regarding the number of resorts, tourists and profile of the tourist. To be able to use analytics in reporting on the number of resorts, tourists and profile of the tourist, the system

used rHighCharts as a software library written in pure JavaScript to make it possible.

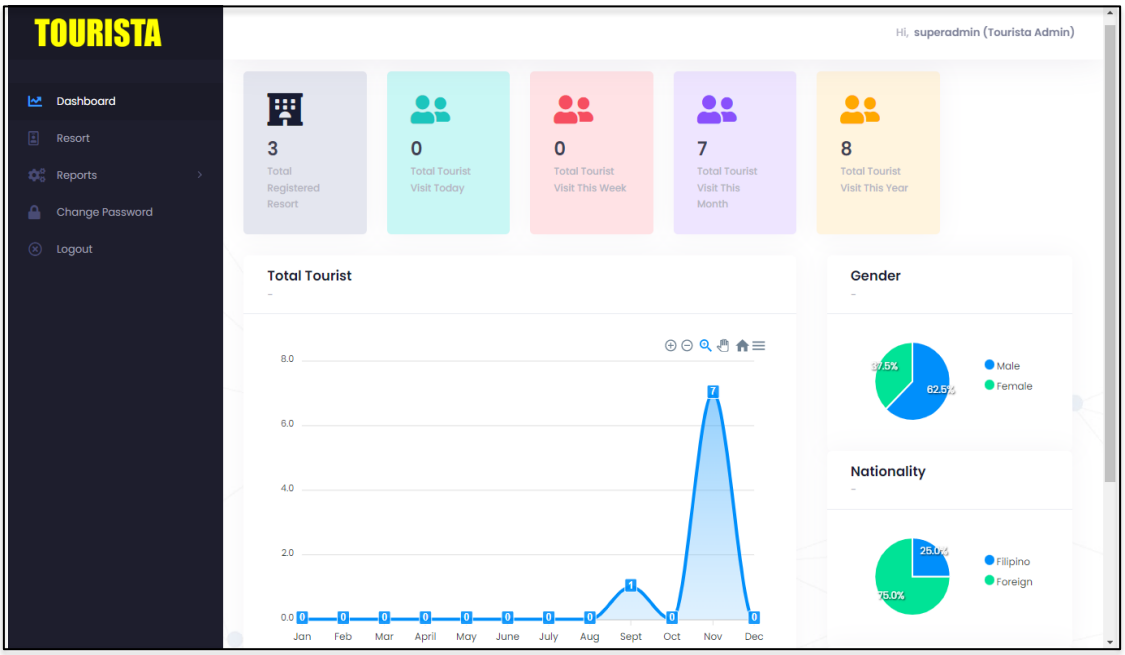


Figure 19. **Tourista Admin Dashboard**

Figure 19 displays the tourist analytics for the admin account regarding all of the total registered resorts, total number of tourists today, this week, month and year. It also provided graphic analytics on overall profile of tourist particularly on age, sex and nationality. A system dashboard is a visual representation of key metrics and data points that provide an overview of the system's performance, health, and status. It offers a centralized and real-time view of important information, allowing users to monitor and analyze the system's behavior and make informed decisions. By leveraging a system dashboard, users can monitor, analyze, and optimize system performance, proactively detect issues, and ensure a smooth

and reliable operation. It promotes transparency, facilitates data-driven decision-making, and improves overall system management and performance.

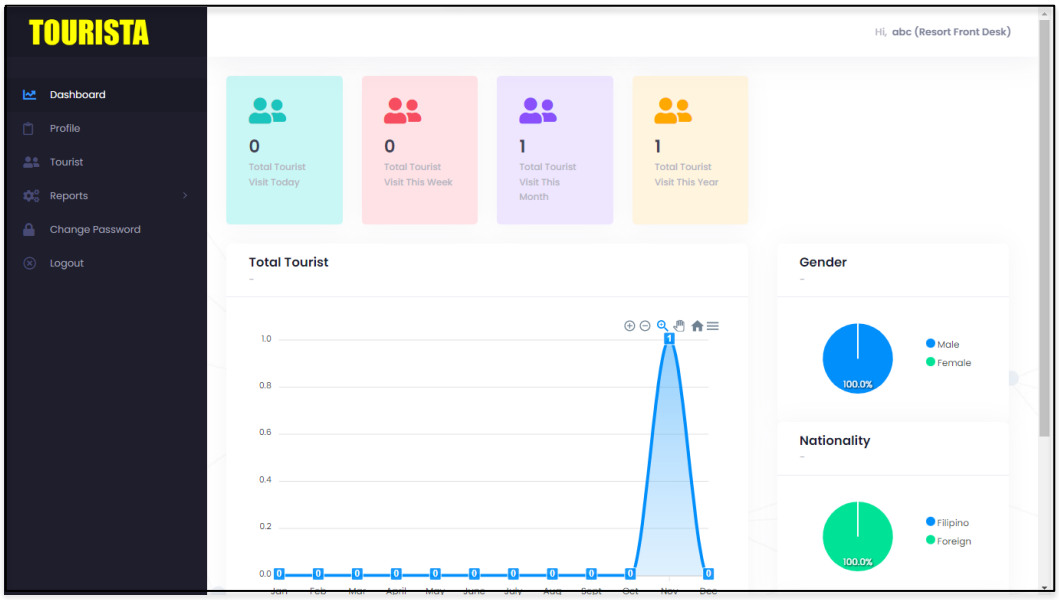


Figure 20. **Tourista Resort Dashboard**

Figure 20 displays the tourist analytics on resorts accounts regarding all of the total registered resorts, total number of tourists today, this week, month and year. It also provided graphic analytics on overall profile of tourist particularly on age, sex and nationality.

Testing and Evaluation

The following tables show the test results of the system done for the *Tourista*: Tourist Arrival Reporting and Tracking System. The system created an end-to-end testing and evaluation process to ensure the developed system's functionality, usability, maintainability, reliability, efficiency, and portability. Bugs, crashes, poor navigation, slow loading times, and security breaches are all things that was avoided when using the application. They invited 25 respondents to be the testers of the

system. The respondents were limited to 25 due to limited resources, and to ensure the safety and health of the respondents.

They conducted a survey to the resorts within the Municipality of Mabini. Quantitative research shall be observed as it acquired opinions and numerical data from the respondents through questionnaires . It was utilized and got an in-depth understanding of the features that were based on the objectives of the study.

The system used different ways of gathering information that included the internet survey or questionnaires.

Gathering information about the resorts within the Municipality of Mabini was one of the most important steps in the development of the *Tourista*: Tourist Arrival Reporting and Tracking System. They gathered the information through the use of Resorts Website and Facebook Page as well as through Tourism Admin Officer Mr. Florian D. Bueno of the Mabini Tourism Office. Moreover, through conducting face to face interview and dissemination of Google Forms thru email and face to face interview surveys from the resorts..

The survey questionnaire was the crucial instrument used in gathering the data needed. Its intention was to know the feedback of the user or the beneficiary of the *Tourista*: Tourist Arrival Reporting and Tracking System.

Construction of Questionnaire

The researchers used the 6 characteristics and sub characteristics of the ISO/IEC 9126 Standard Model as the basis for the development of the questionnaire.

The survey questionnaire was made thru basing on the internet sources like Google and Search engines.

This part showed how the respondents respond to the questionnaire provided. It was a kind of questionnaire that consisted of six different tests applying the characteristics and sub characteristics of the ISO/IEC 9126 Standard Model.

Table 13
Metrics

Metrics	Weight	Interpretation
Strongly Agree	5	4.20-5.00
Agree	4	4.19-3.40
Neutral	3	3.39-2.60
Disagree	2	2.59-1.80
Strongly Disagree	1	1.79-1.00

Table 13 shows the metrics to measure functionality, usability, maintainability, reliability, efficiency, and portability. The metrics represented strongly agree, agree, neutral, disagree, and strongly disagree, with the weight of five, four, three, two, and one respectively. Metrics in questionnaires refer to the specific measurements or data points collected through survey questions. These metrics are used to quantify and analyze responses to gather meaningful insights and draw conclusions from the survey data. Metrics in questionnaires are often used to assess opinions, attitudes, behaviors, preferences, or demographic information of survey respondents. By incorporating these metrics into questionnaires, survey designers can collect structured data that can be quantified and analyzed. Analyzing survey metrics helps researchers and organizations understand trends, identify patterns, evaluate satisfaction levels, assess preferences, or gain insights into

specific target populations. These metrics aid in decision-making, improving products or services, identifying areas for improvement, and addressing the needs of the surveyed population.

Questionnaire of User

Table 14

Functionality for Users

Functionality	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
All the modules work as expected.	10	8	7	0	0
The web-based system is accessible for the users and easy to use.	13	9	3	0	0
Mismatch or blank inputs shows an error message.	10	5	10	0	0
All system functions and features work well..	11	10	4	0	0
If the user's input is compatible the system works properly.	8	14	3	0	0
Users can freely navigate through the screens without any difficulties.	15	8	2	0	0

Test results in Table 14 showed the specified functionality of the developed system. Most of the respondents strongly agreed that all system functions and features work well. Also, 10 out of 25 respondents strongly agreed that the system was accessible for the users. Out of 25 respondents, 22 strongly believed that the users can freely navigated the data through the screens without any difficulties. All were agreed that if the user's input was incompatible, the system showed error. Based on the results, it was noticeable that users found that if the user's input was compatible, the system worked properly. When it comes to software applications,

functionality refers to the features and capabilities that users can utilize to achieve their goals and tasks. The specific functionality provided to users depends on the nature of the application and the needs of its target audience.

Table 15

Usability for Users

Usability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The web-based system is user friendly and easy to use.	10	5	4	6	0
All modules of the web-based application such as the login and logout, add tourist, dashboard, and exporting/downloading reports work as expected.	14	9	2	0	0
The results produced by the web-based system are understandable, appropriate, and correct.	12	10	3	0	0
The web-based system achieved the specified goals to use the system effectively, efficiently, and free from risk.	15	7	2	1	0
The web-based system features such as reports module help resort to easily compile and to generate monthly accommodation reports.	13	10	2	0	0

Test results in Table 15 showed the specified usability of the developed system. It was noticeable that the users found the web-based system user-friendly and easy-to-use application based on the results. Also, users found the different modules of the application were working as expected. Next, 21 out of 25 respondents strongly agreed that the results produced by the system were understandable, appropriate, and correct. At the same time, 17 of the 25 respondents

said that the system achieved the specified goals to use the system effectively, efficiently, and free from risk. Lastly, most respondents strongly agreed that the system features such as the Tourist Module helped the resorts to record the information of tourists they accommodated and generated reports.

Table 16

Maintainability for Users

Maintainability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The system is designed for safety.	6	12	3	4	0
The system is used to minimize human errors and time-consuming activity.	4	8	6	7	0
The system has an easier access for maintenance	7	9	4	5	0
The system maintains consistency when it comes to its functions.	3	10	7	5	0
The system works consistently and doesn't have any error when connected to the network.	5	11	4	5	0

Test results in Table 16 showed the specified maintainability of the system. In this table, it was clearly shown that most of the respondents said that the system minimized human errors and time-consuming activity. Also, the majority of the twenty-five respondents either agreed or strongly agreed that the system maintained consistency when it came to its functions and did nott have any error when connected to the network. Maintainability refers to the ease with which software can be maintained, updated, and modified over its lifecycle. While maintainability is

typically associated with developers and software engineers, there are certain aspects of maintainability that can directly impact users. Overall, maintainability plays a crucial role in ensuring that software remains functional, reliable, and up-to-date for users.

Table 17

Reliability for Users

Reliability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The web-based system performance is functional and works well.	10	6	3	5	1
The web-based system meets the ability to satisfy the needs of regular operations	8	7	5	5	0
The web-based application generates reports regarding tourist number and profiles accurately.	6	9	5	5	0
The web-based application provides up to date information.	5	4	8	7	1
The web-based application can be accessed through any device since it is mobile responsive and as long as it is connected to wifi.	6	8	8	3	0

Table 17 showed the test results regarding the reliability of the system. Most of the respondents strongly agreed that the performance of the system was functional and worked well. Also, 25 out of 25 respondents strongly agreed that the system mes the ability to satisfy the needs of regular operations. Out of 25 respondents, 22 strongly believed that the data that the reports regarding tourist numbers and profiles were accurate. 20 out of 25 agreed that the system can be accessed thru any devices since it was mobile responsive and as long as it was

connected to wifi. Based on the results, it was noticeable that users found that the system worked on any device platform.

Table 18

Efficiency for Users

Efficiency	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Client requirements fulfilled by the system.	25	0	0	0	0
Latest tools were used.	22	1	2	0	0
No occurring errors every time the users browse the system	23	1	1	0	0
All functions are working correctly.	23	2	0	0	0
Tasks being done efficiently.	24	1	0	0	0

Table 18 shows the test result of efficiency of the system. In this table, it was clearly shown that the majority of the respondents strongly agreed that the client requirement had been fulfilled by the system. Also, the majority of the respondents either agreed or strongly agreed that the system had no occurring errors every time the users browsed the system and all the functions were working properly. Efficiency is a key factor in providing a positive user experience and maximizing user productivity. By focusing on efficiency during software design and development, developers can create software that optimizes user workflows, minimizes wait times, and simplifies tasks, resulting in a more productive and satisfying user experience. Efficiency, in the context of software applications, refers to the ability of the software to perform tasks quickly and effectively, minimizing

unnecessary steps or delays. When software is designed with efficiency in mind, users can benefit in several ways.

Table 19
Portability for Users

Portability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The system works accurately with any device.	25	0	0	0	0
The system works well when connected to any kind of networks	24	1	0	0	0
The system works well when connected to any kind of browsers	20	3	2	0	0
The accounts of the users can open when connected anytime and anywhere the users want.	25	0	0	0	0
The system works well with any kind of Operating System.	23	2	0	0	0

Test results in Table 19 show the specified portability of the system. In this table, it was clearly shown that most of the respondents strongly agreed that the system worked accurately with any device. Also, the majority of the fifteen respondents either agreed or strongly agreed that the system worked well when connected to any kind of network. 20 out of 25 users strongly agreed that the system worked well when connected to any kind of browser. All agreed that the accounts of the users opened when connected anytime and anywhere the users want. Lastly, 23 out of 25 agreed that the system worked well with any kind of Operating System. Overall, portability empowers users with flexibility, choice, and accessibility. Users

can select their preferred platform, switch between software solutions, collaborate with diverse teams, and adapt to evolving technology landscapes.

