



Davao Oriental E-Tour

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Approval Sheet here

Dedication

We dedicate this study to our Almighty God, whose omnipotent power consistently makes the seemingly impossible possible. We have experienced His unfailing support throughout the year, providing us with the power and knowledge required to overcome the difficulties we encountered.

We give ourselves credit and admiration for our constant dedication to this project. We have resolutely embraced the path, continually giving it our all, and going beyond what we think is possible. Despite the difficulties we have faced, we have persisted because we are aware that a greater goal is driving our actions.

In making this dedication, we sincerely acknowledge the supernatural assistance that has given us strength, the unwavering dedication we bring, and the unshakable support of our loved ones. Together, we push forward, accepting difficulties and aiming for greatness in the quest for knowledge and individual development.

The Researchers

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The Researchers

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ABSTRACT

Leirey S. Languay, Daniel Jay P. Aradan, & Khalid L. Dalman. "DAVAO ORIENTAL E-TOUR". (BSIT Capstone Project). Davao Oriental State University. June 2023.

Adviser: John Ray D. Paulin

The Davao Oriental E-Tour is an Android-based mobile application that aims to promote and showcases the different and captivating tourism spots in the beautiful province of Davao Oriental. With the primary goal of exposing well-known and lesser-known jewels, our application seeks to enhance the profile of this beautiful region and make it a sought-after break place for adventure seekers and nature enthusiasts alike.

Using current technology, the Davao Oriental E-Tour provides users with a seamless and user-friendly interface to explore various sites. The app gives information on each destination, from famous sights to hidden treasures. Users may look into thorough descriptions, appealing images, and captivating multimedia content, helping them to make informed decisions and choose their preferred destinations.

In addition, the Davao Oriental E-Tour is an actual mobile application that strives to maximize Davao Oriental's potential as a premium vacation destination by giving users access to detailed destination information, transportation information, and the route. Our app stimulates discovery, supports local businesses, and promotes environmentally friendly tourism habits.

CHAPTER I

INTRODUCTION

1.1 Rationale of the Study

Mobile technologies have enabled the development of a wide range of applications that may be accessed by people on the go. Developers sometimes forget that users would want to deal with these devices while on the go. When designing for compact, portable devices, small screen sizes, limited connection, high battery consumption rates, and limited input modalities are just a few of the challenges involved. (R. Harrison; D. Flood; D.2013).

Mobile applications are simple, user-friendly, low-cost, portable, and run on most smartphones, including low-cost and entry-level phones. Calling, messaging, browsing, chatting, social network communication, audio, video, games, and other services of the mobile application are commonly used. (Dr. MD Rashedul Islam 2017)

Across many industries, technology has changed the way things are done. The tourism sector is the finest example of it. Many travelers use travel apps while organizing trips, according to a recent eMarketer poll, making them the sixth most downloaded app category. The time when people made their trip plans by using travel agents is long gone. People now prefer to plan their own trips using mobile apps that are convenient and easy to use because they have digital resources at their disposal (TechAhead Team, 2016).

In Davao Oriental, there are numerous tourist attractions that are waiting to be explored, but not all of them get the chance to be visited. Davao Oriental E-Tour aids in the promotion of those tourist sites by exhibiting what the area has to offer through browsing this application.

1.2 Purpose and Project Description

The purpose of this study is to create a Mobile Application that will enable the application user to have an overview of registered Davao Oriental tourist destinations in the tourism of the province. This research will let users explore the world around them by just opening or using the application to be created.

This capstone was created through the information gathered from requirements gathering and, thus, from the office that handled tourism-related information.

1.3 Objectives of the Study

The objective of this capstone project was to create and built a mobile application system for tourist destinations of the province of Davao Oriental.

This capstone project aims to:

1. Design and develop a mobile-based application that would have the following features.
 - Allow users to look at all tourist destinations registered in tourism and its route.

- Users will be able to experience 360 view tour/street view in selected destinations.
 - Allows users to see upcoming events on some tourist destinations.
 - Users will know what to prepare if they want to go to destinations.
 - Allow the users to see system suggestions based on other user's recent activities.
 - Allows users to view transport information on each destination.
 - Allow users to rate their experience in every destination.
 - Allows the user to search destinations in Davao Oriental
2. Build a mobile application that enables users to provide feedback on the app's deficiencies and allows administrators to figure out what should be improved.

1.4 Significance of the Study

Davao Oriental E-Tour will aid in promoting both popular and unpopular tourist destinations in Davao Oriental. With only a quick glance at the application, more tourists would be aware of the variety of tourist spots in Davao Oriental.

Through the use of comments and suggestions built into the program, users will be able to tell what needs to be improved. The simplest and most cost-effective approach to develop is to pay attention to tourists and visitors while acting on their suggestions.

Improvements made in response to user input from the mobile application can draw in more visitors and perhaps encourage them to return.

By matching the adventure type of a destination with the user's preferred adventure, the information obtained by this application will enable travelers to select the finest location for them to visit, making their trip worthwhile.

1.5 Scope and Limitation of the Study

The study concentrated on those visitors to Davao Oriental who are unfamiliar with the tourist spot. The application's only duty is to direct users to the correct location based on their proposed location. Additionally, it helps the Davao Oriental tourism department in promoting the region's top attractions and has access to a comprehensive map of Davao Oriental.

1.5.1 Scope

The following is the scope of the application:

- Every destination is classified according to the type of adventure it offers.
- All users must have an account to be able to use.
- Concern offices or tourist destinations will provide information about the tourist destination and/or events.

1.5.2 Limitation

The following list was functioned not included in the application:

- The tourism site listed in the app is only in Davao Oriental.
- Users must have an internet connection or data connection to use the application.
- Only Android users can access the application.
- 360 view/street view is available only on highlight destinations for every municipality.

1.6 Conceptual Frame Work

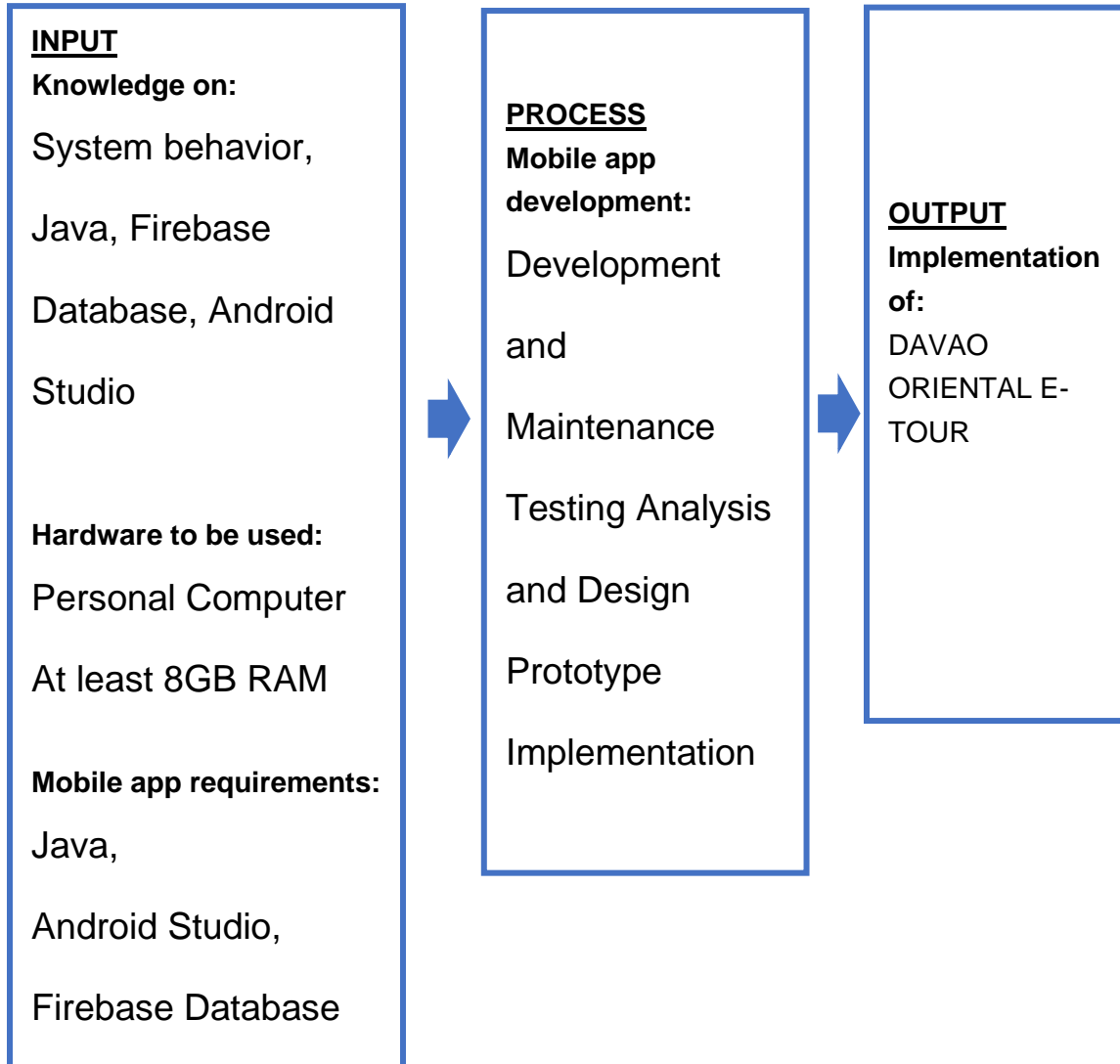


Figure 1.1: Conceptual Framework

1.6: Figure 1.1: Input, Process, and Output

The above conceptual framework was created using the IPO-O model or most commonly known as the input, process, output, and outcome model.

1.6.1 INPUT

To establish and implement the demands in system behavior, interface, and applicable designs, the project will begin by evaluating current knowledge as a foundation. This is also where the user's privilege is implemented.

1.6.2 PROCESS

This is the stage where researchers become more informed about programming languages and how to create the necessary interface, behavior, and designs. Analysis and design, prototyping, development, and maintenance are all required for this part.

1.6.3 OUTPUT

The project will be implemented in a real-world setting when all of the necessary procedures should follow. This will be maintained and reinforced with new ideas in order to make it sustainable and long-lasting.

1.7 Definition of Terms

E-Tour - A feature in this application that will allow users to know more about tourist destinations without coming to those places.

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Technical Background

2.1.1 Details of the Technology to be Used

To build the said mobile application, we need the technologies that are required to create the system; below are the tools that we'll be using.

2.1.2 Java

Java is an object-oriented programming language that produces software for multiple platforms. When a programmer writes a Java application, the compiled code (known as bytecode) runs on most operating systems (OS), including Windows, Linux, and Mac OS. Java derives much of its syntax from the C and C++ programming languages. It was developed in the mid-1990s by James A. Gosling, a former computer scientist with Sun Microsystems, together with Mike Sheridan and Patrick Naughton. (Stoltzfus,2020).

2.1.3 Android Studio

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS,

and Linux-based operating systems or as a subscription-based service in 2020. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development. (Ducrohet, Xavier; Norbye, Tor; Chou, Katherine, 2013).

2.1.4 Figma

Figma offers a desktop program for macOS, Windows, and Linux, as well as being accessible as a web application. Designing user interfaces, websites, and mobile apps is done with Figma. It supports vector illustrations, bitmap images, typography, complex layout features, and animation. It also includes a WYSIWYG interface. (Clemente Drew, 2022).

2.1.5 Firebase

A database stored in the cloud is the Firebase Realtime Database. Data is synchronized in real-time to every connected client and stored as JSON. One Realtime Database instance is shared by all of your customers when you create cross-platform apps using our JavaScript, Android, and Apple platforms SDKs. This assures that all of your clients always have the most recent data available (Firebase, 2022).

2.2 Related Literature

This chapter presents the relevant literature and studies that the researcher considered to strengthen the importance of the present study. It also presents the synthesis of the art to fully understand the research for better comprehension of the study.

2.1 Related Literature Research studied the development and foundation of smart tourism.

The key aspect of smart destinations is integrating ICT into the physical infrastructure of a tourist destination. This study is seen as the basis for the comprehensive functioning of e-Tourism. Without this facility, a tour would remain traditional or old-fashioned. The findings confirm that the use of smartphones for traveling is shaped by complex interactions between contextual factors, cognitive beliefs, past experiences, and daily use, and the use of smartphones has the potential to substantially modify a tourist's experience [U. Gretzel, M. Sigala, Z. Xiang, and C. Koo, *Electron Mark.*, vol. 25, pp. 179–188, 2015.].

It is undeniable and well-known that one of the main advantages of using mobile applications is that they are easy, fast, and regardless of distance and time in tour trip management. [M. Brown, B. & Chalmers, "Tourism and mobile technology," in *Proceedings of the 8th Conference on European Conference on Computer Supported Cooperative Work*, 2003.].

Concerns have often been raised about the security, reliability, and legitimacy of the service over this digital mobile applications system. For example, in Malaysian tourism, according to the report, approximately 438 cases were reported to bear a total loss of RM1.9 million involving low-cost Umrah packages due to fraud. Meanwhile, complaints

from 20,000 people worth RM10 million losses were filed for fraudulent victimization in several countries, including Taiwan, China, South Korea, Japan, and Hong Kong. [Pusat Khidmat Aduan Pengguna Nasional (NCCC), NCCC, 2015].

Based on Krishnan's view, adopting current technology removes barriers to development and allows for more cooperation throughout the value chain. Modern designs and forward client technologies drive successful and efficient corporate growth. Cloud-based platforms, on the other hand, allow the flexibility to react quickly to fast-changing markets and consumer behavior, as well as greater options for brand engagement (Krishnan A., 2022).

Research finds that managers can and should address future IT issues by embedding IT into the company's strategic management and mission. One strategy to accomplish this goal is to keep staff's IT knowledge and abilities up to date since this will ensure overall technical proficiency. Managers should also keep a careful eye on the IT industry to keep up with technology trends and advances. Following a thorough examination, the appropriate IT can be integrated into the business and used as part of a business process reengineering operation to help the company reach its maximum potential (Buhalis D., Rosanna L. and, & Law, R.2009).

As Rushikish points, It was true that preparing a vacation for family members was not easy. Unless, of course, such travel and tourism apps emerge. There was a time when the family's leader had to rely on the travel agent's plans and schedule to make the necessary arrangements. These arrangements are made with travel companions to help

them organize their trip and vacation. However, thankfully, this period has also passed (Rushikish K., 2021).

Travel agents and physical reservations are practically obsolete, and the future will be different. Travel-related mobile applications are the 7th most downloaded category, according to eMarketer, and 60 percent of smartphone users choose travel apps for arranging their leisure vacations (Raju Shah, 2017).

Mobile tourism service applications can help a destination drive down operation and administration costs by digitalizing information that has been traditionally presented in print, enabling customers to have direct information access and self-direct their tour, reducing the number and length of personal communications with tourists, and decreasing office labor costs (Buhalis & O'Connor, 2005).

Brown & Chalmers (2003).) Write: "The first, seemingly straightforward, problem which tourists face in an unfamiliar place is what to do. Unlike work, where tasks are often determined (in part) by an overall goal or by other people's plans, tourism is much more open-ended." At some destinations, there is little to do, but this is the exception. In a city, the what to do is not only open-ended, but the number of options is very high. The second issue is the how-to. "Along with the question of what to do, tourists need to work out how they are going to do these different activities" (Brown & Chalmers, 2003).

Travelers have different preferences, and therefore a one size fits all approach is not a good model. For instance, some do sightsee by themselves without a guide, while some prefer to have a guide talk about what they see. Then there is the question of when.

"Tourists have to manage when they do different activities. Tourism is usually constrained in time because of the need to return home. Time is also a problem in that tourists work with organizations that provide services; opening times must be coordinated with the times of public transport, such as trains or buses" (Brown & Chalmers, 2003).

2.3 Related Systems

Visit A City (Web, Android, iOS):

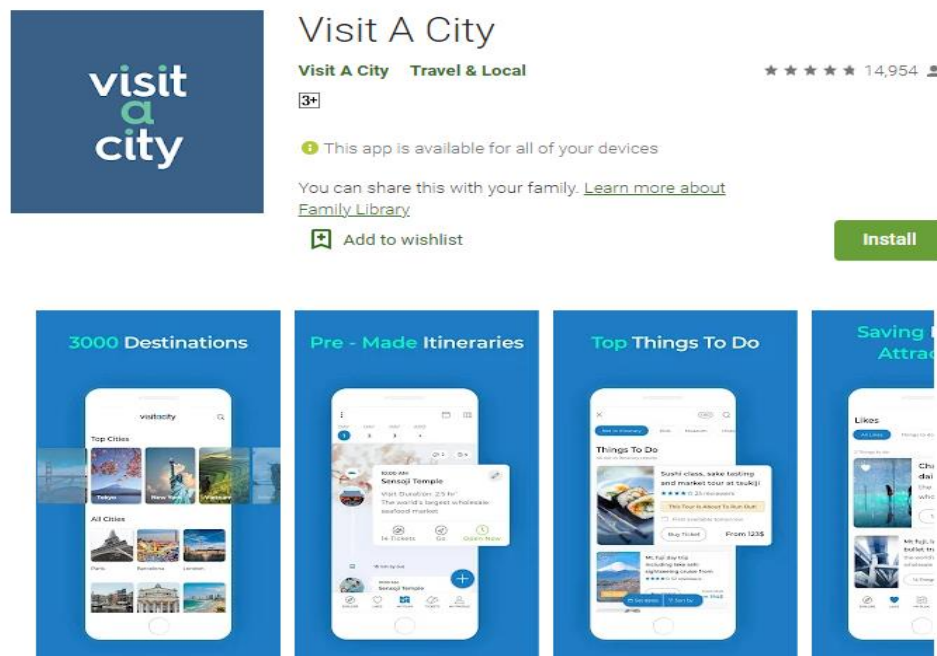


Figure 2.1: Visit A City

A tour operator will create an itinerary for you, detailing where you should go and what you should see. In most tourist destinations, Visit A City already has that prepared, ranging from a day's plan to seven days' worth of sites and attractions.

There are many guides for each city that cover the important attractions, tours, and activities. If you choose Barcelona, for example, you'll receive a 3-day tour of the city's

best attractions, a 5-day guide to visiting Barcelona with kids, and so on. The website has a surprising amount of diversity, allowing you to pick exactly the type of trip you want.