Questionnaire for Admin

Table 20
Functionality for Admin

Functionality	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The software performs the tasks required	1	0	0	0	0
The system achieved the expected result.	1	0	0	0	0
Only the admin can create an account for its user	1	0	0	0	0
The software prevent unauthorized access	1	0	0	0	0

Test results in Table 20 showed the specified functionality of the developed system. Most of the respondents, which was the admin, strongly agreed that all system functions and features worked well. Based on the result, it was noticeable that the admin found that the system achieved the expected result as well as the system worked properly. When it comes to software applications, administrators typically have additional functionality and capabilities compared to regular users. This extended functionality allows administrators to manage and maintain the application, configure settings, and perform administrative tasks. It's important to note that the specific functionality available to administrators may vary depending on the nature of the software application, the organization's requirements, and the level of administrative access granted. The goal is to provide administrators with

the necessary tools and capabilities to effectively manage and administer the software application and ensure its smooth operation within the organization.

Table 21
Usability for Admin

Usability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I would like to use this system frequently.	1	0	0	0	0
I found the system unnecessarily complex	0	0	0	0	1
The system was easy to use	1	0	0	0	0
I found the various functions in this system were well-integrated.	0	1	0	0	0
I would need the support of a technical person to use this system.	0	0	0	1	0

Test results in Table 21 showed the specified usability of the developed system. It was noticeable that the admin strongly agreed that he used it frequently and found the web-based system easy-to-use based on the results. Also, admin strongly disagreed that the difference found the system unnecessarily complex. Next, he agreed that the various functions in this system were well-integrated. At the same time, he disagreed that it needed the support of a technical person to use this system. Usability for administrators refers to the design and functionality of software applications that make them easy to understand, navigate, and use for administrative tasks. Admin usability focuses on providing an intuitive and efficient user experience for administrators, enabling them to effectively manage and administer the software. By focusing on usability for administrators, software applications can empower administrators to efficiently manage and administer the

system. A well-designed and user-friendly interface, task-oriented workflows, customization options, and helpful features contribute to a positive user experience and increased productivity for administrators.

Table 22

Maintainability for Admin

Maintainability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The data can be easily modified.	0	1	0	0	0
Effective information is offered with the system.	1	0	0	0	0
All of the features and capabilities that are anticipated from this system are present.	1	0	0	0	0

Test results in Table 22 showed the specified maintainability of the system. In this table, it was clearly shown that the admin strongly agreed that effective information was offered with the system and all of the features and capabilities that were anticipated from this system were present. Also, the admin agreed that the data can be easily modified. Maintainability for administrators refers to the ease with which software applications can be managed, updated, and maintained by administrators. It involves providing tools, features, and practices that simplify administrative tasks and ensure the ongoing health and stability of the software. By considering maintainability for administrators during the design and development of software applications, organizations can ensure that administrators can effectively manage, update, and maintain the software. Providing dedicated tools, configuration management, monitoring capabilities, documentation, and support

resources helps administrators keep the software running smoothly and ensures the long-term health and stability of the system.

Table 23
Reliability for Admin

Reliability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
There are no encountered errors in using the system.	0	0	0	1	0
The software is capable of handling errors.	0	1	0	0	0
The software is reliable when it comes to storing data.	1	0	0	0	0
The web-based application can be accessed through any devices since it is mobile responsive and as long as it is connected to wifi.	1	0	0	0	0
The web-based application provides up to date information.	1	0	0	0	0

Table 23 showed the test results regarding the reliability of the system. The admin strongly agreed that the software was reliable when it came to storing data. Also, the web-based application was accessed thru any devices since it was mobile responsive and as long as it was connected to wifi. Along with that, the web-based application provided up to date information. While the admin agreed that the software was capable of handling errors. On the other hand, the admin disagreed that there were no encountered errors in using the system. Reliability for administrators refers to the dependability and consistency of software applications in performing administrative tasks. Administrators rely on the software to be available, accurate, and consistent in its functionality, data management, and system administration capabilities. By focusing on reliability for administrators, software

applications can provide dependable and consistent functionality for administrative tasks.

Table 24

Efficiency for Admin

Efficiemcy	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The system responds quickly.	1	0	0	0	0
All functions are working correctly.	1	0	0	0	0
Tasks being done efficiently.	1	0	0	0	0
It is simple to access the software	1	0	0	0	0

Table 24 shows the test result of efficiency of the system. In this table, it was clearly shown that the admin strongly agreed to all of the questions given for the efficiency where the system responded quickly, all functions were working correctly, tasks being done efficiently and it was simple to access the software. Efficiency for administrators refers to the ability of software applications to enable administrators to accomplish their tasks quickly, accurately, and with minimal effort. Efficient software empowers administrators to streamline their workflow, automate repetitive tasks, and optimize their productivity. By focusing on efficiency for administrators, software applications can empower administrators to work more effectively and accomplish their tasks with less effort. Streamlined interfaces, task automation, bulk operations, customizable dashboards, and integration capabilities all contribute to the efficiency of software for administrators. The software should have a well-designed and intuitive user interface that allows administrators to

navigate and access features efficiently. Efficient software applications provide automation capabilities to eliminate manual and repetitive tasks.

Table 25

Portability for Admin

Portability	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The system can be used on different platforms.	1	0	0	0	0
It is simple to access the software.	1	0	0	0	0
The software adheres to portability requirements	1	0	0	0	0
The system works well with any kind of Operating System.	1	0	0	0	0

Table 25 showed the test results regarding the reliability of the system. The admin strongly agreed to all of the questions regarding portability of the system.. Based on the results, it was noticeable that users found that the system worked on any device platform and operating system. Portability for administrators refers to the ability of software applications to be easily moved or transferred between different environments, devices, or platforms without significant effort or loss of functionality. Portability enables administrators to access and manage the software from various locations or devices, providing flexibility and convenience. By considering portability for administrators during the design and development of software applications, organizations can provide flexibility and convenience in accessing and managing the software. Cross-platform compatibility, web-based or cloud-based access, mobile compatibility, data syncing, and export/import functionality all contribute to the portability of software for administrators.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the findings, conclusions and recommendations towards the clarification and a better understanding of the developed system entitled "*Tourista*: Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas" . It also includes the further enhancement of the system.

Summary of Findings

The researchers provided the summary of the system based on its objectives as given below.

The developed system provided that only the admin can create an account for each resort and access information for resorts and tourist reports that generated reports which was significantly beneficial since the resorts do not need to travel to be able submit the reports of the tourist they accommodated which was needed by the Tourism Office monthly.

The developed system presented a module such as a dashboard for admin and resort that helped them to monitor the numbers of tourists that entered and stay within the Municipality of Mabini

The developed system displayed analytics reports. For the admin, the system showed the total registered resort, total tourist visits today, this week, month and year. Along with that was the profiles of tourists particularly on age, gender and nationality. While for the user which was the resort, it was not exactly the same as

displayed from the admin dashboard since they did not need the total number of resorts.

Conclusions

Below are the conclusions drawn from the development of the system.

1. The developed system provides a more organized and presentable platform for administrators as well as resorts, particularly in terms of having their own account where they can add the tourists they accommodated and submitted it without having to travel to Mabini's Tourism Office.

2. The developed system provided a dashboard that enabled the users to easily monitor, assess, and analyze recorded data.

3. The developed system provided analytics on tourist profiles such as age, gender, and origin countries to assist users in easily identifying and making strategic decisions for the future.

Recommendations

The following recommendations were offered as possible ways to enhance the study:

Develop a mobile application for the tourist’s convenience and to improve user experience. Also integrate a QR Code for for easier and faster advance tourist registration to make . Apart from this, implement offline mode for the web application to operate when there is no internet connection or signal. Moreover, include dashboard for the tourist as well as group registration. Furthermore,

incorporate SMS notification for the resorts for them to be aware to submit their tourist report before every end of the month even if they are not logged in to the system.

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APPENDICES

APPENDIX A
SCHEDULE AND TIMELINE

SCHEDULE AND TIMELINE

TASK	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Requirement											
Design											
Development											
Testing											
Deployment											
Review											

A schedule and timeline are tools used to plan, organize, and track the sequence of activities, events, or tasks over a specific period. They provide a visual representation of the planned start and end dates, dependencies, and milestones related to a project, event, or any other endeavor. Schedules and timelines help individuals or teams manage their time effectively, stay organized, and meet deadlines. Schedules often include additional information like assigned resources, task durations, and important deadlines. Schedules are commonly used in project management to ensure that tasks are executed in a coordinated and timely manner. While timelines are used to track progress, identify key dates, and understand the overall timeline of a project, historical events, or any other series of activities.

Timelines can be depicted on a linear scale, with events plotted along a horizontal axis, or they can be more complex, showing parallel timelines or interconnected events. Timelines are often used in project management, history, research, or planning to provide a clear chronological perspective.

The table above illustrates the task schedule and the timeline for the developed system and lists the tasks completed throughout time. Requirements, Design, Development, Testing, Deployment, and Review were all part of this process. The requirements phase outlines the tasks that must be completed, as well as particular facts about the problem and solutions. The design phase began with the work of the requirements phase and created the external and internal stages from the ground up. They identified the development tools and requirements that were utilized to build the system in the Development phase to guarantee the scalability, usability, and compatibility with web browsers, and established an end-to-end testing and review process in the Testing phase. The efforts to officially release the developed program were described in the deployment phase. Also supplied a maintenance plan to improve the system performance. It would secure the program by keeping it free of bugs and software issues.

Overall, schedules and timelines are valuable tools for planning, organizing, and tracking activities. Whether in project management, event planning, or historical research, they help manage time, coordinate efforts, and ensure the successful completion of tasks within a specified timeframe.

APPENDIX B

PROJECT TEAMS AND RESPONSIBILITIES

PROJECT TEAMS AND RESPONSIBILITIES

ROLE	NAME	RESPONSIBILITIES
PROJECT LEADER	Princess Mariel O. Villanueva	Responsible for coordinating the various team members, clients, and the resources to complete the project on time. Liable for the developed web-based system.
DOCUMENT	Deserie Q. Tolentino	Responsible for the papers and documentation of the study
PROGRAMMER	Delos Trinos, Mark Gil	Responsible for the developed web-based system.

APPENDIX C

BUDGET COST

BUDGET COST

Category	Cost
Website Hosting and Domain	P3,776.00
Total	**P3,776.00**

The materials required to build the software and hardware for the developed system were listed in the table above. It includes system web hosting for the developed system's online use.