Travel Philippines:

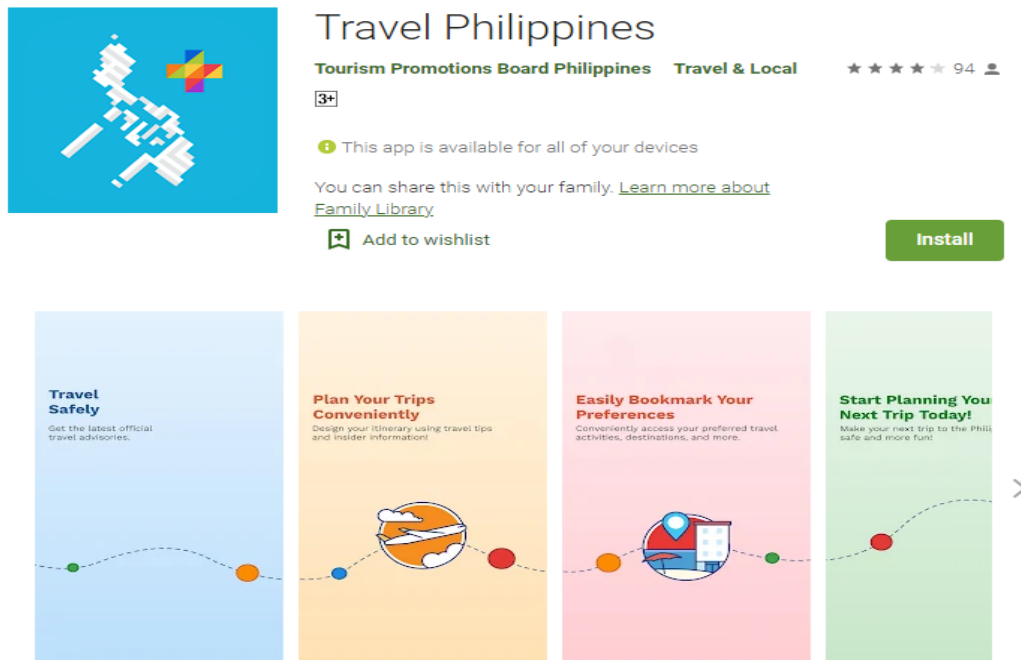


Figure 2.2: Travel Philippines

The app includes destinations in Luzon, Visayas, and Mindanao to help you plan your next vacation to the Philippines. The Travel Philippines App seeks to provide visitors and tourists with simple access to up-to-date and verified information about the country's most popular attractions. With our extensive database of famous sites, experiences, and featured destinations, you can create an unforgettable trip.

For the time being, they're only promoting places that have reopened for local travel, as well as everything you need to know about getting there and staying there to make your next trip more convenient and enjoyable.

2.3 Synthesis

The applications above illustrate that there is a tourism application available on Google Play that helps people visiting plan where to go and search tourist attractions in some places, similar to Visit a City, but it is limited in days. Travel Philippines is more likely similar to our mobile application in that they offer tourist destinations in three major islands in the Philippines: Luzon, Visayas, and Mindanao, but our application is only specific to Davao Oriental to provide accurate data. All system said includes registration to be able to use the app and also our application to provide a user a related experience from other users.

CHAPTER III

MATERIALS AND METHODS

3.1 Software Methodology

3.1.1 Software Development Life Cycle (SLDC)

It produces software of the highest quality at the lowest cost in the quickest time possible. It provides a well-structured sequence of steps that allows a company to quickly produce high-quality software that has been properly tested and is ready for production. (2020, Altvater)

3.1.2 Agile Methodology

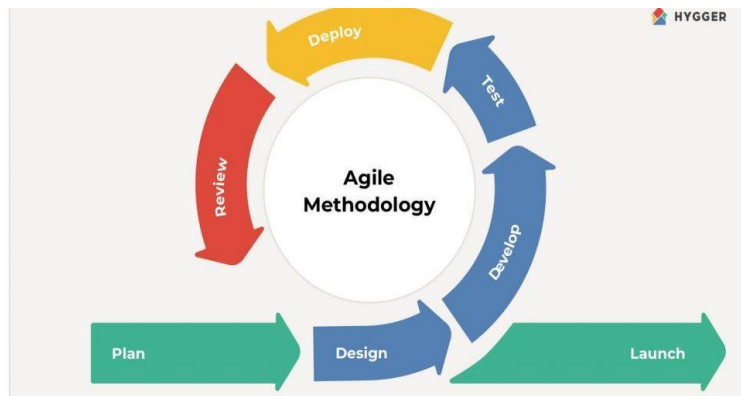


Figure 3.1: Agile Methodology

Particularly in the software development sector, the agile paradigm is well-known. Agile stresses frequent and continuous release cycles with small, incremental changes in between. This results in a lot more iterations and testing when compared to other models. In principle, this strategy assists teams in tackling

minor difficulties as they arise rather than deferring them until later, more involved stages of a project. It promotes continuous development and testing throughout any project's Software Development Lifecycle. (2020, Bhasin).

3.2 Requirements Analysis

3.2.1 Documentation of the Current System

Using the Davao Oriental e-tour app. More emphasis has been placed on tourist destinations in Davao Oriental that have yet to be discovered by our countrymen. This mobile application has helped a lot not only because they know where they are going but also because it is portable and can be used anywhere as long as you have an internet connection, and it also helps a lot not only for the user but also for the tourist spot location itself.

3.3 System Architecture

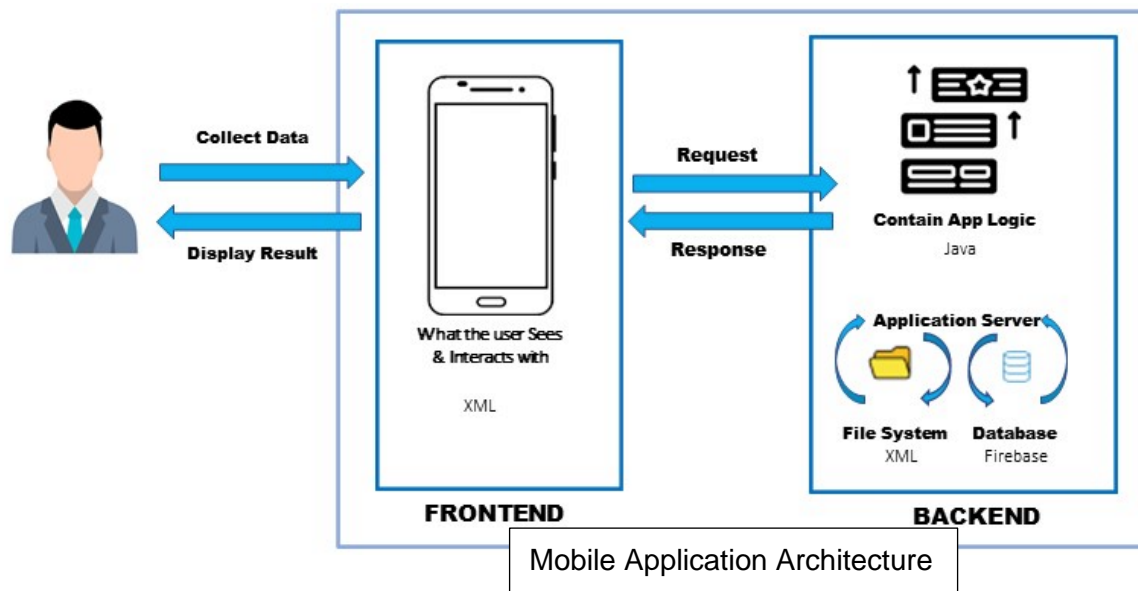


Figure 3.2: Davao Oriental E-Tour System

The flow of the mobile-based system that will help people is shown in this diagram. It entails fulfilling the necessary requirements to align the frontend with the backend connection.

3.3.1 Requirements Specification

This mobile application aims to assist visitors in Davao Oriental. Specifically, those people that are not familiar with tourist attractions in the Province of Davao Oriental will know all tourist destinations just by opening the mobile application. This mobile application will provide the necessary information to visit a tourist spot. The application also includes rates in every this but needs an internet connection as it needs real-time information from other users using the database.

3.3.2 Product Perspective

This project is developed using android studio as it provides the fastest tools for building apps on every Android device. This mobile application allows user to see tourist destinations in Davao Oriental their related information, such as fare, cottage, and etc. It also allows users to see its 360 views and Cardboard view. Using an internet connection also allows the user to see the review of the destination, and they can also rate their experience on their visited destination.

3.3.2.1 Product Features

The proponents have supported and developed features that allow users to know related information for visiting a place and for mobile applications to perform according to their objectives.

3.3.2.2 Mobile Application

A mobile application, more usually known as "an app," is a type of application software specifically created to run on mobile devices like smartphones and tablets. Similar services to those available on PCs are made available to consumers through mobile applications. Apps are typically small, discrete software components with limited functions.

3.3.2.3 User Classes and Characteristics

The users of this project are visitors or tourist that wants to visit and explore some highlight tourist destination here in Mati. And also, those people here in Davao Oriental that is not familiar with the tourist destination of Davao Oriental.

3.3.2.4 Operating Environment

The proponents used platforms and technologies in developing this project.

3.3.2.4.1 Software Components

The developers used Android Studio for designing and creating the database. Android studio has two files in every activity, an XML file for design and animation for the activity and a Java class for logic and functionality of the activity. Android Studio has also built-in tools to connect FireBase that serve as a database of the project.

3.3.2.5 Design and Implementation Constraints

Some software has limits and constraints. This mobile application is limited only to registered destinations in Davao Oriental tourism, and its Cardboard view is only limited to supported devices. For an internet connection, the minimum bandwidth is 1mbps to 2mbps for faster information rendering.

3.3.2.6 Other non-functional requirements

The application fulfills its capabilities and satisfies its scope according to the specifications specified by the proponents.

3.3.2.6.1 Safety requirements

The mobile application's developers made sure that registering for an account included email address authentication because Firebase requires user authentication through email for security reasons.

3.3.2.6.2 Security Requirements

The rate and review features are the only online features of the mobile application. This feature is very important to the owner of a tourist destination because it will impact the review of the destination, so a secure user that wants to review should have an account and account also authenticated to secure the legit information.

3.3.2.6.3 Software Quality Attributes

The Davao Oriental E-Tour mobile application offers the following features that indicate high software quality:

3.3.2.6.3.1 Functional Suitability

It assesses whether the system executes its intended functions correctly and efficiently, achieving the desired results. This includes criteria such as completeness, correctness, interoperability, and standard conformance. Organizations can assess how well a software system meets its functional needs by considering these elements.

3.3.2.6.3.2 Performance Efficiency

In order to verify the efficiency of a mobile application, its proponents compare the application output to what is expected outcome.

3.3.2.6.3.3 Compatibility

The extent to which a product, system, or component can communicate information with other products, systems, or components while sharing the same hardware or software environment.

3.3.2.6.3.4 Usability

The designers offered the most recent designs, search engines, and ratings. This guaranteed the system's usability.

3.3.2.6.3.5 Reliability

The mobile application is properly tested by the developers before being implemented. Its reliability was ensured by testing to see if it had the necessary functionality and prevented crashes and bugs when carrying out the functions that were programmed.

3.3.2.6.3.6 Security

The extent to which a product or system safeguards information and data so that people or other products or systems have data access appropriate to their types and levels of authorization.

3.3.2.6.3.7 Maintainability

This property denotes the degree of efficacy and efficiency with which a product or system may be updated to enhance, correct, or adapt to changes in the environment and requirements.

3.3.2.6.3.8 Portability

The ease with which a system, item, or component can be transferred from one operational or usage environment to another.

3.4 Design

3.4.1 Use Case Diagram

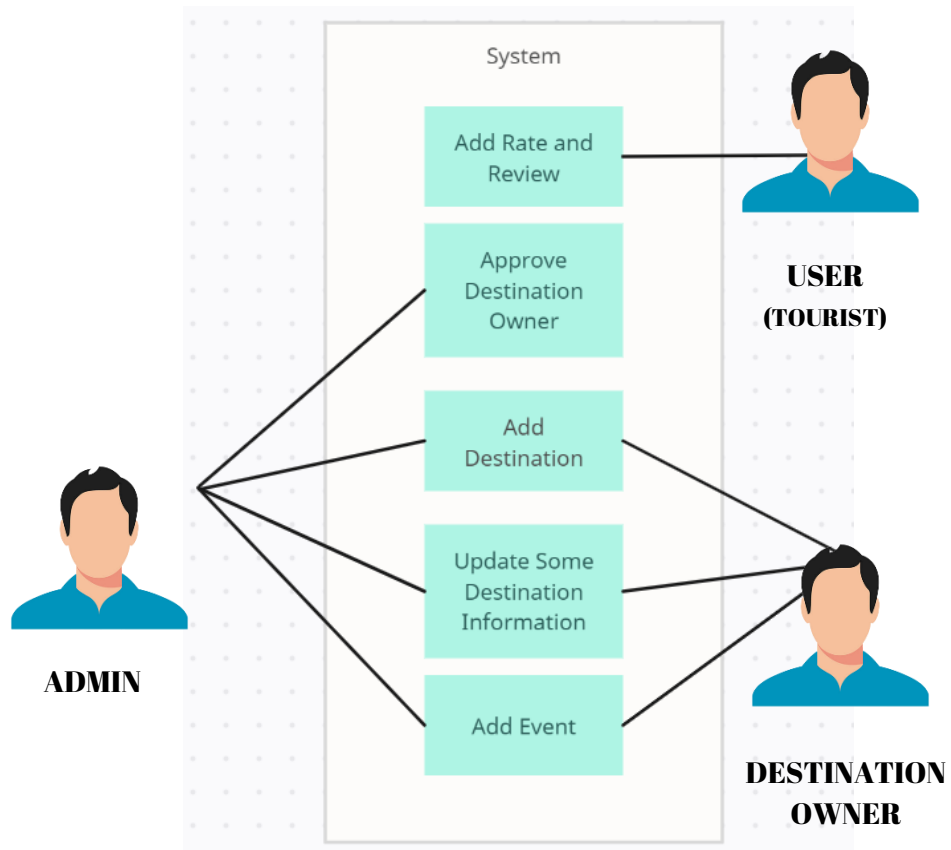


Figure 3.3: Use Case Diagram for Davao Oriental E-Tour

3.4.1.1 Use Case Descriptions

The explanations of the Use Case Diagram that the developers were using were supplied in this, enabling the users to manage different aspects of the Davao Oriental E-Tour Application.

3.4.1.1.1 Add Rate and Review

The table below shows the specific process on how to rate transactions:

Table 3.1: Add Rate and Review

Name	Add Rate and Review
Actors	User (Tourist)
Brief Description	The user can add the rate and review in the application.
Basic Flow	<p>This use case started when the user logged in, in the application.</p> <ul style="list-style-type: none"> • The user can add by tapping the review and rate icon on the application on the destination page. • The rate and reviews by another user will appear with the rate now button. • By tapping the Rate Now button, the rate and review form will appear. • After putting the necessary data in the rating and review, the user can tap the check button to submit the rate and review. • The use case ends.
Alternate Flows	<p>Cancel</p> <ul style="list-style-type: none"> • The user can cancel the rate and review by pressing the back navigation button.
Condition	<p>Success</p> <ul style="list-style-type: none"> • If the user submits the rate and review successfully.
	<p>Failure</p> <p>If users can't submit for any reason, like having an internet connection error.</p>

3.4.1.1.2 Approve Destination Owner

The table below shows the specific process of how to approve the destination owner:

Table 3.2: Approve Destination Owner

Name	Approve Destination Owner
Actors	Admin
Brief Description	The admin can approve the destination owner on its destination.
Basic Flow	<p>This use case starts when the admin logs in to the application.</p> <ul style="list-style-type: none"> Admin can approve the destination owner by approving their submitted data and information in the admin interface. The use case ends.
Alternate Flows	<p>Cancel</p> <ul style="list-style-type: none"> The admin can cancel his/her approval by tapping the cancel button.
Condition	<p>Success</p> <ul style="list-style-type: none"> If the admin succeeds in approving the destination owner's application.
	<p>Failure</p> <ul style="list-style-type: none"> If admin can't approve due to internet connections.

3.4.1.1.3 Add Destination

The table below shows the specific process of how to manage the destination.

Table 3.3: Add Destination

Name	Add Destination
Actors	Admin and Destination Owner
Brief Description	The admin and destination owner can add their destination.
Basic Flow	<p>Admin</p> <p>This use case starts when the admin logs in to the admin interface in the application.</p> <ul style="list-style-type: none"> The admin can add a destination by adding own public destination like parks.

	<ul style="list-style-type: none"> The use case ends. <p>Destination Owner</p> <p>This use case starts when the destination owner doesn't have an account yet and goes to the sign-in page, chooses to sign in as a destination owner, then taps the "Register your destination now."</p> <ul style="list-style-type: none"> By tapping the "Register your destination now," the form will appear. The destination owner must fill up the form and tap the submit button. The use case ends.
Alternate Flows	Admin
	<p>Cancel</p> <ul style="list-style-type: none"> The admin can cancel his/her add destination by tapping the cancel button.
	Destination Owner
	<p>Cancel</p> <ul style="list-style-type: none"> The destination owner can cancel his/her add destination/account creation by tapping the cancel button.
Condition	<p>Success</p> <ul style="list-style-type: none"> If the admin succeeded in adding a destination If the destination owner is successful in creating an account.
	<p>Failure</p> <ul style="list-style-type: none"> If the admin can't add due to lack of internet services, and the destination owner can't create an account due to lack of internet services also.

3.4.1.1.4 Update Some Destination Information

The table below shows the specific process of how to update some destination information.

Table 3.4: Update Some Destination Information

Name	Update Some Destination Information
Actors	Admin and Destination Owner
Brief Description	The admin and destination owner can update some destination information on the application.
Basic Flow	<p>Admin</p> <p>This use case starts when the admin logs in to the admin interface in the application.</p>

	<ul style="list-style-type: none"> • The admin updates some destination information by tapping the update destination button. • After tapping the update destination button, the form will appear. • By putting the new data, the admin can tap the save button to save the new data. • The use case ends. <p>Destination Owner</p> <p>This use case starts when the destination owner-created account is email verified, approved by the admin, and logged in, in the destination owner interface.</p> <ul style="list-style-type: none"> • The destination owner can update some destination information by tapping the update information icon. • After tapping the update information icon, the form will appear. • By putting in new data and information needed, you can tap its submit button. • The use case ends.
Alternate Flows	Cancel
	Admin
	<ul style="list-style-type: none"> • The admin can cancel his/her updated destination information by tapping the cancel button.
	Destination Owner
	<ul style="list-style-type: none"> • The destination owner can cancel his/her updated destination information by tapping the cancel button.
Condition	<p>Success</p> <ul style="list-style-type: none"> • If the admin succeeded in updating destination information. • If the destination owner is successful in updating destination information.
	<p>Failure</p> <ul style="list-style-type: none"> • If the admin and destination owner can't update due to a lack of internet services.

3.4.1.1.5 Add Event

The table below shows the specific process of how to add events.

Table 3.5: Add Events

Name	Add Events
Actors	Admin and Destination Owner
Brief Description	The admin and destination can add events to the application.
Basic Flow	Admin

	<p>This use case starts when the admin logs in to the admin interface in the application.</p> <ul style="list-style-type: none"> • The admin can add events by tapping the add event icon. • After tapping the add events icon, the form will appear. • After putting in the event data, the admin can tap the submit button. • The use case ends. <p>Destination Owner</p> <p>This use case starts when the destination owner-created account is email verified, approved by the admin, and logged in, in the destination owner interface.</p> <ul style="list-style-type: none"> • The destination owner can add events by tapping the add event icon. • After tapping the add events icon, the form will appear. • After putting event data, the destination owner can tap the submit button. • The use case ends.
Alternate Flows	Cancel
	<p>Admin</p> <ul style="list-style-type: none"> • The admin can cancel the add events by tapping the cancel button.
	<p>Destination Owner</p> <ul style="list-style-type: none"> • The destination owner can cancel his/her add events by tapping the cancel button.
Condition	<p>Success</p> <ul style="list-style-type: none"> • If the admin succeeded in adding an event. • If the destination owner is successful in adding an event.
	<p>Failure</p> <ul style="list-style-type: none"> • If the t admin and destination owner add an event due to a lack of internet services.

Data Dictionary

Collection: Destinations

Document ID: "0hX3oEg3aLg56fTOOI..." (Automatically generated by Firebase)

- Field: desType
 - Type: String
 - Sample Value: "Beach"
 - Description: The type of the destination, in this case, it is a beach.
- Field: destActivities
 - Type: String
 - Sample Value: "Swimming, Site Seeing"
 - Description: Activities available at the destination, such as swimming and etc.
- Field: destAdd
 - Type: String
 - Sample Value: "Purok lapyahan, Barangay Macangao, Lupon, Davao Oriental"
 - Description: The address of the destination.
- Field: destBringInfo
 - Type: String
 - Sample Value: "Snacks, Water"
 - Description: Information about visitors such as vaccination card and etc.