APPENDIX D

RELEVANT SOURCE CODE

RELEVANT SOURCE CODE

```
<?php
error_reporting(E_ALL);
date_default_timezone_set("Asia/Mani
la");
session_start();
if (isset($_SESSION["user"])) {
header("Location:
portal.php?page=registration
);}
$urlParts = explode("/",
$_SERVER["PHP_SELF"]);
if ($urlParts[1] == "sites" &&
$urlParts[2] == "regis") {
require_once
$_SERVER["DOCUMENT_ROOT"] .
"/" . $urlParts[1] . "/" .
$urlParts[2] .
"/config/paths.php";}
else {
require_once
$_SERVER["DOCUMENT_ROOT"]
"/config/paths.php";}
require_once DIR_MODELS .
"user.php";
require_once DIR_MODELS
"gam_facilitator.php";
$errorMessage = "";
if (isset($_POST["login"])) {
$user = new User();
$user->Username =
$_POST["username"];
$user->Password =
$_POST["password"];
$user = $user->LogIn();
if ($user !== false && $user->ID > 0) {
$gf = new GamFacilitator();
$gf = $gf->GetAssignedGam($user->ID);
if (!$gf && $user->Role > 2) {
$errorMessage = "User is not
assigned to a GAM yet.";}
else {
$userSession = $user
>ToArray(false);
$userSession["Password"] = "";
$userSession["GamID"] = $gf->GamID;
$userSession["Booth"] = $gf->Booth;
$_SESSION["user"] = $userSession;
if(intval($userSession["Role"]) < 3) {
header("Location: portal.php");} else {
header("Location:
portal.php?page=registration
);}}}
if ($errorMessage == "") {
$errorMessage = "Incorrect Username or
Password";
}}?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />
<title>ICC | REGIS</title>
<meta name="viewport"
content="width=device-width, initial-
scale=1, shrink-to-fit=no" />
<link rel="stylesheet"
href="https://fonts.googleapis.com/css?fa
mily=Poppins:300,400,500,600,700" />
<link
href="static/plugins/kt/css/pages/login/cla
ssic/login-4.css" rel="stylesheet"
type="text/css" />
<link
href="static/plugins/kt/plugins/global/plu
gins.bundle.css" rel="stylesheet"
type="text/css" />
<link
href="static/plugins/kt/plugins/custom/pr
ismjs/prismjs.bundle.css"
rel="stylesheet" type="text/css" />
<link
href="static/plugins/kt/css/style.bundle.cs
s" rel="stylesheet" type="text/css" />
<link
href="static/plugins/kt/css/themes/layout/
header/base/light.css" rel="stylesheet"
type="text/css" />
<link
href="static/plugins/kt/css/themes/layout/
header/menu/light.css" rel="stylesheet"
type="text/css" />
<link
href="static/plugins/kt/css/themes/layout/
brand/dark.css" rel="stylesheet"
type="text/css" />
<link
href="static/plugins/kt/css/themes/layout/
aside/dark.css" rel="stylesheet"
type="text/css" />
<link rel="shortcut icon"
href="static/images/fav.png" />
</head>
<body id="kt_body"class="header-fixed
header-mobile-fixed subheader-enabled
subheader-fixed aside-enabled aside-fixed
aside-minimize-hoverable page-loading">
<div class="d-flex flex-column flex-root">
<div class="login login-4 login-signin-on
d-flex flex-row-fluid" id="kt_login">
<div class="d-flex flex-center flex-row-
fluid bgi-size-cover bgi-position-topbgi-no
repeat"style="background-
image:url('static/plugins/kt/media/bg/bg-
2.jpg');">
<div class="login-form text-center p-7
position-relative overflow-hidden">
```

```
<imgclass="mb5"src="static/images/logo.png " alt="" width="325" height="300">
<div class="login-signin">
<form class="form" method= "POST">
<div class="form-group mb-5">
<input class="form-control h-auto form-control-solid py-4 px-8" type="text" value="<?php if ($errorMessage != "") print($_POST["username"]); ?>" placeholder="Username" name="username" autocomplete="off" required/>
</div>
<div class="form-group mb-5">
<input class="form-control h-auto form-control-solid py-4 px-8" type="password" placeholder="Password" name="password" required/>
</div>
<?php if ($errorMessage != "") { ?>
<div class="alert alert-custom alert-light-danger fade show mb-5" role="alert" style="padding:.5rem 2rem">
<div class="alert-icon"><i class="flaticon-warning"> </i></div>
<div class="alert-text"><?php print($errorMessage); ?></div>
<div class="alert-close">
<button type="button"class ="close" data-dismiss="alert" aria-label="Close">
<span aria-hidden="true"><i class="ki ki-close"></i> </span>
</button></div></div><?php }?>
<button type="submit" class="btn btn-primary font-weight-bold px-9 py-4 my-3 mx-4" name="login">Log In</button>
</form></div></div></div>
</div></div>
<script>var KTAppSettings = { "breakpoints":
{ "sm": 576, "md": 768, "lg": 992, "xl": 1200, "xxl": 1400 }, "colors": { "theme": { "base": {"white":"#ffffff", "primary": "#3699FF","secondary": "#E5EAEE","success": "#1BC5BD", "info": "#8950FC", "warning":"#FFA800", "danger": "#F64E60", "light": "#E4E6EF", "dark": "#181C32" }, "light": {"white":"#ffffff", "primary": "#E1F0FF","secondary": "#EBEDF3","success": "#C9F7F5", "info": "#EEE5FF", "warning":"#FFF4DE", "danger": "#FFE2E5", "light": "#F3F6F9", "dark":"#D6D6E0" }, "inverse": {"white":"#ffffff", "primary": "#ffffff","secondary": "#3F4254","success": "#ffffff", "info": "#ffffff", "warning":"#ffffff", "danger": "#ffffff", "light": "#464E5F", "dark": "#ffffff" } }, "gray": { "gray-100": "#F3F6F9","gray-200": "#EBEDF3","gray-300": "#E4E6EF","gray-400": "#D1D3E0","gray-500": "#B5B5C3","gray-600": "#7E8299","gray-700": "#5E6278","gray-800": "#3F4254","gray-900": "#181C32" } }, "font-family": "Poppins" };</script>
<script src="static/plugins/kt/plugins/global/plugins.bundle.js"></script>
<script src="static/plugins/kt/plugins/custom/prismjs/prismjs.bundle.js"></script>
<script src="static/plugins/kt/js/scripts.bundle.min.js"></script>
</body>
</html>
<?php
error_reporting(E_ALL);
date_default_timezone_set("Asia/Manila");
session_start();
if (isset($_SESSION["user"])) {
header("Location: portal.php");}
$urlParts = explode("/", $_SERVER["PHP_SELF"]);
if ($urlParts[1] == "sites" && $urlParts[2] == "regis") {
require_once $_SERVER["DOCUMENT_ROOT"] . "/" . $urlParts[1] . "/" . $urlParts[2] . "/config/paths.php";}
else {
require_once $_SERVER["DOCUMENT_ROOT"] . "/config/paths.php";}
require_onceDIR_MODELS."user.php";
$errorMessage = "";
if(isset($_POST["login"])) {
$user = new User();
$user->Username=$_POST["username"];
$user->Password = $_POST["password"];
$user = $user->LogIn();
if ($user !== false && $user->ID > 0) {
echo "login succeed"
//print_r($user);
$userSession = $user->ToArray(false);
$_SESSION["user"] = $userSession;
header("Location: portal.php");}
else{}
if ($errorMessage == "") {
$errorMessage"Incorrect
Username or Password";}}?>
<!DOCTYPE html>
<html lang="en">
```

```
<head>
<meta charset="utf-8" />
    <title>Tourista | Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas</title>
<metaname="viewport" content ="width=device-width, initial scale =1, shrink-to-fit=no" />
    <link rel="stylesheet"href="https://fonts.googleapis.com/css?family=Poppins:300,400,500,600,700" />
    <link href="static/plugins/kt/css/pages/login/classic/login4.css" rel="stylesheet" type="text/ css" />
<linkhref="static/plugins/kt/plugins/global/plugins.bundle.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/plugins/custom/prismjs/prismjs.bundle.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/css/style.bundle.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/css/themes/layout/header/base/light.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/css/themes/layout/header/menu/light.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/css/themes/layout/brand/dark.css" rel="stylesheet" type="text/css" />
    <link href="static/plugins/kt/css/themes/layout/aside/dark.css" rel="stylesheet" type="text/css" />
    <link rel="shortcut icon"
href="static/images/fav.png" />
</head>
<body id="kt_body" class="header-fixed header-mobile-fixed subheader-enabled subheader-fixed aside-enabled aside-fixed aside-minimize-hoverable page-loading">
    <div class="d-flex flex-column flex-root">
        <div class="login login-4 login-signin-on d-flex flex-row-fluid" id="kt_login">
            <div class="d-flex flex-center flex-row-fluid bgi-size-cover bgi-position-top bgi-no-repeat" style="background-image: url('static/plugins/kt/media/bg/bg-2.jpg');">
                <div class="login-form text-center p-7 position-relative overflow-hidden">
                    <img class="mb-5" src="static/images/logo.png" alt="" width="325" height="300">
                    <div class="login-signin">
                        <form class="form" method="POST">
                            <div class="form-group mb-5">
                                <input class="form-control h-auto form-control-solid py-4 px-8" type="text" value="<?php if ($errorMessage != "") print($_POST["username"]); ?>" placeholder="Username" name="username" autocomplete="off" required/>
</div>
<div class="form-group mb-5">
<input class="form-control h-auto form-control-solid py-4 px-8" type="password" placeholder="Password" name="password" required/>
</div>
 <?php if ($errorMessage != "") { ?>
<div class="alert alert-custom alert-light-danger fade show mb-5" role="alert" style="padding:.5rem 2rem">
<div class="alert-icon"><i class="flaticon-warning"></i></div>
<div class="alert-text"><?php print($errorMessage); ?></div>
<div class="alert-close">
<button type="button" class="close" data-dismiss="alert" aria-label="Close">
<span aria-hidden="true"><i class="kikiclose"></i></span>
</button></div></div><?php }?>
<button type="submit"class ="btn btn-primary font-weight-bold px-9 py-4 my-3 mx-4" name="login">Log In</button>
</form></div></div></div></div></div>
<script>var KTAppSettings = { "breakpoints": { "sm": 576, "md": 768, "lg": 992, "xl": 1200, "xxl": 1400 }, "colors": { "theme": { "base": { "white": "#ffffff","primary": "#3699FF","secondary": "#E5EAEE","success": "#1BC5BD", "info": "#8950FC", "warning":"#FFA800", "danger": "#F64E60", "light": "#E4E6EF", "dark": "#181C32" }, "light": { "white": "#ffffff", "primary":"#E1F0FF", "secondary":"#EBEDF3", "success": "#C9F7F5", "info": "#EEE5FF","warning": "#FFF4DE","danger": "#FFE2E5", "light": "#F3F6F9", "dark": "#D6D6E0" }, "inverse": { "white": "#ffffff", "primary": "#ffffff","secondary": "#3F4254","success": "#ffffff", "info":
```

```
"#ffffff", "warning":"#ffffff", "danger": "#ffffff", "light": "#464E5F", "dark": "#ffffff" } }, "gray": { "gray-100": "#F3F6F9", "gray-200": "#EBEDF3", "gray-300": "#E4E6EF", "gray-400": "#D1D3E0","gray-500": "#B5B5C3","gray-600": "#7E8299","gray-700": "#5E6278","gray-800": "#3F4254","gray-900": "#181C32" } }, "font-family": "Poppins" };</script>
<script src="static/plugins/kt/plugins/global/plugins.bundle.js"></script>
<script src="static/plugins/kt/plugins/custom/prismjs/prismjs.bundle.js"></script>
<script src="static/plugins/kt/js/scripts.bundle.min.js"></script>
</body>
</html>
<?php
session_start();
if (!isset($_SESSION) || !isset($_SESSION["user"])) {
header("Location: index.php");}
$userSession=$_SESSION["user"];
$urlParts = explode("/", $_SERVER["PHP_SELF"]);
if ($urlParts[1] == "sites" && $urlParts[2] == "tourista") {
require_once $_SERVER["DOCUMENT_ROOT"] . "/" . $urlParts[1] . "/" . $urlParts[2] . "/config/paths.php";}
else {
require_once $_SERVER["DOCUMENT_ROOT"] . "/config/paths.php";}
if (intval($userSession["Role"]) == 1 || intval($userSession["Role"]) == 2) {
$page = (!isset($_REQUEST["page"]) ? "dashboard" : $_REQUEST["page"]);}
else if (intval($userSession["Role"]) == 0) {
$page = (!isset($_REQUEST["page"]) ? "dashboard" : $_REQUEST["page"]);}
$jsv = 1.10009;
?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8" />
<title>Tourista | Tourist Arrival Reporting and Tracking System for the Municipality of Mabini, Batangas</title>
<meta name="viewport"content= "width=device-width, initial-scale=1, shrink-to-fit=no" />
<link rel="stylesheet"href= "https://fonts.googleapis.com/css?family= Poppins:300,400,500,600,700" />
<link href="static/plugins/ kt/plugins/custom/fullcalendar/fullcalendar.bundle.css" rel="stylesheet"type= "text/css" />
<linkhref="static/plugins/kt /plugins/global/plugins.bunde.css"rel="stylesheet"type="text/css" />
<link href="static/plugins/kt /plugins/custom/prismjs/prismjs.bundle.css"rel="stylesheet" type="text/css" />
<link href="static/plugins/ kt/css/style.bundle.css" rel="stylesheet" type="text/ css" />
<link href="static/plugins/kt /css/themes/layout/header/base/light.css" rel="stylesheet" type="text/css" />
<linkhref="static/plugins/kt/ css/themes/layout/header/menu/light.css" rel="stylesheet" type="text/css" />
<linkhref="static/plugins/kt/
css/themes/layout/brand/dark.css"rel="stylesheet"type="text/css" />
<link href="static/plugins/ kt/css/themes/layout/aside/dark.css"rel=" stylesheet" type="text/css" />
<link rel="shortcut icon" href="static/images/fav.png">
</head>
<bodyid="kt_body"class="header -fixed header-mobile-fixed subheader-enabled subheader-fixed aside-enabled aside-fixed aside-minimize-hoverable page-loading" .
```

APPENDIX E

SURVEY RESULTS

SURVEY RESULTS

For User

Test Cases

Functionality	Weighted Mean	Interpretation
All the modules work as expected.	4.12	Agree
The web-based system is accessible for the users and easy to use.	4.4	Strongly Agree
Mismatch or blank inputs shows an error message.	4	Strongly Agree
All system functions and features work well..	4.28	Strongly Agree
If the user's input is compatible the system works properly.	4.4	Strongly Agree
Users can freely navigate through the screens without any difficulties.	4.52	Strongly Agree
Mean	**4.28**	**Strongly Agree**

Usability	Weighted Mean	Interpretation
The web-based system is user friendly and easy to use.	3.76	Strongly Agree
All modules of the web-based application such as the login and logout, add tourist, dashboard, and exporting/ downloading reports work as expected.	4.48	Strongly Agree
The results produced by the web-based systems are understandable, appropriate, and correct.	4.36	Strongly Agree
The web-based system achieved the specified goals to use the system effectively, efficiently, and free from risk.	4.44	Strongly Agree
The web-based system features such as reports module help resort to easily compile and to generate monthly accommodation reports.	4.44	Strongly Agree
Mean	**4.29**	

Usability	Weighted Mean	Interpretation
The web-based system is user friendly and easy to use.	3.76	Strongly Agree
All modules of the web-based application such as the login and logout, add tourist, dashboard, and exporting/ downloading reports work as expected.	4.48	Strongly Agree
The results produced by the web-based systems are understandable, appropriate, and correct.	4.36	Strongly Agree
The web-based system achieved the specified goals to use the system effectively, efficiently, and free from risk.	4.44	Strongly Agree
		Strongly Agree

Maintainability	Weighted Mean	Interpretation
The system is designed for safety.	3.8	Strongly Agree
The system is used to minimize human errors and time-consuming activity.	3.36	Strongly Agree
The system has an easier access for maintenance	3.72	Strongly Agree
The system maintains consistency when it comes to its functions.	3.44	Strongly Agree
The system works consistently and doesn't have any error when connected to the network.	3.64	Strongly Agree
Mean	**3.59**	**Agree**

Reliability	Weighted Mean	Interpretation
The web-based system performance is functional and works well.	3.76	Strongly Agree
The web-based system meets the ability to satisfy the needs of regular operations	3.72	Strongly Agree
The web-based application generates reports regarding tourist number and profiles accurately.	3.64	Strongly Agree
The web-based application provides up to date information.	3.2	Strongly Agree
The web-based application can be accessed through any devices since it is mobile responsive and as long as it is connected to wifi.	3.68	Strongly Agree
Mean	**3.6**	**Agree**

Efficiency	Weighted Mean	Interpretation
Client requirements fulfilled by the system.	5	Strongly Agree
Latest tools were used.	4.8	Strongly Agree
No occurring errors every time the users browse the system	4.88	Strongly Agree
All functions are working correctly.	4.92	Strongly Agree
Tasks being done efficiently.	4.96	Strongly Agree
Mean	**4.91**	**Strongly Agree**

Portability	**Weighted Mean**	**Interpretation**
The system works accurately with any device.	5	Strongly Agree
The system works well when connected to any kind of networks	4.96	Strongly Agree
The system works well when connected to any kind of browsers	4.72	Strongly Agree
The accounts of the users can open when connected anytime and anywhere the users want.	5	Strongly Agree
The system works well with any kind of Operating System.	4.92	Strongly Agree
Mean	**4.92**	**Strongly Agree**