- Field: destContact
 - Type: String
 - Sample Value: "09686288800"
 - Description: Contact information for the destination like phone number.
- Field: destCorkage
 - Type: String
 - Sample Value: "No information yet"
 - Description: Details about corkage (fee or policy related to bringing outside drinks) at the destination.
- Field: destEntranceFee
 - Type: String
 - Sample Value: "Daytour - 7am to 5pm Overnight - 12 nn to 12 nn Php: 20.00 for all ages"
 - Description: Entrance fee details for the destination, including pricing and time restrictions.
- Field: destKioskCottage
 - Type: String
 - Sample Value: "Open green gazebo: Php - 500.00 Open bamboo: Php - 800.00 "
 - Description: Information about kiosk and cottage rentals at the destination, including pricing.

- Field: destName
 - Type: String
 - Sample Value: "Camp Juan Resort"
 - Description: The name of the destination, which in this case is "Camp Juan Resort".
- Field: destRoom
 - Type: String
 - Sample Value: "No information yet"
 - Description: Information about the available rooms at the destination.
- Field: destTransInfo
 - Type: String
 - Sample Value: "No information yet"
 - Description: Details about transportation to the destination.
- Field: displayImage
 - Type: String
 - Sample Value:
["https://firebasestorage.googleapis.com/v0/displayImage.jpg"](https://firebasestorage.googleapis.com/v0/displayImage.jpg)
 - Description: The URL of the display image for the destination.
- Field: images (missing sample value)
 - Type: String
 - Sample Value: ["https://firebasestorage.googleapis.com/v0/images.jpg"](https://firebasestorage.googleapis.com/v0/images.jpg)

- Description: URLs of additional images related to the destination.

Collection: Events

Document ID: "-NXhW-t5N04SYQXI...." (Automatically generated by Firebase)

- Field: desOwnerId
 - Type: String
 - Sample Value: "EventAddedByAdmin"
 - Description: The ID of the event.
- Field: eventDate
 - Type: String
 - Sample Value: "29/10/2023"
 - Description: The date of the event.
- Field: eventFee
 - Type: String
 - Sample Value: "Free"
 - Description: The fee or cost associated with attending the event.
- Field: eventImg
 - Type: String
 - Sample Value: "<https://example.com/image.jpg>"
 - Description: The URL of the image associated with the event.
- Field: eventLocation

- Type: String
- Sample Value: "Mati City"
- Description: The location where the event is taking place.
- Field: eventName
 - Type: String
 - Sample Value: "Sambuokan Fest."
 - Description: The name or title of the event.

Collection: Feedback

Document ID: "-NWReEeH9HBjgVJ...." (Automatically generated by Firebase)

- Field: feedback
 - Type: String
 - Sample Value: "Improve UI"
 - Description: The feedback provided by the user, suggesting improvements for the user interface.
- Field: userId
 - Type: String
 - Sample Value: "tat0T705SmRADJOMkaBNErCC...."
 - Description: The ID of the user who submitted the feedback.

Collection: Ratings

Document ID: "0hX3oEg3aLg56fTOO...." (Automatically generated by Firebase)

- Field: `userId`
 - Type: String
 - Sample Value: "4.5"
 - Description: The rating given `userId`. The `userId` represents the user who provided the rating.
- Field: `review`
 - Type: String
 - Sample Value: "Wow so nice"
 - Description: The review or comment provided by the user regarding their experience.
- Field: `timestamp`
 - Type: String
 - Sample Value: "2023-06-08 14:13:54"
 - Description: The timestamp indicating when the rating and review were submitted.

Collection: Owner

Document ID: 4xCKvfwCJrVE7Z417SCypU4p.... (Automatically generated by Firebase)

- Field: `displayImg`
 - Type: String

- Sample Value: "<https://firebasestorage.googleapis.com/v1/b/your-bucket.appspot.com/o/your-image.jpg?alt=media&token=your-token>"
 - Description: The URL of the display image associated with the approval.
- Field: etDesName
 - Type: String
 - Sample Value: "Maam Lesley beach"
 - Description: The name of the destination associated with the approval.
- Field: etEmail
 - Type: String
 - Sample Value: "danieljay062198@gmail.com"
 - Description: The email address associated with the approval.
- Field: etFullName
 - Type: String
 - Sample Value: "Maam Lesley"
 - Description: The full name associated with the approval.
- Field: etLocation
 - Type: String
 - Sample Value: "Mati City"
 - Description: The location associated with the approval.
- Field: etPhone
 - Type: String
 - Sample Value: "09165371238"

- Description: The phone number associated with the approval.
- Field: latitude
 - Type: String
 - Sample Value: "6.885714"
 - Description: The latitude value associated with the approval.
- Field: longitude
 - Type: String
 - Sample Value: "126.278798"
 - Description: The longitude value associated with the approval.
- Field: proofImg
 - Type: String
 - Sample Value: "<https://firebasestorage.googleapis.com/v /proofImage>"
 - Description: The URL of the proof image associated with the approval.

Collection: User

Document ID: 6KrF50SmlLToyUvuH1tpB0JE.... (Automatically generated by Firebase)

- Field: email
 - Type: String
 - Sample Value: "sample@gmail.com"
 - Description: The email associated with the user.
- Field: interestBeach

- Type: Boolean
 - Sample Value: true
 - Description: Indicates whether the user is interested in beach-related activities. The value can be true if interested or false if not.
- Field: name
 - Type: String
 - Sample Value: "Sample John"
 - Description: The name of the user.

Mock-Up Design

The mock-up design below is created using the Figma application to show the plan design of the Davao Oriental E-Tour.

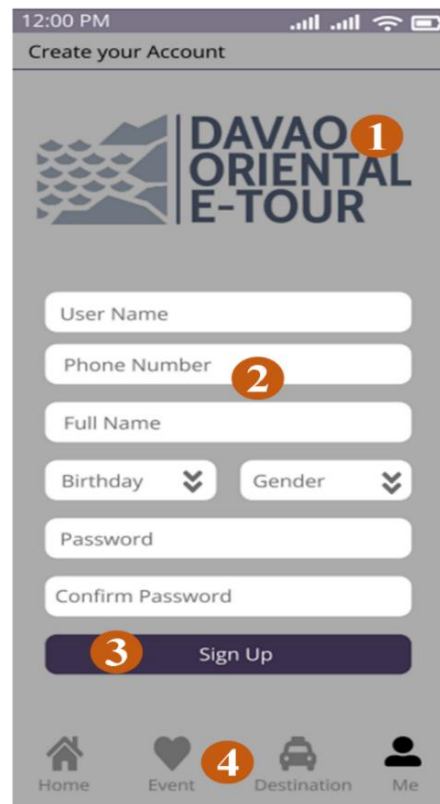


Figure 3.4: Registration Page

A registration page is a page that allows users to create an account by entering personal information.

Table 3.6: Registration Page

No.	UI Components	Name	Description
1	Logo	App Logo	Name of Site/Logo

2	Text	Text Field	Input User Information
3	Button	Sign Up	Button to Signup
4	Button	Navigation	Home/Event/Destination/Me Button

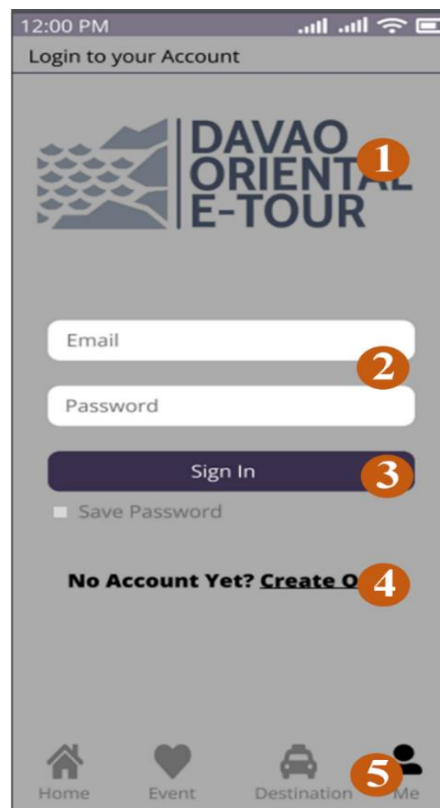


Figure 3.5: Login page

A login page is a page that allows users to access their account by entering their username and password.

Table 3.7: Login Page

No.	UI Components	Name	Description
1	Logo	App Logo	Name of Site/Logo

2	Text	Text Field	Input User Account for Login
3	Button	Login	Button to Login
4	Text/Link	Login link	Switch to user login
5	Button	Navigation	Home/Event/Destination/Me Button



Figure 3.6: Home Page

A home page is the main screen that users see after opening the app.

Table 3.8: Home Page

No.	UI Components	Name	Description
1	Text	Search	Search for Destinations

2	Logo	App Logo	Name of Site/Logo
3	Display	Destination Image	Image Preview of Destination
4	Button	Rate	Rating Button
5	Display	Promotion	Image/Text to display promotion
6	Button	Navigation	Home/Event/Destination/Me Button

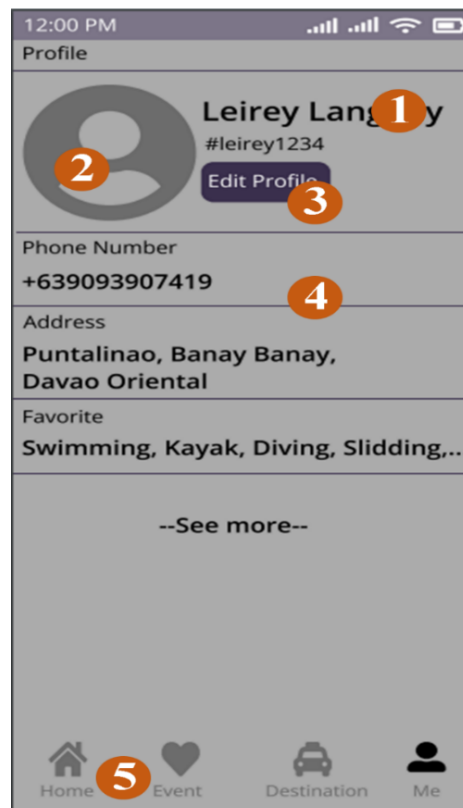


Figure 3.7: Profile Page

A profile page is a page that displays information about the user. It may include the user's name, profile picture, etc.

Table 3.9: Profile Page

No.	UI Components	Name	Description
1	Text	User Name	Name of the user
2	Display	Profile Image	Profile Image
3	Button	Edit Profile	Button to edit profile
4	Text	User Info	User information details
5	Button	Navigation	Home/Event/Destination/Me Button

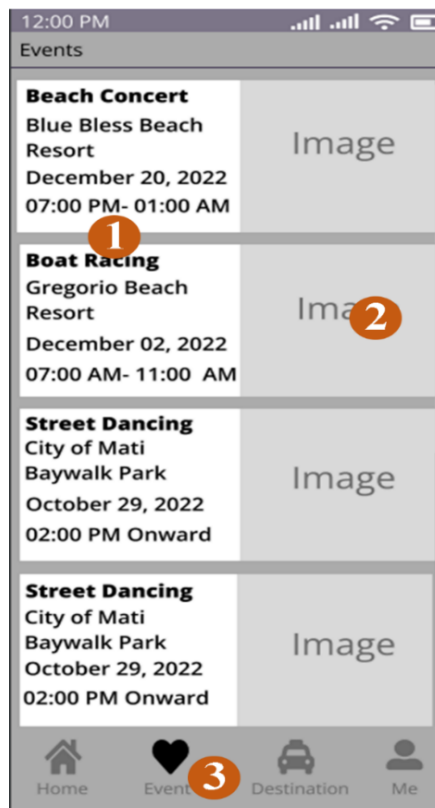


Figure 3.8: Event Page

An event page is a page that provides information about a specific event, such as a concert, activities, etc.

Table 3.10: Event Page

No.	UI Components	Name	Description
1	Text	Event Info	Information of Event
2	Display	Event Image	Sample/Preview Image of Events
3	Button	Navigation	Home/Event/Destination/Me Button

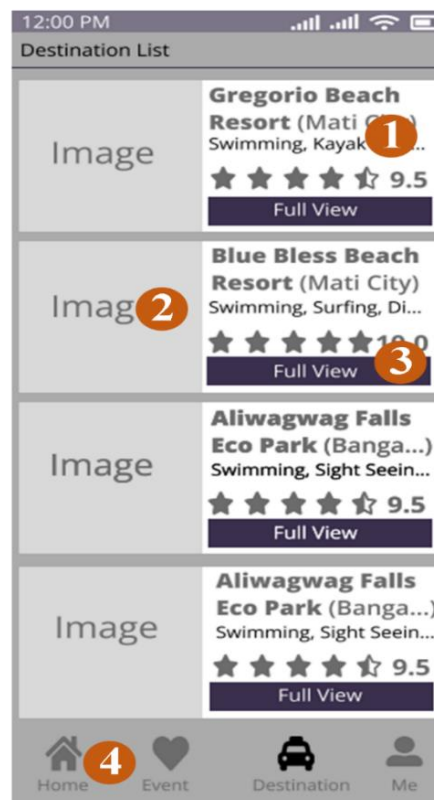


Figure 3.9: Preview Destinations Page

The preview destination page is composed of partial information about the destination, and the user can tap the full view button to see more.

Table 3.11: Preview Destinations Page

No.	UI Components	Name	Description
1	Text	Destination All Info	All information about the destination
2	Display	Destination Image	Image of Destination/Preview
3	Button	Full View	Switch to Full view of information
4	Button	Navigation	Home/Event/Destination/Me Button



Figure 3.10: Full view Destination Page

A full-view destination page is a page that provides information about the specific destination, including a few images, some fare information, and more.

Table 3.12: Full View Destinations Page

No.	UI Components	Name	Description
1	Text	Destination Info	Information about the destination
2	Display	Destination Image	Image of Destination/Preview
3	Button	Preview Location	Display the location and 360 views if available
4	Button	Navigation	Home/Event/Destination/Me Button

3.5 Development and Testing

The developers employed tools to develop and implement the prototype technique in developing the plan as they built this mobile application, gathering information from reliable web sources while designing the interface and features of the system. The developers picked Agile as their methodology for the distributed assignment.

The system was assessed by testing the mobile application with users who were familiar with Davao Oriental E-Tour and who were suitable in the place where the system's software would function. This suggests that developers might create new ideas to enhance the system.

3.5.1 Data Analysis Plan

The data was analyzed using Weighted Arithmetic Mean after it was collected. It was utilized to calculate the average replies for each of the five (5)

alternatives in the evaluation, namely 5 (Excellent), 4 (Good), 3 (Satisfactory), 2 (Needs Improvement), and 1 (Unsatisfactory). The respondents' answers on the survey may produce the Likert scale.

The points are used:

Excellent

Good

Satisfactory

Needs Improvement

Unsatisfactory

CHAPTER IV

RESULT AND DISCUSSION

4.1 Achievement per Objective

4.1.1 Development of Davao Oriental E-Tour

4.1.1.1 Allow users to look at all tourist destinations registered in tourism and its route.

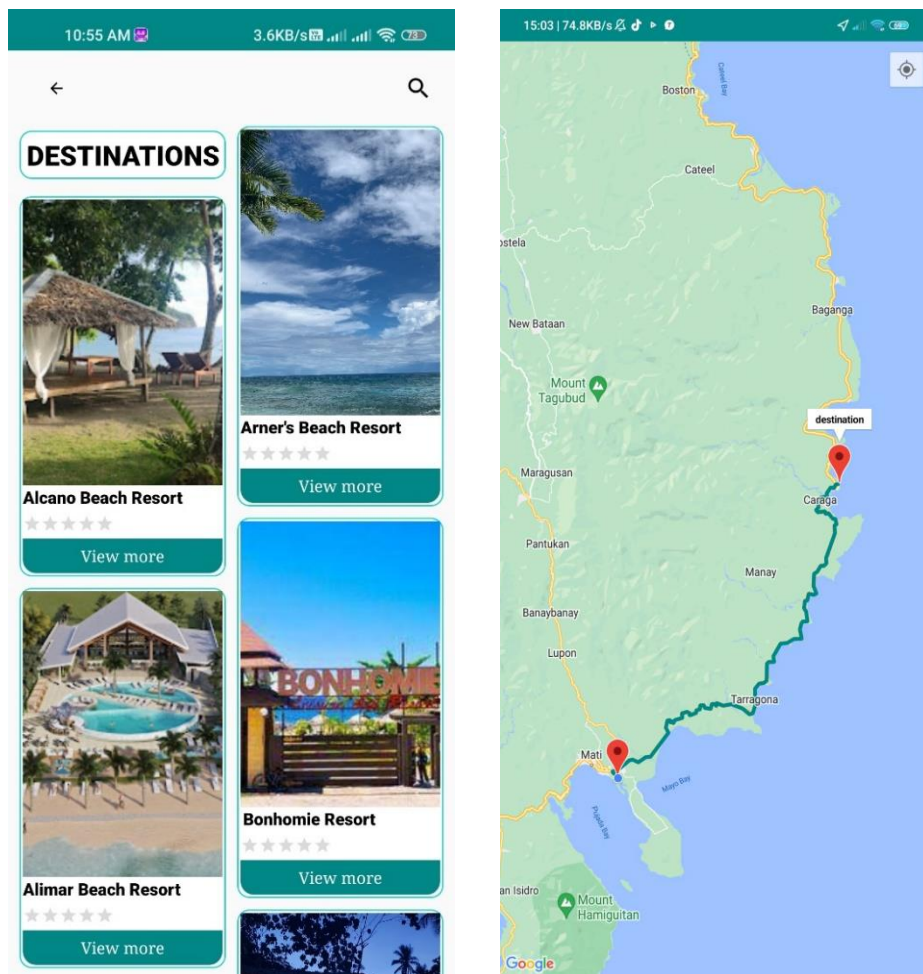


Figure 4.1: Davao Oriental E-Tour's Destination and Route

The image shown in Figure 4.1 displays details about a certain location, including the address, fees, and more. It also displays the route to the destination.