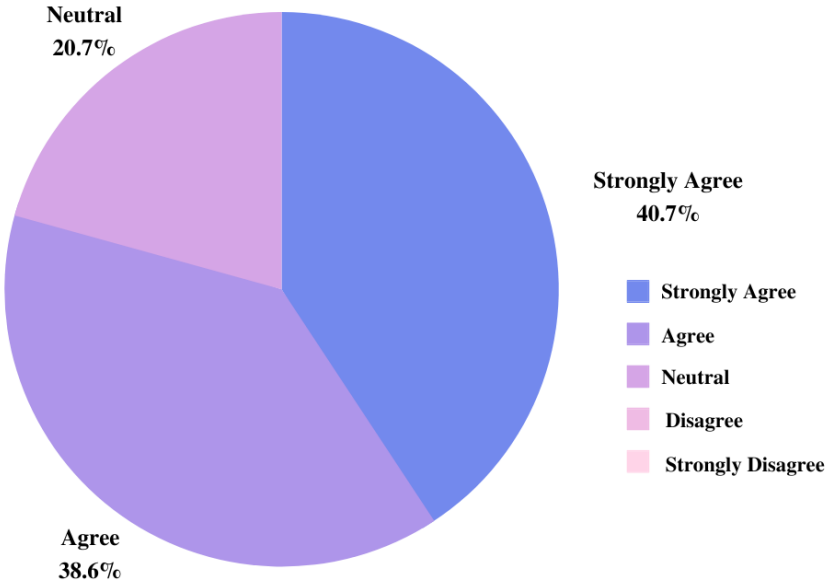


***Figure 21*. Functionality for Users**

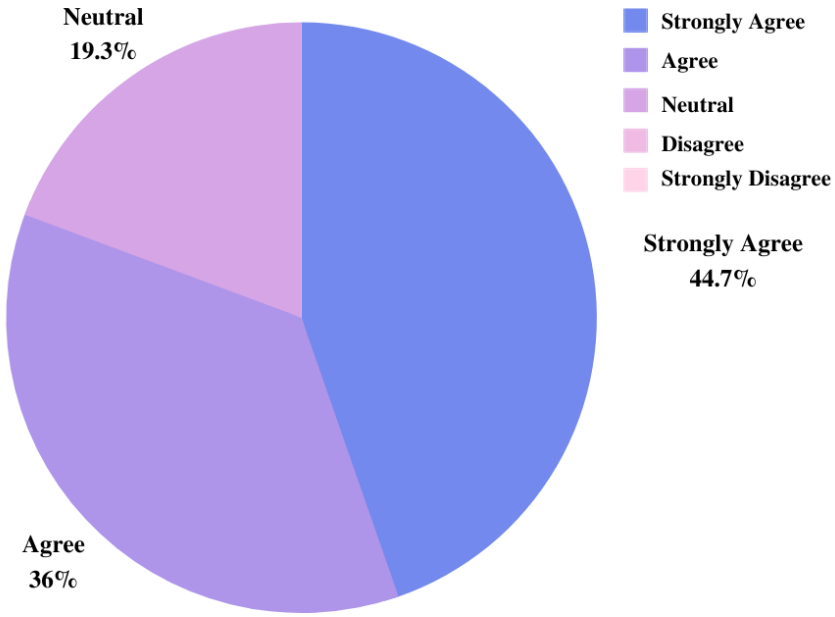


***Figure 22*. Usability for Users**

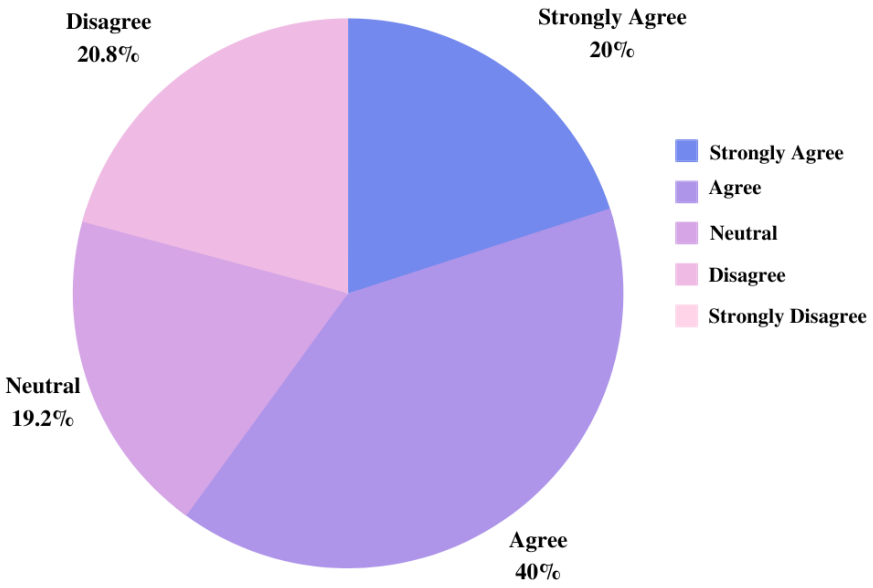


Figure 23. **Maintainability for Users**

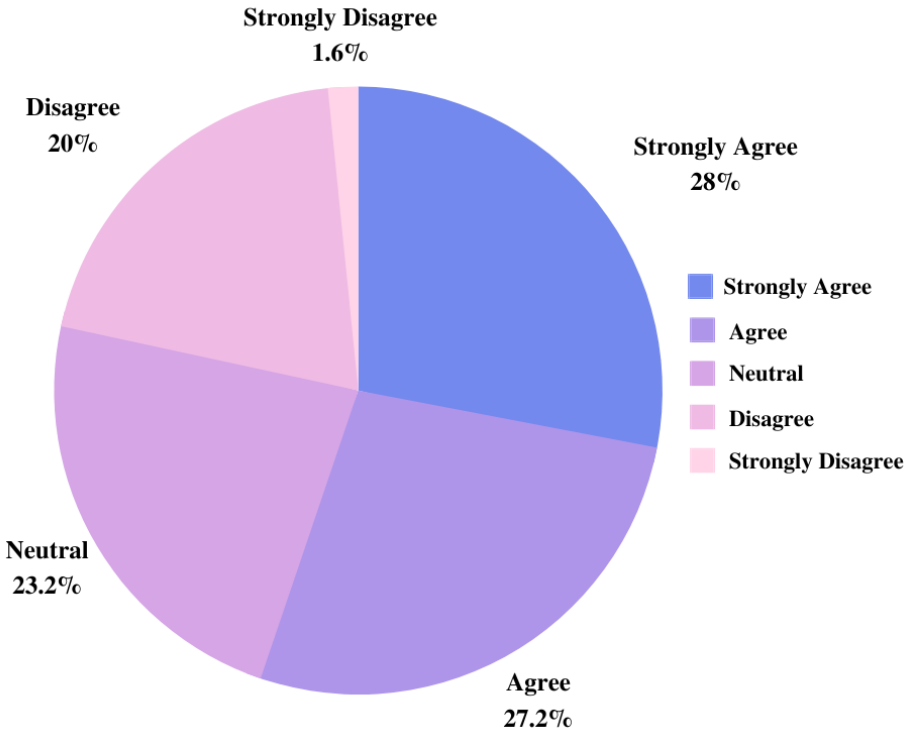


Figure 24. **Reliability for Users**

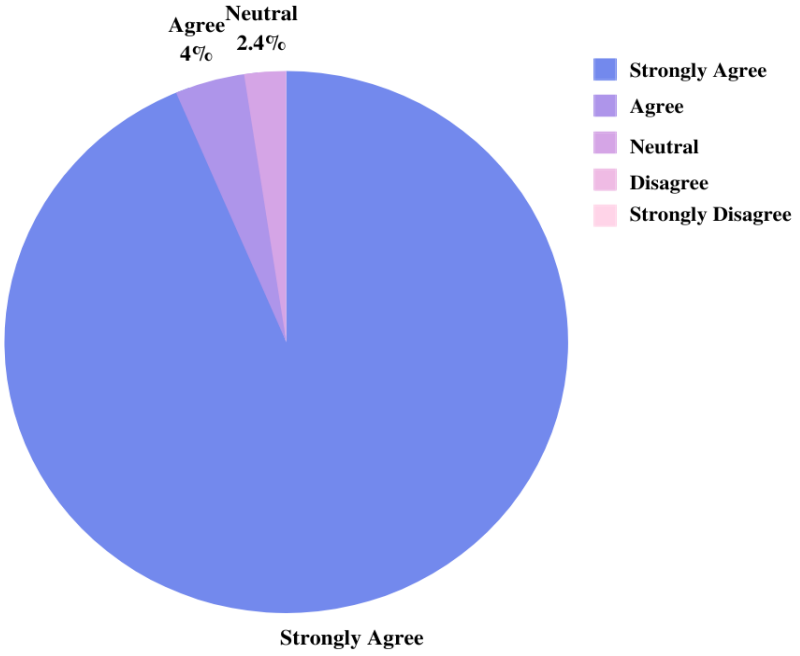


Figure 25. **Efficiency for Users**

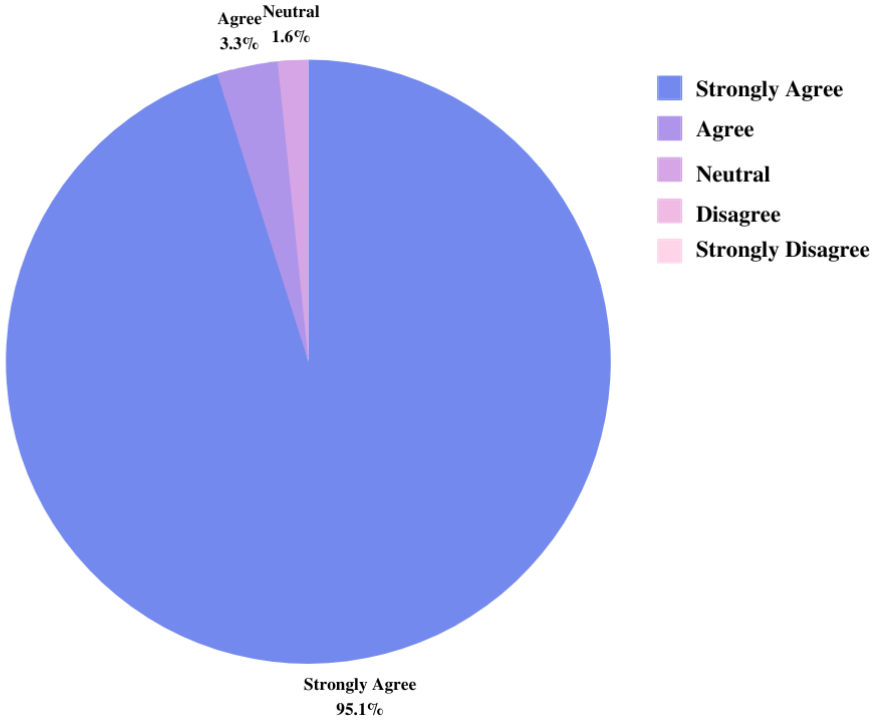


Figure 26. **Portability for Users**

Questionnaire for Admin

Test Cases

Functionality	Weighted Mean	Interpretation
The software performs the tasks required	5	Strongly Agree
The system achieved the expected result..	5	Strongly Agree
Only the admin can create an account for its user	5	Strongly Agree
The software prevent unauthorized access	5	Strongly Agree
Mean	**5**	**Strongly Agree**

Usability	Weighted Mean	Interpretation
I would like to use this system frequently.	5	Strongly Agree
I found the system unnecessarily complex	1	Strongly Disagree
The system was easy to use	5	Strongly Agree
I found the various functions in this system were well-integrated.	4	Agree
I would need the support of a technical person to use this system.	2	Disagree
Mean	**3.4**	**Agree**

Maintainability	Weighted Mean	Interpretation
The data can be easily modified.	4	Agree
Effective information is offered with the system.	5	Strongly Agree
All of the features and capabilities that are anticipated from this system are present.	5	Strongly Agree
Mean	**4.7**	**Strongly Agree**

Reliability	Weighted Mean	Interpretation
There are no encountered errors in using the system.	2	Disagree
The software is capable of handling errors.	4	Agree
The software is reliable when it comes to storing data.	5	Strongly Agree
The web-based application can be accessed through any devices since it is mobile responsive and as long as it is connected to wifi.	5	Strongly Agree
The web-based application provides up to date information.	5	Strongly Agree
Mean	**4.2**	**Strongly Agree**

Efficiency	Weighted Mean	Interpretation
The system responds quickly.	5	Strongly Agree
All functions are working correctly.	5	Strongly Agree
Tasks being done efficiently.	5	Strongly Agree
It is simple to access the software	5	Strongly Agree
Mean	**5**	**Strongly Agree**

Portability	Weighted Mean	Interpretation
The system can be used on different platforms.	5	Strongly Agree
It is simple to access the software.	5	Strongly Agree
The software adheres to portability requirements	5	Strongly Agree
The system works well with any kind of Operating System.	5	Strongly Agree
Mean	**5**	**Strongly Agree**