4.1.1.2 Users will be able to experience 360 view tour/street view in selected destinations.

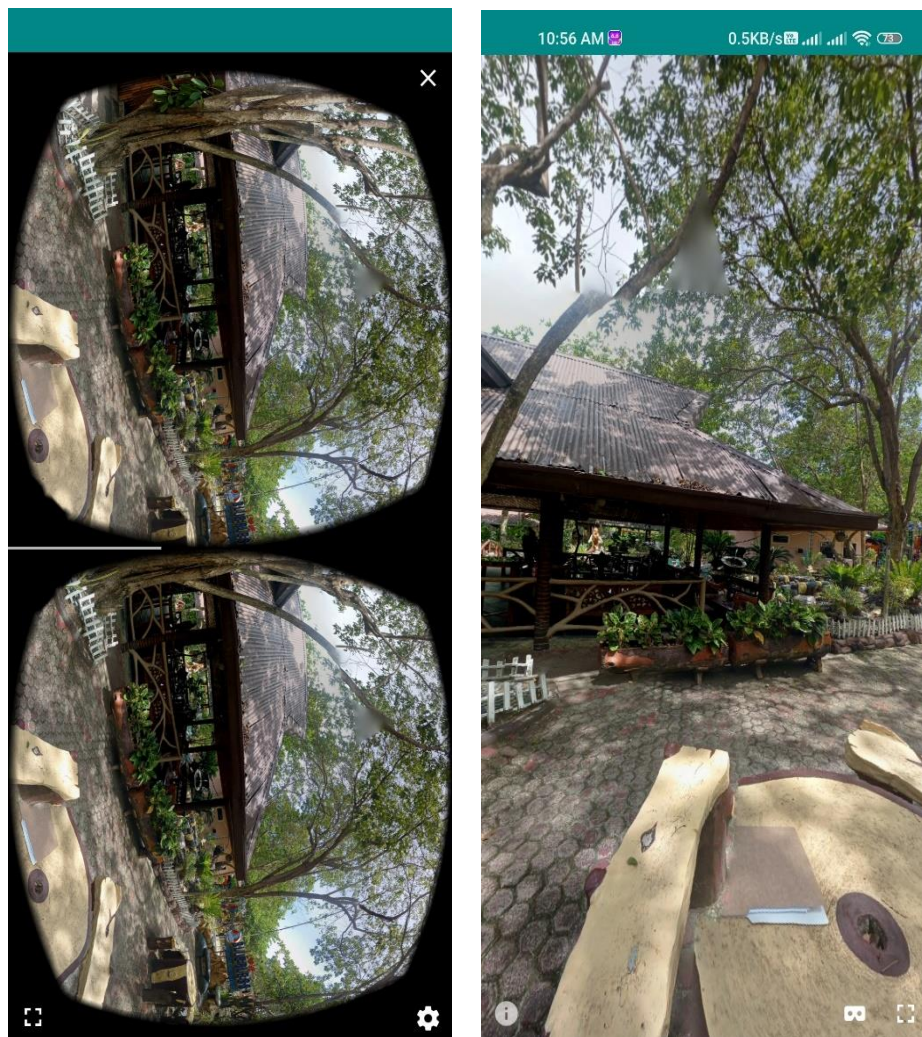


Figure 4.2: Davao Oriental E-Tour's 360-degree image

The image shown in Figure 4.2 displays a 360-degree view of a particular location for the greatest viewing experience.

4.1.1.3 Allows users to see upcoming events on some tourist destinations

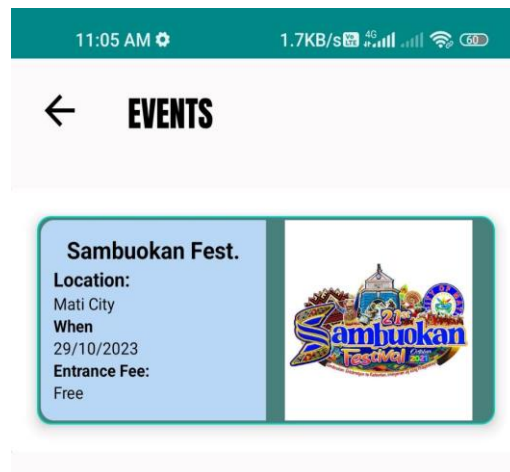


Figure 4.3: Davao Oriental E-Tour's Events

The image shown above displays the possible event created by the destination admin or owner to let the users know the upcoming events.

4.1.1.4 Users will know what to prepare if they want to go to destinations.

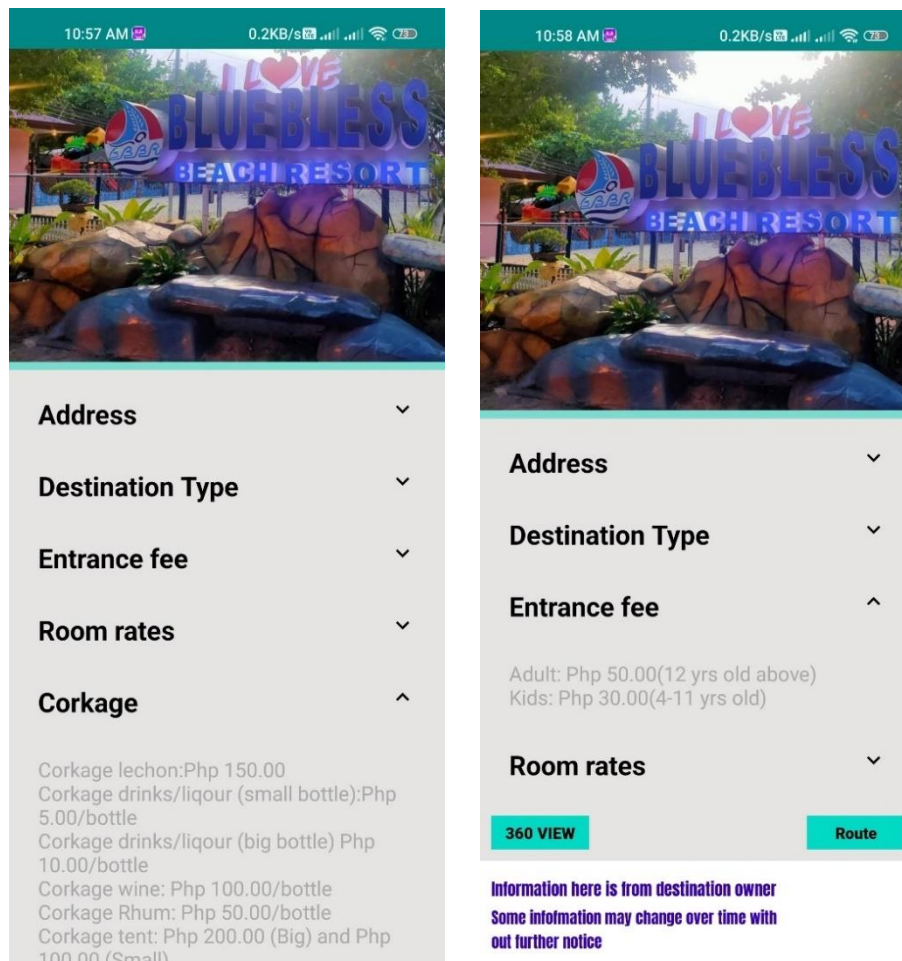


Figure 4.4: Information Needs on that destination

The image shown above displays the information that the users need to prepare for the destination they choose.

4.1.1.5 Allow the users to see system suggestions based on other users' recent activities.

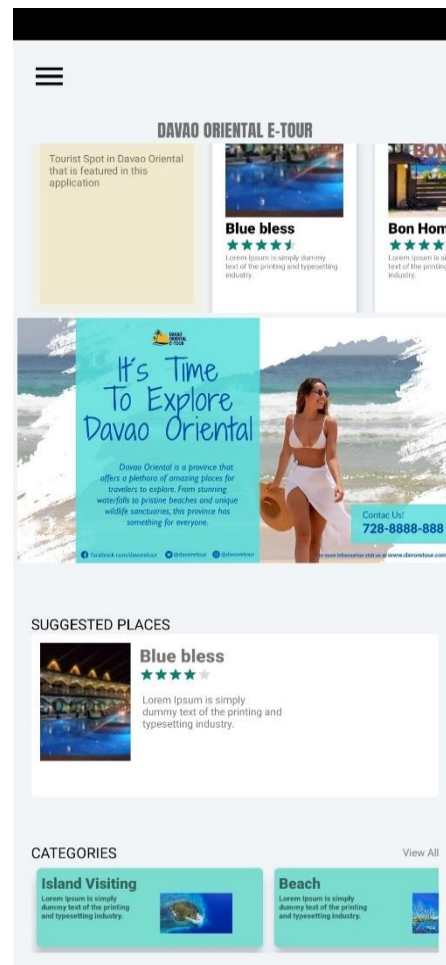


Figure 4.5: Suggested Places by other users

The image shown above displays the suggested destination by another user.

4.1.1.6 Allows users to view transport information on each destination.

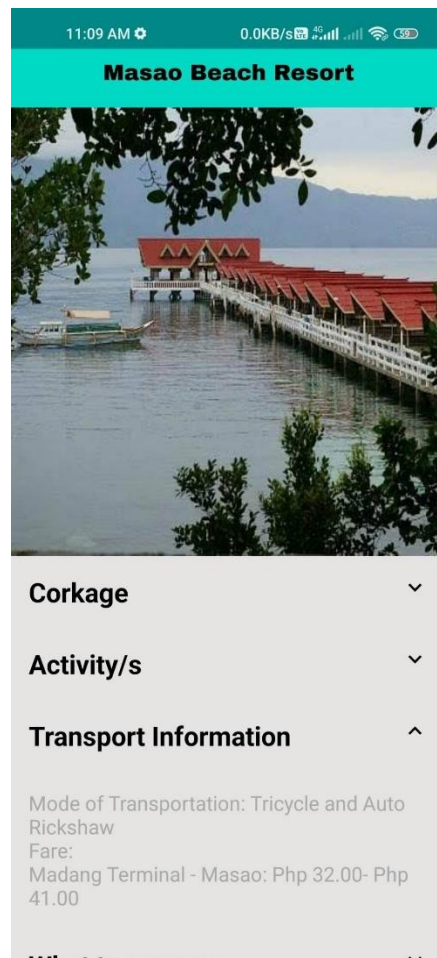


Figure 4.6: Davao Oriental E-Tour's Transport Information

The image shown above displays the transportation or fare information of the specific destination.