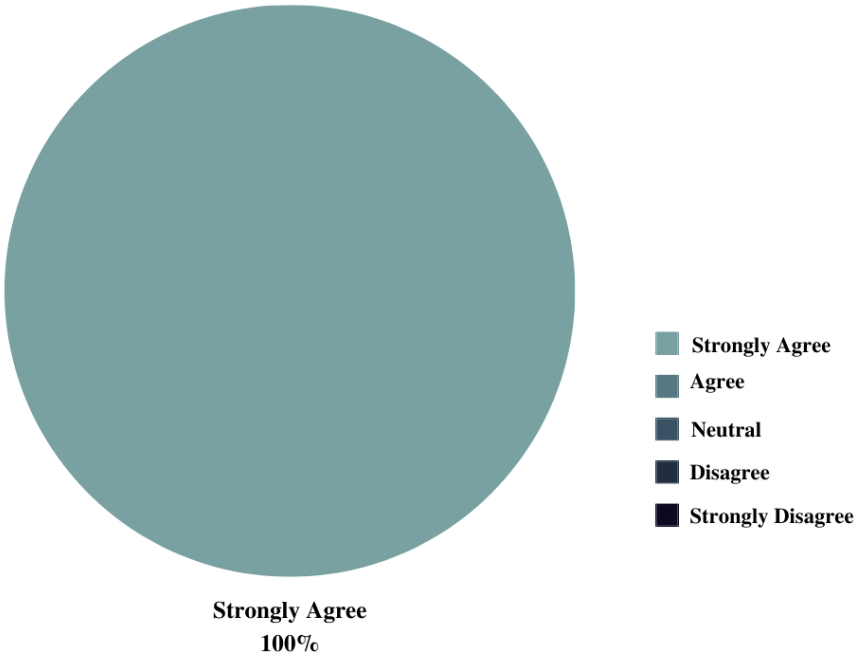


Figure 27. **Functionality for Admin**

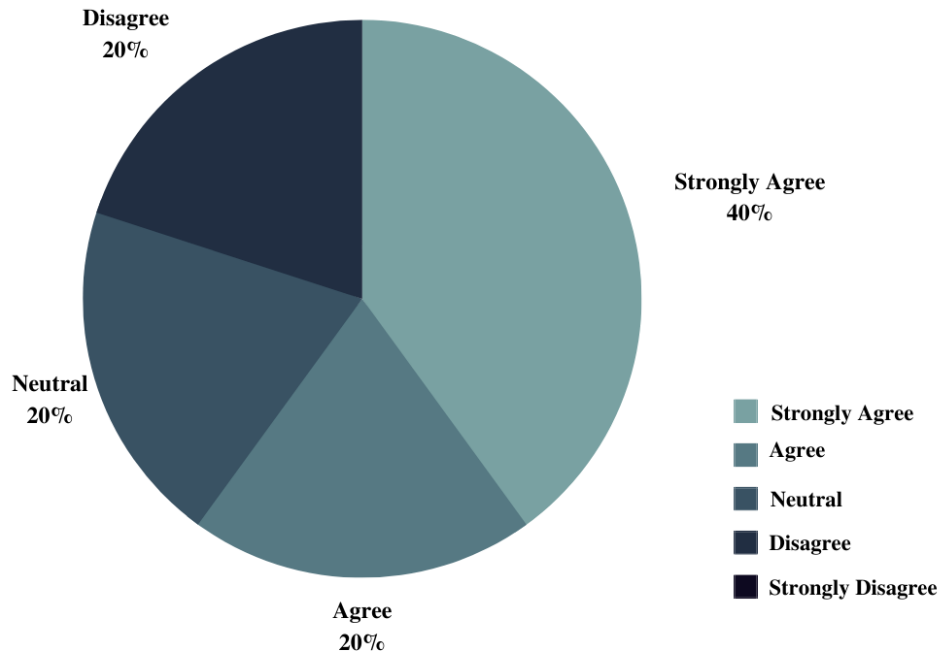


Figure 28. **Usability for Admin**

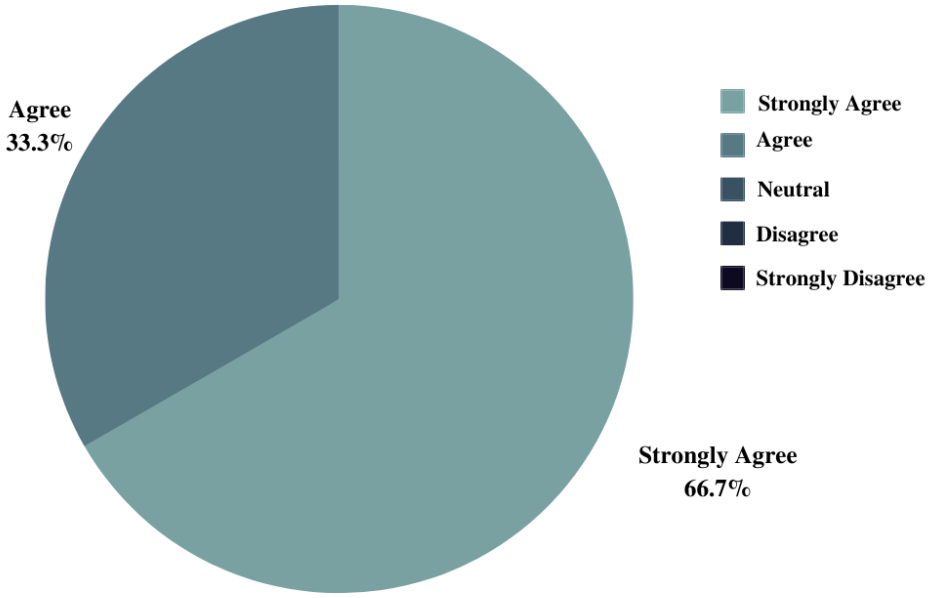


Figure 29. **Maintainability for Admin**

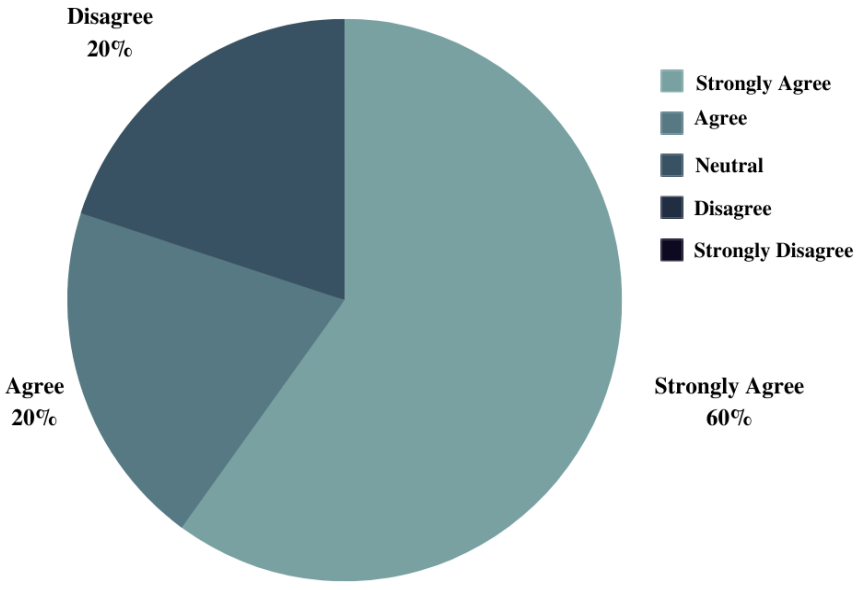


Figure 30. **Reliability for Admin**

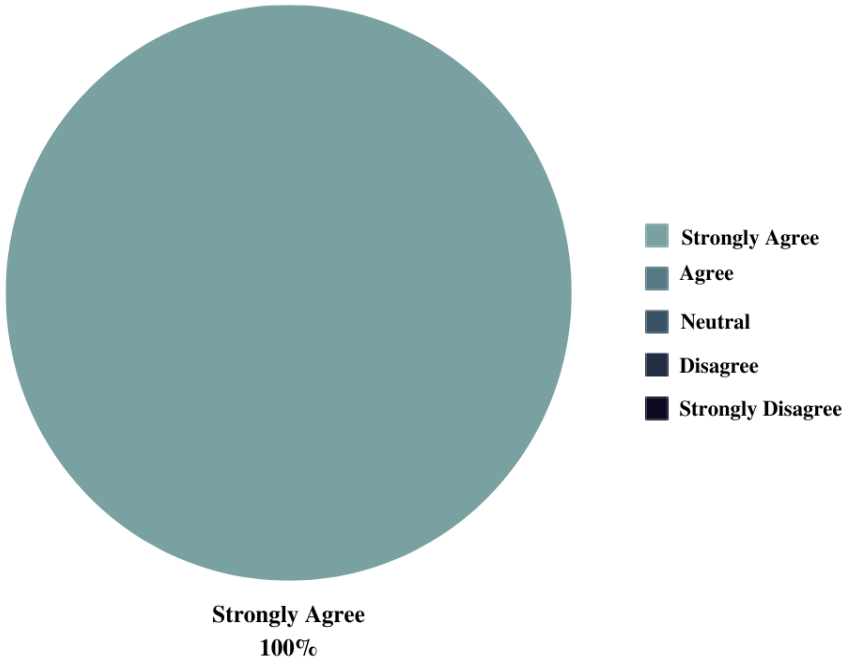


Figure 31. **Efficiency for Admin**

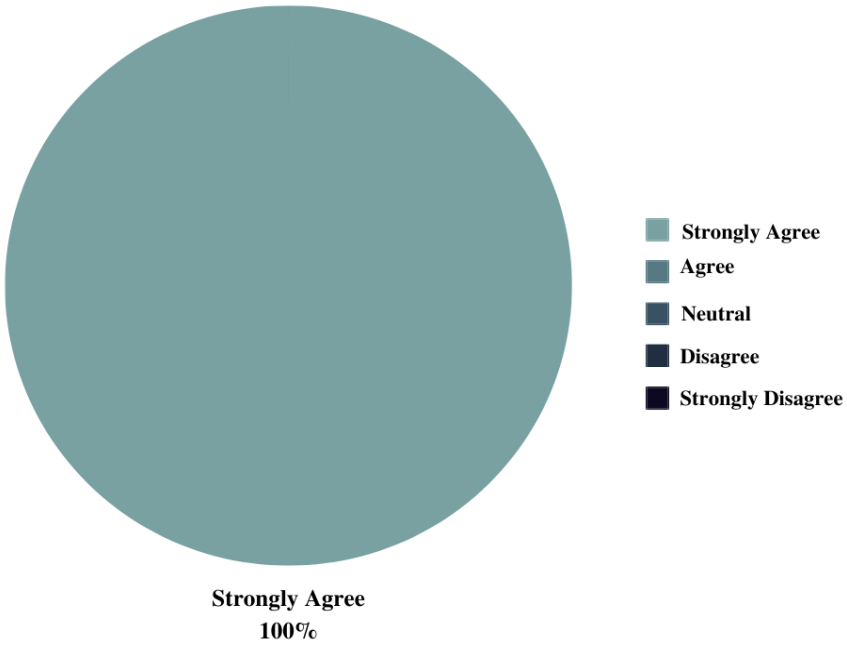


Figure 32. **Portability for Admin**

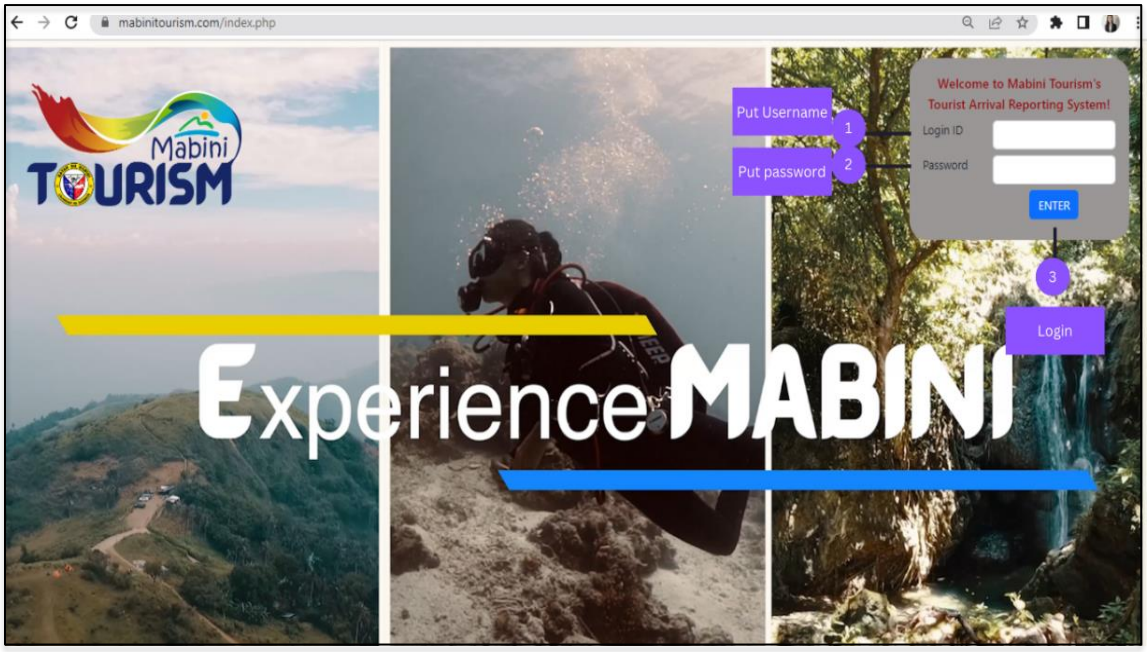
APPENDIX F

USERS GUIDE

USER'S GUIDE

ADMIN

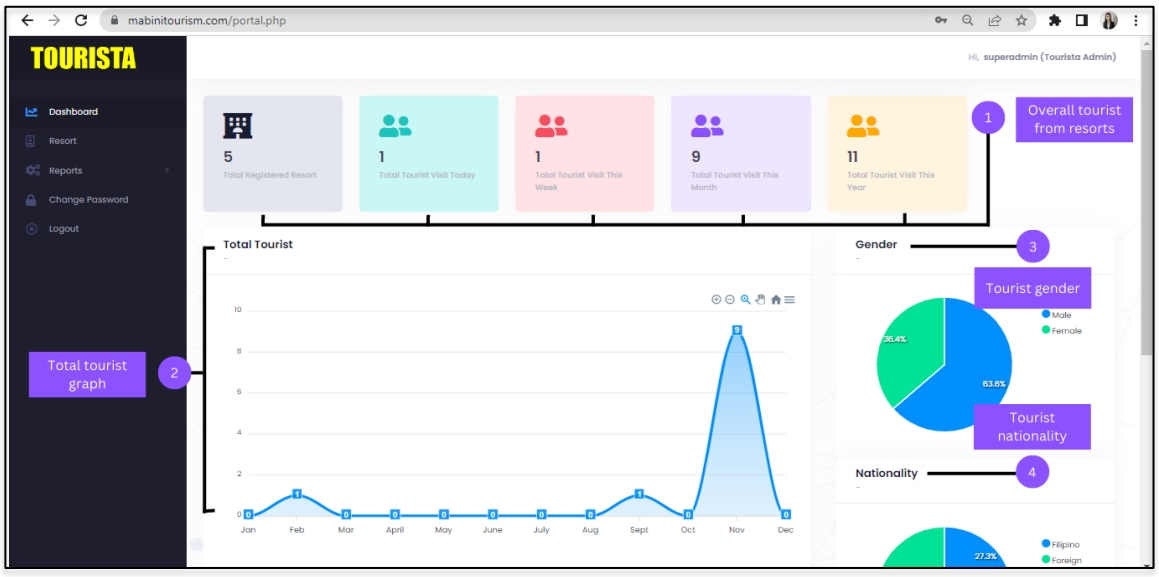
Admin Login Page



An admin login page is an essential component of software applications that require administrative access. It provides a secure entry point for authorized administrators to access the administrative functionalities and settings of the software. It page should include input fields for administrators to enter their username or email and password. These fields should be appropriately labeled and designed to ensure clarity and ease of use. Remember to follow security best practices, such as hashing and salting passwords, to protect stored user credentials. Additionally, regularly update and patch the login page and underlying

authentication mechanisms to address any security vulnerabilities that may arise over time.

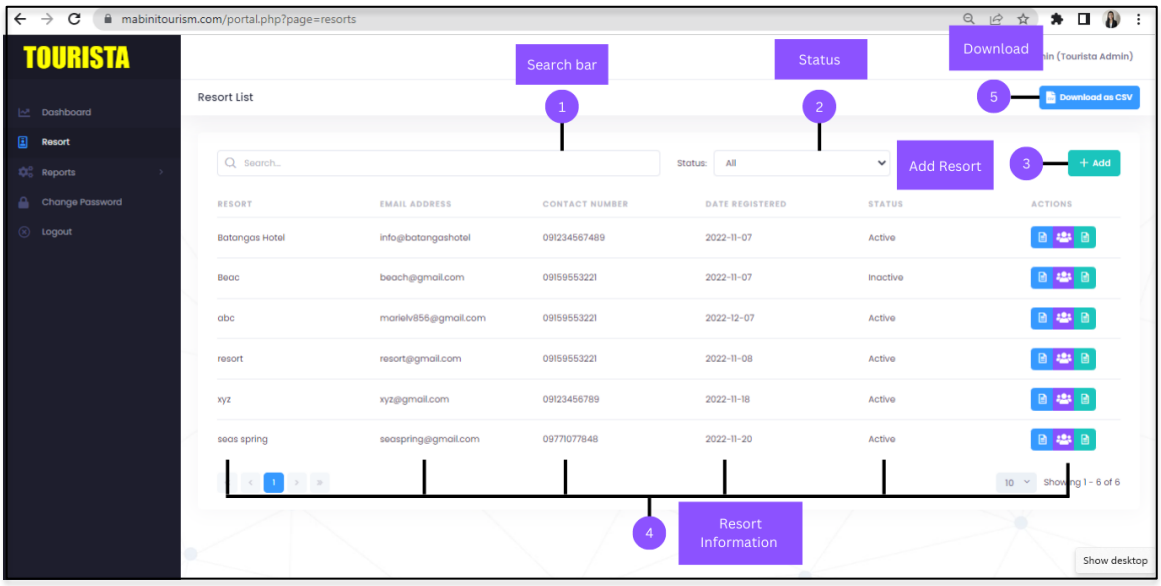
Admin Dashboard



An admin dashboard is a centralized interface that provides administrators with a comprehensive overview of various aspects of the software application and allows them to manage and monitor its functionalities. It is designed to simplify administrative tasks, provide data insights, and enable efficient control over the system. It should require proper authentication to ensure that only authorized administrators can access it. This typically involves a login mechanism, such as username/password or other authentication methods. The design and layout of the admin dashboard should prioritize simplicity, usability, and relevant information. Regular user feedback and iterative improvements based on administrators' needs can contribute to a user-friendly and efficient admin dashboard experience. The

dashboard should provide a concise overview of essential information, such as system status, key metrics, recent activities, or pending tasks.

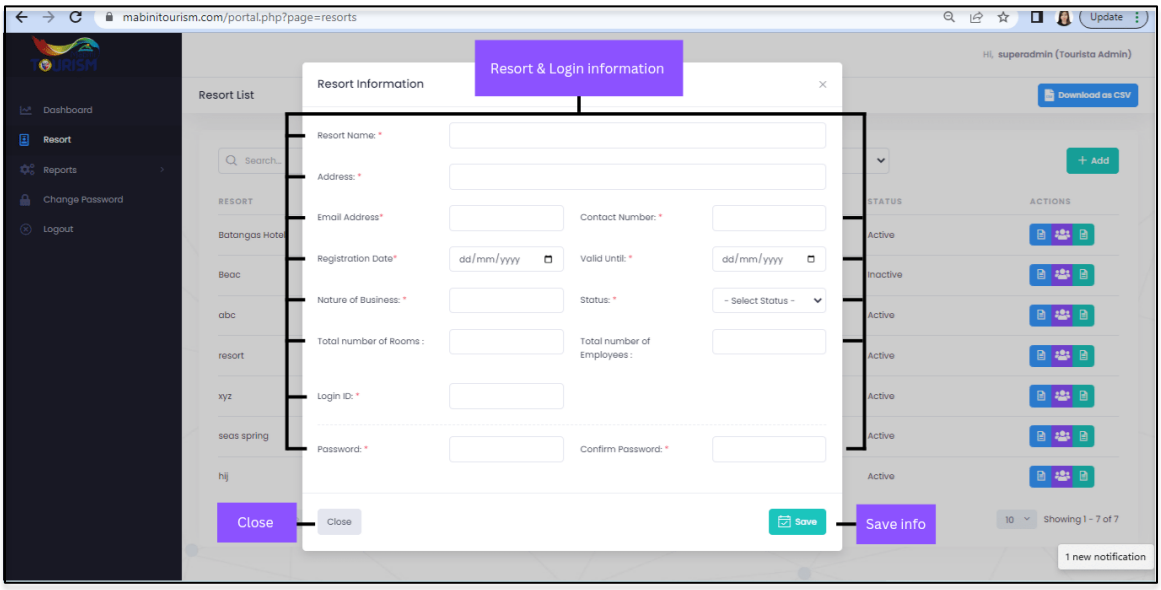
Admin Resort Page



An admin resort page is a specific section of the admin dashboard that is dedicated to managing and overseeing various aspects of a resort or hotel. It provides administrators with the tools and functionalities to efficiently handle resort-specific operations, reservations, bookings, and other relevant tasks. Remember to design the admin resort page with a user-friendly interface, intuitive navigation, and responsive design to ensure administrators can efficiently perform their tasks from various devices. Regularly gather feedback from administrators and make iterative improvements to enhance usability and meet specific resort management requirements. Include a summary or dashboard-style overview of the resort, highlighting key metrics such as occupancy rates, revenue, or upcoming

events. This gives administrators a quick snapshot of the resort's performance and allows them to identify trends or areas that require attention.

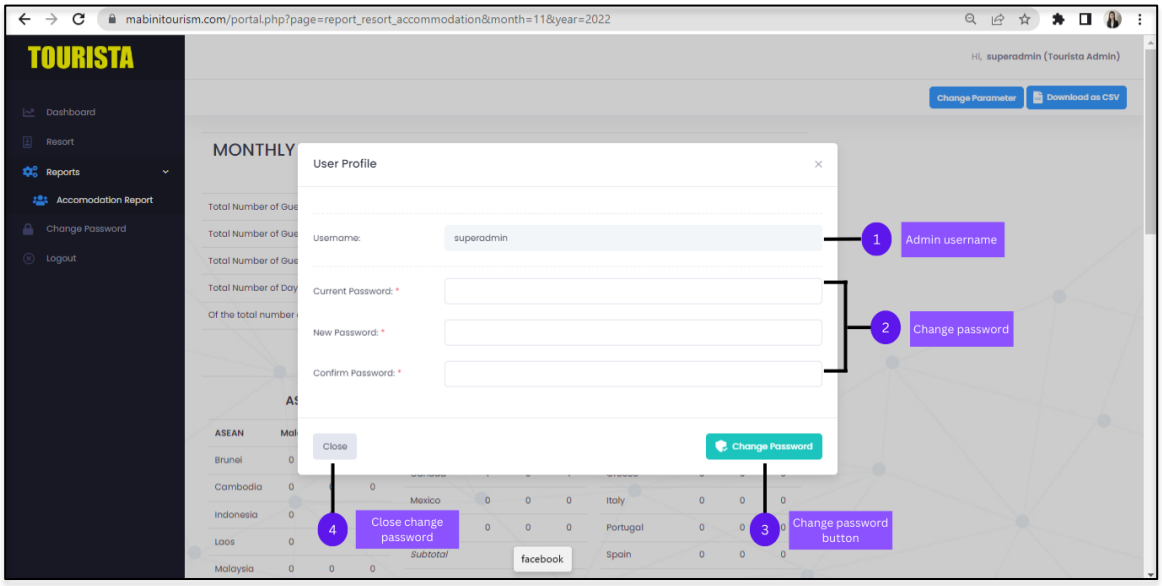
Admin Add Resort



Admin add resort refers to the functionality within an admin panel or dashboard that allows administrators or authorized users to add a new resort to a resort management system. It enables the administrators to input and store information about a newly established or acquired resort, making it available for management and booking within the system. It typically includes a form or interface where the administrator can enter details about the resort, such as the name, location, address, contact information, amenities, room types, and other relevant information. The administrator fills out the required fields and submits the form, triggering the system to save the provided resort information into the database. This functionality is essential for expanding a resort management system or adding new properties to

an existing portfolio of resorts. It allows administrators to easily incorporate and manage the newly added resort's data.

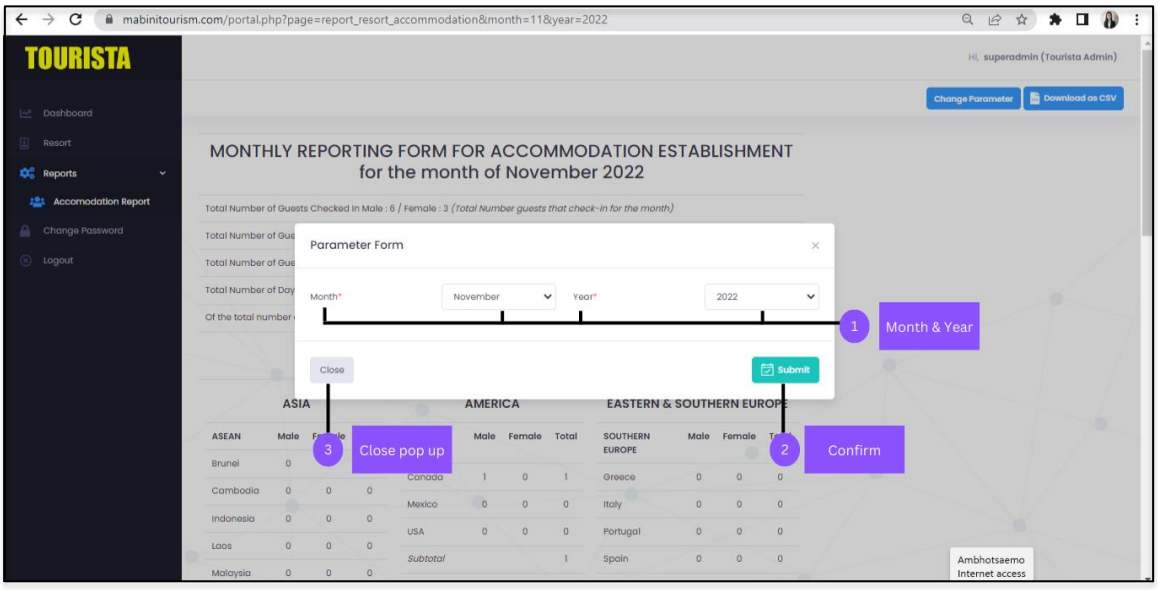
Admin Change Password



The Admin change password functionality allows administrators or authorized users to update their password within an administrative panel or dashboard. This feature is essential for maintaining security and ensuring that administrators can regularly update their passwords for better protection against unauthorized access. Typically, this includes a form with fields for the current password, new password, and password confirmation. Implement an authentication system to verify the identity of the administrator before allowing a password change. Remember to handle any potential security vulnerabilities, such as protecting against brute force attacks, implementing secure password storage practices, and enforcing password complexity rules. Additionally, encourage administrators to

choose strong and unique passwords and regularly update them to maintain the security of the administrative accounts.

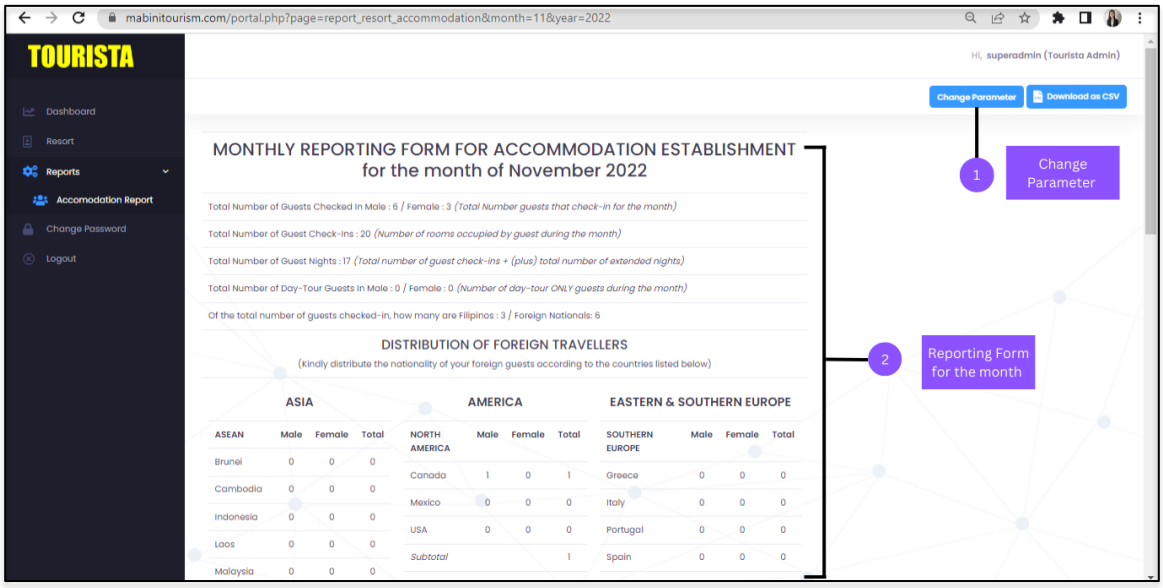
Admin Report Parameter Form



An Admin Report Parameter Form is a user interface element within an administrative panel or dashboard that allows administrators or authorized users to specify parameters or criteria for generating reports. This form enables administrators to customize and refine the data they want to include in the generated reports. It provide a dropdown or selection menu for administrators to choose the specific report they want to generate. This could include options such as sales report, revenue report, occupancy report, or any other predefined or custom reports available in the system. Remember to consider the specific requirements and complexity of the reports in your system when designing the "Admin Report Parameter Form." It is crucial to provide a user-friendly interface that allows

administrators to specify their desired parameters accurately and efficiently, ensuring that the generated reports meet their informational needs.

Admin Accomodation Report Page

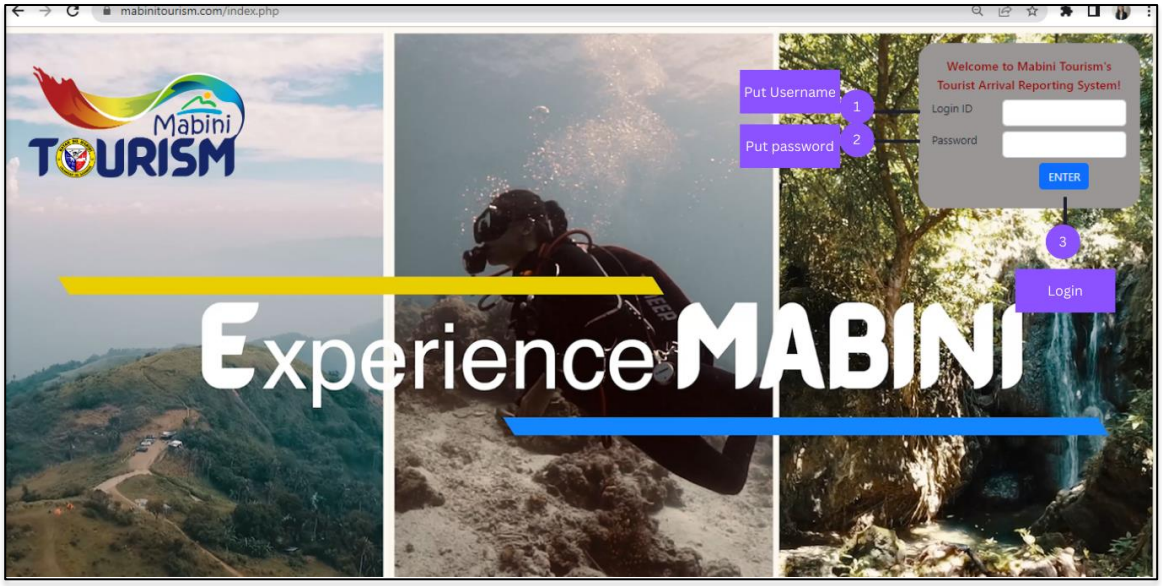


The Admin Accommodation Report Page is a specific section or page within an administrative panel or dashboard that is dedicated to generating and displaying reports related to accommodations or rooms in a resort or hotel. This page provides administrators with the tools and functionalities to retrieve and analyze data specific to the accommodation aspect of the business. Consider including a feature that allows administrators to compare accommodation data between different date ranges. This enables them to analyze trends, track performance, and identify changes over time.Remember to design the Admin Accommodation Report Page with a user-friendly interface, intuitive navigation, and clear presentation of data. Regularly gather feedback from administrators to identify any areas for

improvement and make iterative enhancements to the report page based on their needs and preferences.

RESORT

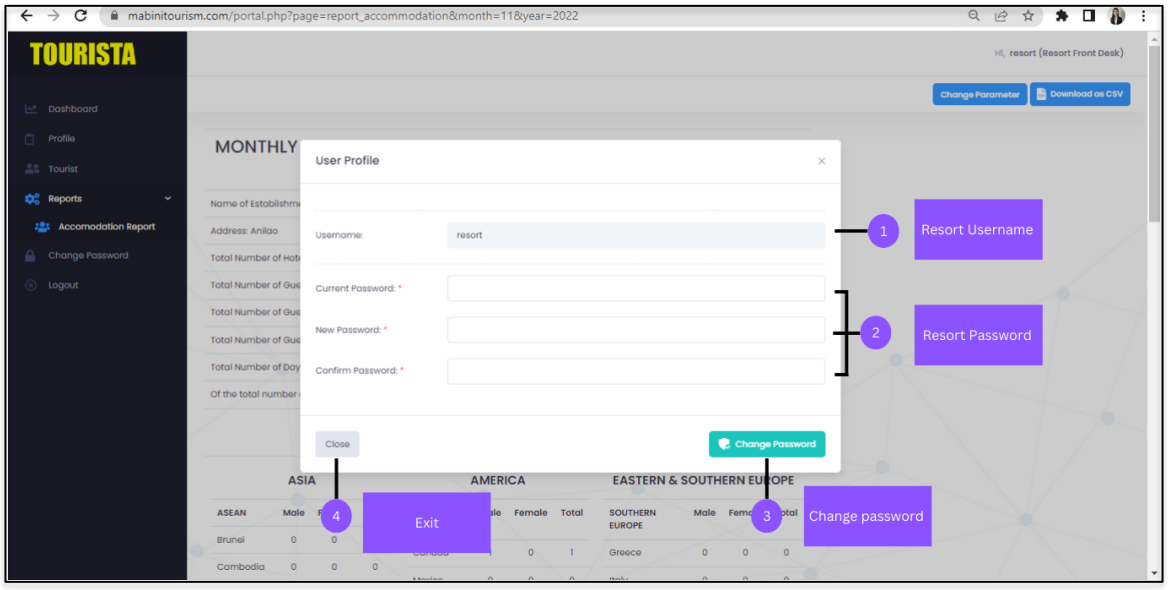
Resort Login Page



The Resort Log in Page is the initial interface where authorized users, such as resort administrators or staff members, can enter their credentials to access the resort management system or administrative features. This page ensures secure access to the system and allows users to authenticate their identity before performing any administrative tasks. Thoroughly test the login functionality to identify and fix any vulnerabilities or issues. Conduct regular security audits to ensure the login page and associated authentication processes remain secure and up to date. Remember, security is of utmost importance when designing a login page. Implement best practices to safeguard user credentials and protect against

unauthorized access. Regularly update and monitor the security measures to stay ahead of potential threats.

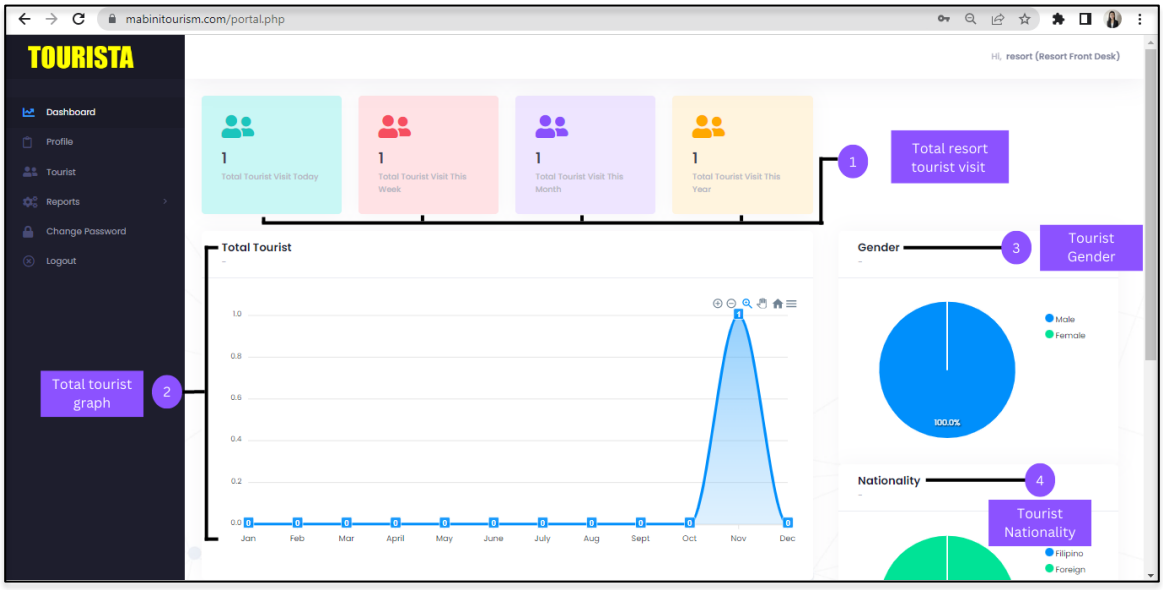
Resort Change Password



The Resort Change Password functionality allows individual users, such as resort staff or guests, to update their password within the resort management system or user account. This feature ensures the security and privacy of user accounts by allowing them to regularly update their passwords and maintain control over their login credentials. Ensure that the change password functionality is accessible and user-friendly. Validate and sanitize user inputs on both the client and server sides to prevent potential security vulnerabilities, such as protecting against brute-force attacks, implementing secure password storage practices, and enforcing password complexity rules. Typically, this includes input fields for the current password, new password, and password confirmation. Additionally, encourage users to choose

strong and unique passwords and regularly update them to maintain the security of their accounts.

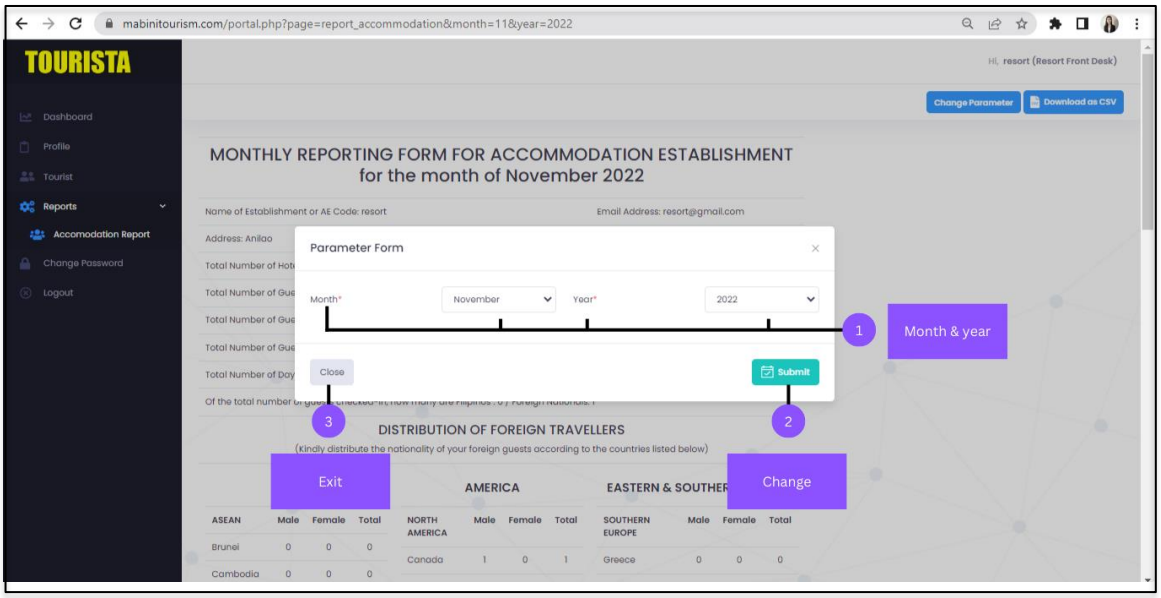
Resort Dashboard



A Resort Dashboard is a centralized interface within the resort management system that provides resort administrators with a comprehensive overview of key information and functionalities related to the management and operation of the resort. It serves as a control panel that allows administrators to monitor and manage various aspects of the resort efficiently. It should prioritize a user-friendly interface with clear visualizations, intuitive navigation, and easy access to essential functionalities. It should provide real-time or near-real-time data updates and support responsive design to ensure compatibility across different devices and screen sizes. Also it allow administrators to send notifications or messages to staff members or guests, facilitating effective communication within the resort. Regular

user feedback and continuous improvement can help refine and enhance the Resort Dashboard to meet the evolving needs of resort administrators.

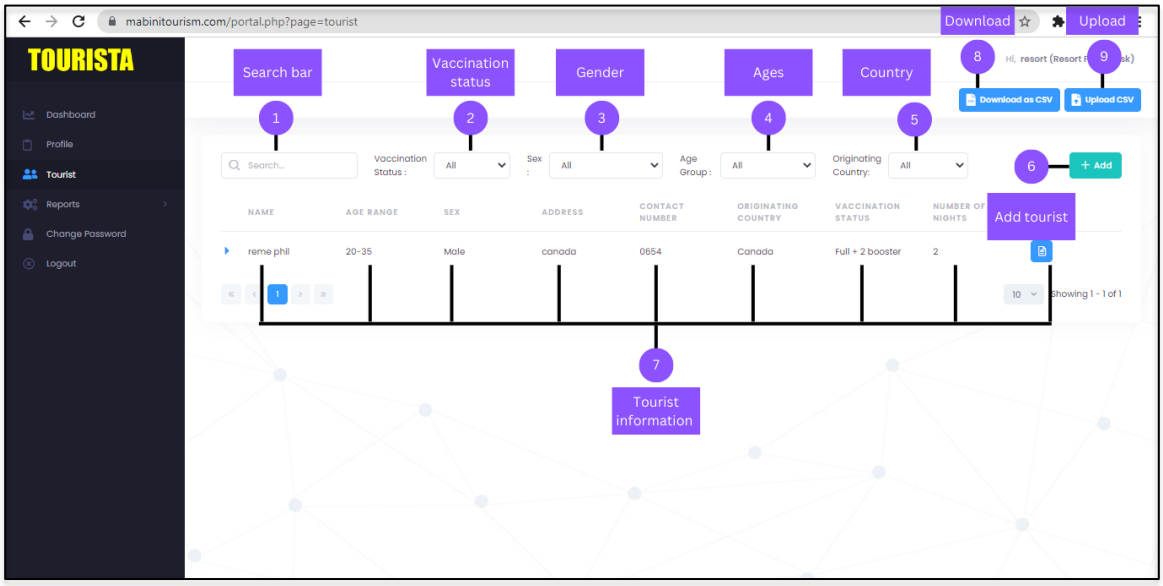
Resort Report Parameter Form



A Resort Report Parameter Form is a user interface element within a resort management system that allows administrators to specify the parameters and criteria for generating customized reports. It provides a structured and intuitive way for administrators to define the specific data they want to include in their reports. It include a dropdown or selection menu to choose the type of report administrators want to generate. This could include reports such as occupancy rates, revenue, guest satisfaction, maintenance, or any other relevant reports. Remember to design the Resort Report Parameter Form with a user-friendly interface, clear instructions, and intuitive controls. Allow administrators to specify their preferences for data visualization. Consider the specific reporting needs of resort administrators and

gather feedback from users to identify any areas for improvement and make iterative enhancements to the form.

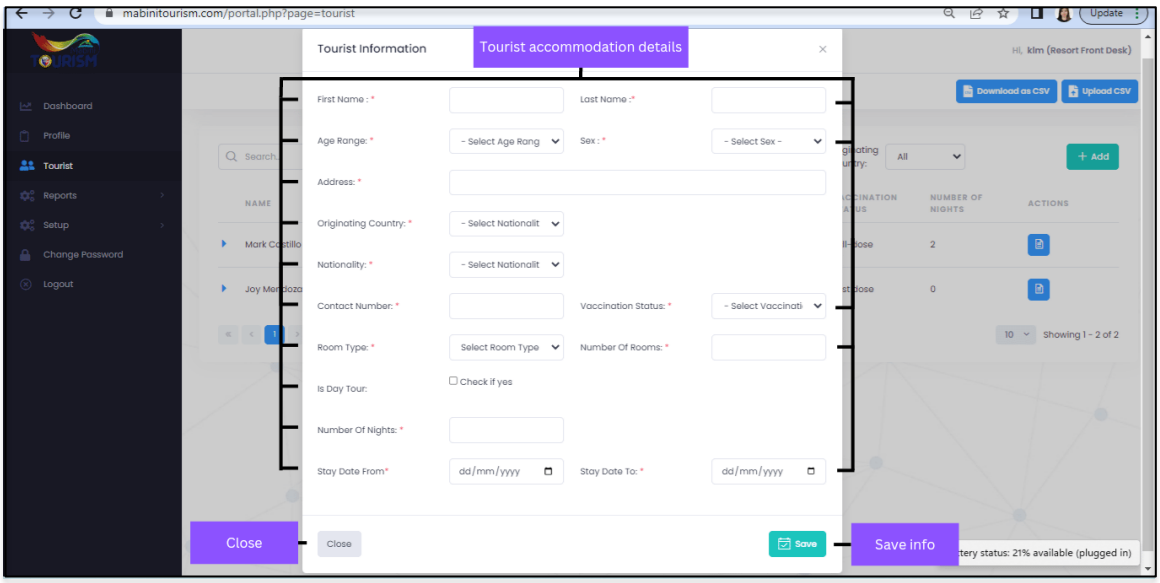
Resort Tourist Page



A Resort Tourist Page is a web page or section within a resort's website that is dedicated to providing information and showcasing the attractions, amenities, and services offered by the resort to potential tourists or visitors. The page aims to attract and engage tourists, providing them with a compelling overview of the resort's features and encouraging them to book a stay or visit the resort. Use high-quality images and videos to showcase the resort's scenic views, accommodations, facilities, and attractions. Visuals should be captivating and represent the unique selling points of the resort. By incorporating these elements, a Resort Tourist Page can effectively showcase the resort's offerings, create a positive first impression, and entice potential tourists to choose the resort as their destination. Regularly

update the page with fresh content, new images, and relevant information to keep it engaging and up to date.

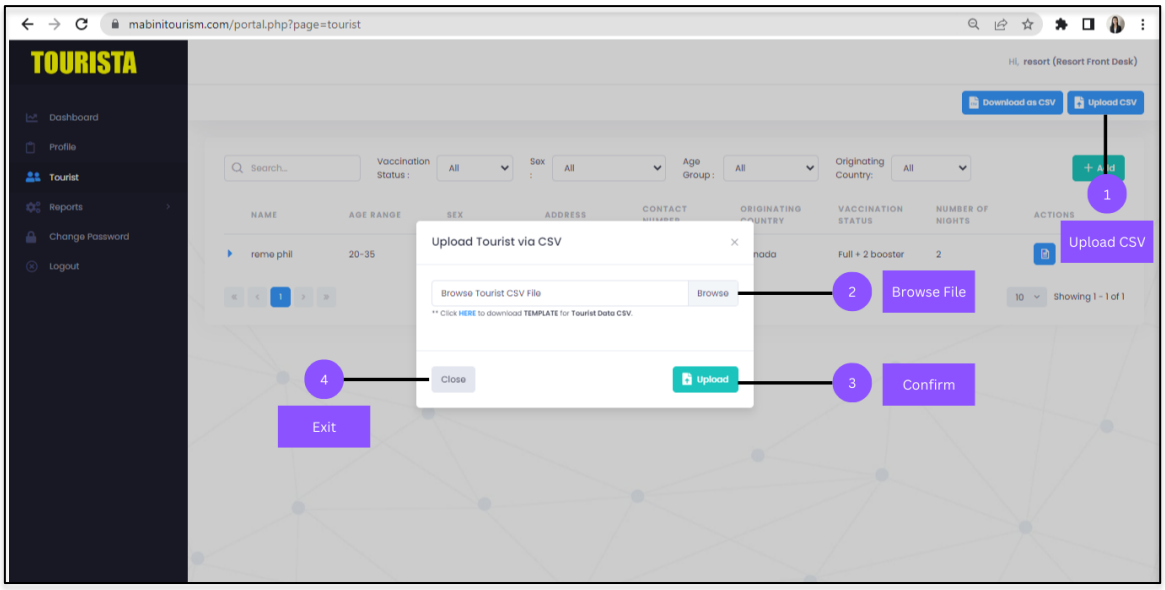
Resort Add Tourist



The Resort Add Tourist functionality allows resort staff or administrators to add information and details about new tourists or visitors to the resort's database or management system. This feature enables efficient record-keeping and facilitates better guest management and communication. Design a user-friendly interface with input fields to capture relevant information about the tourist. This can include fields for the tourist's name, contact details, address, nationality, identification details and any specific preferences or requirements. If the tourist is making a reservation at the same time, integrate the "Add Tourist" functionality with the reservation system to link the tourist's information with the corresponding booking.Ensure that the Resort Add Tourist functionality is intuitive, efficient, and integrated with other relevant

systems or processes within the resort management infrastructure. Regularly update and maintain the tourist database to keep the information accurate and up to date.

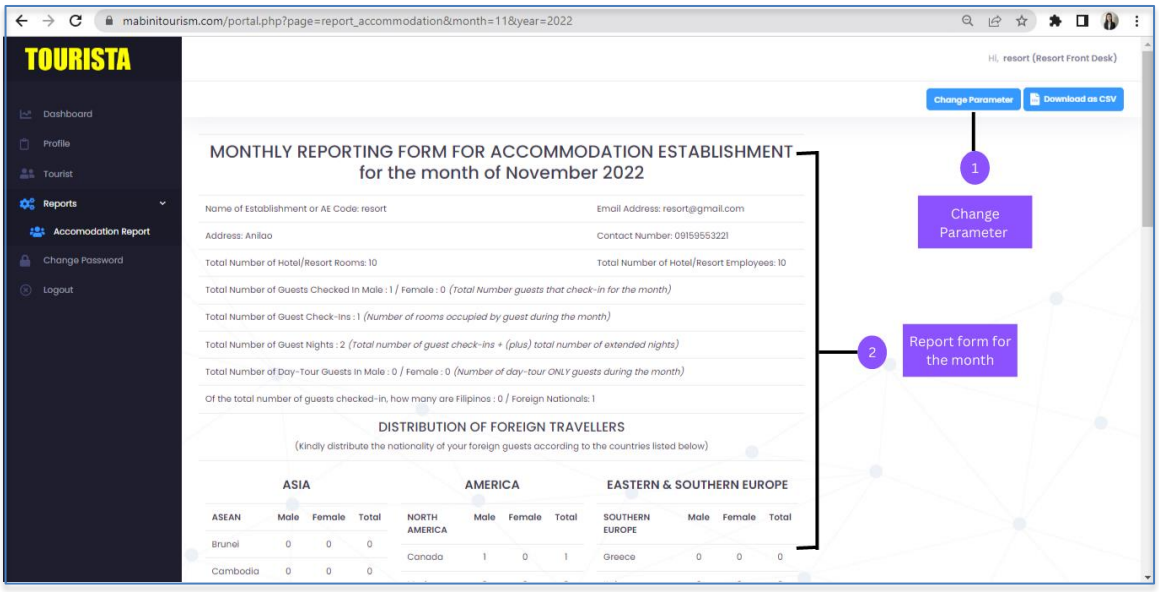
Resort Upload CSV



The Resort Upload CSV functionality allows resort staff or administrators to import data from a CSV (Comma-Separated Values) file into the resort's database or management system. This feature streamlines the process of adding or updating a large volume of data, such as guest information, room inventory, pricing details, or other relevant data, in a more efficient and automated manner. It provides a file upload feature that allows staff to select and upload a CSV file containing the data to be imported. Include an intuitive interface with clear instructions and file format guidelines. Ensure that the Resort Upload CSV functionality supports common CSV file formats and handles various data types to accommodate different data import requirements. Test the functionality with different sample files to verify its accuracy

and reliability. Regularly review and update the functionality based on user feedback and evolving data import needs.

Resort Tourist Accomodation Report Page



The Resort Tourist Accommodation Report Page is a section within the resort management system or website that provides comprehensive information and insights about the accommodation status and occupancy of the resort. This report page allows administrators or staff to view and analyze data related to the availability, utilization, and performance of accommodations within the resort. By incorporating these elements, the Resort Tourist Accommodation Report Page provides valuable insights into the resort's accommodation performance, enabling administrators to make data-driven decisions and optimize the resort's room inventory and guest satisfaction. Regularly review and update the report page based on user feedback and evolving reporting needs.

APPENDIX G

OTHER RELEVANT DOCUMENTS

Other Relevant Documents

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TOURISM
REGION IV-A (CALABARZON)
MABINI TOURISM OFFICE

MONTHLY REPORTING FORM FOR ACCOMMODATION ESTABLISHMENT for the month of _APRIL, _2022__

Name of Establishment or AE Code: YEGA GARDEN RESORT INC. Email Address: _leadmarine@naver.com____

Address: _147-A San jose Mabini Batangas_____ Contact Number: _09171573445_____

Total Number of Hotel/Resort Rooms _15 Rooms___ Total Number of Hotel/Resort Employees: _6_____

Total Number of Guests Checked In *Male*__32____ *Female*__74___ *(Total Number guests that check-in for the month)*

Total Number of Guest Check-Ins ___44_____ *(Number of rooms occupied by guest during the month)*

Total Number of Guest Nights ___44_____ *(Total number of guest check-ins + (plus) total number of extended nights)*

Total Number of Day-Tour Guests *Male*___0_____ *Female*____0_____ *(Number of day-tour ONLY guests during the month)*

Of the total number of guests checked-in, how many are Filipinos? _93_____ *Foreign Nationals?* _13__

DISTRIBUTION OF FOREIGN TRAVELLERS

(Kindly distribute the nationality of your foreign guests according to the countries listed below)

Country of Residence	Total Check In	Total Guest Nights	Country of Residence	Total Check In	Total Guest Nights	Country of Residence	Total Check In	Total Guest Nights
ASIA	*No. of Male|Female*		*AMERICA*	*No. of Male|Female*			*No. of Male|Female*	
ASEAN	|		NORTH AMERICA			SOUTHERN EUROPE		
Brunei	|		Canada	|		Greece	|	
Cambodia	|		Mexico	|		Italy	|	
Indonesia	|		USA	|		Portugal	|	
Laos	|		*Subtotal*	|		Spain	|	
Malaysia	|		SOUTH AMERICA	|		Union of Serbia & Montenegro	|	
Myanmar	|		Argentina	|		*Subtotal*		
Singapore	|		Brazil	|		EASTERN EUROPE		
Thailand	|		Colombia	|		Commonwealth of Independent States	|	
Vietnam	|		Peru	|				
Subtotal			Venezuela	|		Poland	|	
EAST ASIA	*No. of Male|Female*		*Subtotal*			Russia	|	
China	4	4	*EUROPE*	*No. of Male|Female*		*Subtotal*		
Hongkong	|		WESTERN EUROPE			AUSTRALIA ASIA-PACIFIC	*No. of Male|Female*	
Japan	|		Austria	|		Australia	|	
Korea	5|4	9	Belgium	|		Guam	|	
Taiwan	|		France	|		Nauru	|	
Subtotal			Germany	|		New Zealand	|	
SOUTH ASIA	*No. of Male|Female*		Luxemburg	|		Papua New Guinea	|	
Bangladesh	|		Netherlands	|		*Subtotal*		
India	|		Switzerland	|		*AFRICA*	*No. of Male|Female*	
Iran	|		*Subtotal*			Nigeria	|	
Nepal	|		NORTHERN EUROPE	*No. of Male|Female*		South Africa	|	
Pakistan	|		Denmark	|		*Subtotal*		
Sri Lanka	|		Finland	|		OTHERS (Country Not Listed)		
Subtotal			Ireland	|				
MIDDLE EAST	*No. of Male|Female*		Norway	|				
Bahrain	|		Sweden	|				
Egypt	|		United Kingdom	|		*Subtotal*		
Israel	|		*Subtotal*					
Jordan	|							
Kuwait	|					UNSPECIFIED RESIDENCES		
Saudi Arabia	|							
United Arab Emirates	|							
Subtotal								

NOTE: This form is protected by the Data Privacy Act. Each accomodation establishment is/may be given a code to provide anonymity and protection of privacy. Any information shared and/or submitted will greatly contribute to the accuracy of tourism reporting, promotion and planning in our municipality and NOT to be forwarded to any other government agency/department such as BIR, etc, unless with proper court order. Call us at (043)410-0607 for AE code or any inquiries or you may visit us at the Tourism Office, Anilao Port, Mabini, Batangas.

IT'S MORE FUN IN THE PHILIPPINES

APPENDIX H

GRAMMARIAN'S CERTIFICATION

GRAMMARIAN'S CERTIFICATE

Reference No.: BatStateU-CE-04 Effectivity Date: January 3, 2017 Revision No.: 00

Republic of the Philippines
BATANGAS STATE UNIVERSITY
Batangas City

CERTIFICATE OF EDITING OF THESIS/DISSERTATION

This is to certify that this Thesis/Dissertation entitled **"TOURISTA:TOURIST ARRIVAL REPORTING AND TRACKING SYSTEM FOR THE MUNICIPALITY OF MABINI, BATANGAS" of Delos Trinos, Mark Gil L., Tolentino, Deserie Q., and Villanueva, Princess Mariel O.** in partial fulfillment of the requirements for the degree BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY MAJOR IN SERVICE MANAGEMENT has been reviewed and edited by the undersigned on the minutes of the Final Defense.

It now follows the standard format of the University and conventions of research writing.

Assoc. Prof. Ninfa M. Vergara, MAED
Signature over Printed Name

Date Signed:05/24/2023

APPENDIX I

BIONOTE

BIONOTE

Mark Gil Delos Trinos was born in Talaga East Mabini Batangas on December 07, 2000. He graduated Junior High School and Senior High School in Anselmo A. Sandoval Memorial National High School. Currently, he is taking a Bachelor of Science in Information Technology, majoring in Service Management in Batangas State University – Mabini Campus. He is also a graduating student. His goal in life is to graduate and help his family. You can contact her through this number 09159553221 or send her an email at markgil.delostrinos@g.batstate-u.edu.ph

Deserie Tolentino was born in Sto. Tomas Mabini Batangas on October 04, 2001. She graduated Junior High School and Senior High School in Anselmo A. Sandoval Memorial National High School. Currently, she is taking a Bachelor of Science in Information Technology, majoring in Network Technology in Batangas State University – Mabini Campus. She is also a graduating student. Her goal in life is to graduate and to have a stable life and job. You can contac her through this number 09484676579 or send her an email at deserie.tolentino@g.batstate-u.edu.ph.

Princess Mariel Villanueva was born in Bauan Batangas on November 15, 2000. She graduated Junior High School and Senior High School in Anselmo A. Sandoval Memorial National High School. Currently, she is taking a Bachelor of Science in Information Technology, majoring in Service Management in Batangas State University – Mabini Campus. She is also a graduating student. Her goal in life is to be a Full Stack Web Developer. You can contact her through this number 09771077848 or send her an email at princessmariel.villanueva@g.batstate-u.edu.ph.