4.1.1.7 Allow users to rate their experience in every destination

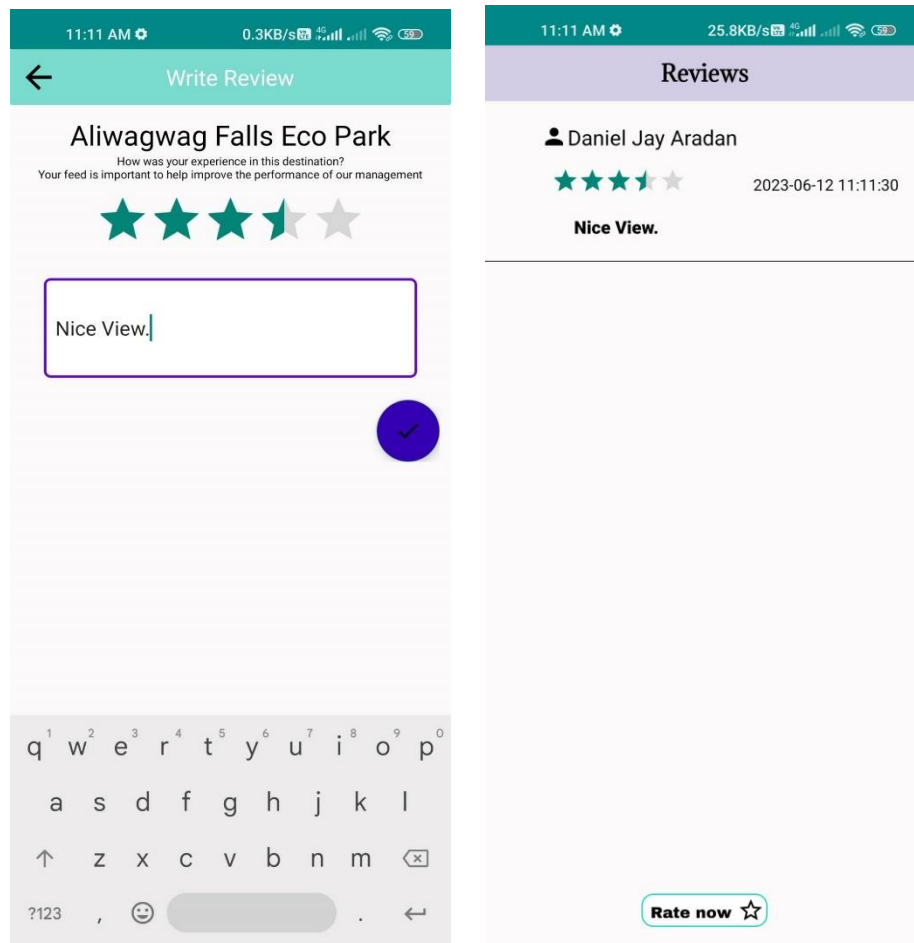


Figure 4.7: Davao Oriental E-Tour's Rate and Review

The image shown above displays that users can rate their experience.

4.1.1.8 Allows the user to search for a destination in Davao Oriental

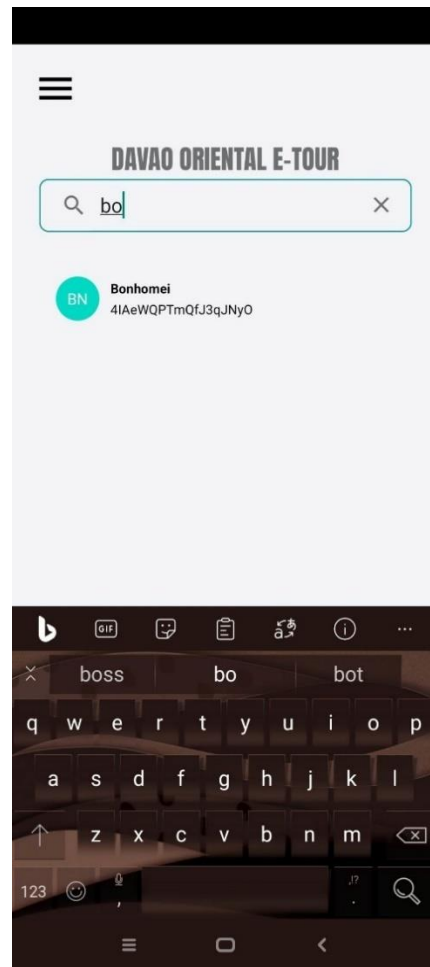


Figure 4.8: Search destination in Davao Oriental E-Tour


The image showed above displays that users can search for a destination in Davao Oriental.


4.1.1.9 Provide Feedback about Application Deficiencies


11:01 AM 0.2KB/s 72%

Contact Us

For any inquiries and suggestions, please contact us at:

 coders@gmail.com.com

 +63 909 390 7419

 Phase 6 Block 4, Guang Guang,
Dahican, Mati City

Please improve the ui.

Submit





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a s d f g h j k l
↑ z x c v b n m 
?123 ,   . 

Figure 4.9: Feedback about the Davao Oriental E-Tour's Deficiencies

The image shown above displays that users can provide feedback about the application's deficiencies and what is needed to improve the application.

4.1.2 Testing/Implementation Results

4.1.2.1 Presentation

After the implementation of the application, we gathered 30 respondents to try our application and respond to our approved survey. The respondents are Davao Oriental locals and some are from the neighboring provinces. The researchers analyzed the collected data, which was obtained using the weighted average mean.

4.1.2.2 Analysis and Implementation of Data

Table 4.1: Weighted Arithmetic Mean

Range	Interpretation
4.50 – 5.00	Excellent
3.50 – 4.49	Good
2.50 – 3.49	Satisfactory
1.50 – 2.49	Needs Improvement
1.00 – 1.49	Unsatisfactory

Table 4.2: Average Weighted

Indicators	Respondents	Standard Deviation	Weighted Average	Interpretation
Functional Suitability	30	0.47	4.65	Excellent
Performance Efficiency	30	0.59	4.26	Good
Compatibility	30	0.60	4.36	Good
Usability	30	0.47	4.61	Excellent
Reliability	30	0.51	4.40	Good
Security	30	0.42	4.65	Excellent
Maintainability	30	0.65	4.20	Good
Portability	30	0.59	4.36	Good
Overall Weighted Mean	30	0.54	4.44	Good

Table 4.2: Presents indicators, standard deviations, average means, and descriptive levels for various aspects of the Davao Oriental E-tour system. Here is a discussion based on the information provided:

Functional Suitability: This indicator measures how well the system meets its intended functional requirements. With a standard deviation of 0.47 and an average mean of 4.66, the system shows excellent performance in terms of functional suitability. This suggests that the system is highly capable of meeting the expected functionality.

Performance Efficiency: This indicator evaluates the system's performance in terms of speed, response time, and resource utilization. The standard deviation of 0.59 indicates a moderate level of variability, while the average mean of 4.27 suggests that the system performs good in terms of performance efficiency. This implies that the system operates efficiently, providing fast and responsive services to users.

Compatibility: Compatibility measures the system's ability to interact and operate with other systems or platforms seamlessly. The indicator shows a standard deviation of 0.60 and an average mean of 4.37, indicating good compatibility. This means that the Davao Oriental E-tour system is well-integrated with other systems, allowing smooth data exchange and interoperability.

Usability: Usability indicates how user-friendly and intuitive the system is for its intended users. The standard deviation of 0.47 and an average mean of 4.61 indicate excellent usability. This suggests that the system is easy to navigate and understand,

providing a positive user experience and allowing users to efficiently accomplish their tasks.

Reliability: Reliability measures the system's ability to perform its intended functions consistently and accurately. With a standard deviation of 0.51 and an average mean of 4.40, the Davao Oriental E-tour system demonstrates good reliability. This implies that users can rely on the system to deliver accurate and consistent results.

Security: Security reflects the system's ability to protect data and ensure confidentiality, integrity, and availability. The indicator shows a low standard deviation of 0.42 and an average mean of 4.66, indicating excellent security measures in place. This suggests that the system has implemented robust security features to safeguard user data and protect against unauthorized access.

Maintainability: Maintainability assesses how easily the system can be modified, updated, or repaired. With a higher standard deviation of 0.65 and an average mean of 4.20, the system demonstrates good maintainability. While there might be some variability in terms of maintenance efforts, the system is still considered good in this aspect.

Portability: Portability measures the ease with which the system can be transferred or adapted to different environments or platforms. The standard deviation of 0.59 and an average mean of 4.37 indicate good portability. This implies that the Davao Oriental E-tour system can be easily deployed and used across various platforms and environments.

Overall, the Davao Oriental E-tour system performs good across all indicators, as evidenced by the high average means and descriptive levels. It demonstrates strong functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. Users can expect a reliable, efficient, and user-friendly experience while using the system for e-tourism purposes in Davao Oriental.

4.1.2.3 Implementation Plan

Table 4.3 Davao Oriental E-Tour Implementation Plan

Strategy	Activity	Persons involved	Duration
Approval from the selected users	Letter for the administrator	Researchers/Developers, Users	1 Day
Information Distribution	Posters	Researchers/Developers, Users	1 Day

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Summary

The Davao Oriental E-Tour is created to meet the needs of visitors who intend to travel to Davao Oriental. The application gives details about a variety of tourist sites in the province, like beaches and other natural features. It also contains details on possible events, activities offered, transportation fares, and some lodging information.

By allowing traveler exploration of the region, the project hopes to increase tourism in the province. It is anticipated that the mobile applications will offer visitors a seamless and simple experience. The app can help visitors plan their vacations and get the most out of their time in the province by offering pertinent and current information.

Moreover, the project was also created using the following tools: Android Studio for the IDE, XML for designing, Firebase for database management, Java as the programming Language, AVD management for virtual devices, and some of the available Google APIs. The development of the application took exactly four months. To comply with the ISO Standards, the developers evaluated the Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, Maintainability, and Portability of the system.

5.2 Conclusion

In conclusion, the developers of the Davao Oriental E-Tour mobile application have determined that through this platform, even individuals who are not yet familiar with Davao Oriental will have the opportunity to discover and explore the various attractions the region has to offer. By providing an easily accessible and user-friendly interface, the application effectively showcases the diverse range of tourist destinations in Davao Oriental, ensuring that both well-known and hidden gems are brought to the attention of potential visitors.

5.3 Recommendation

The application was developed incorporating its objectives and, scope and limitations. With the respondents testing the application, the researchers gathered recommendations that were believed to help improve the Davao Oriental E-Tour.

- iOS Version
- More destinations should be added.
- Further improvements to the user interface.

REFERENCES

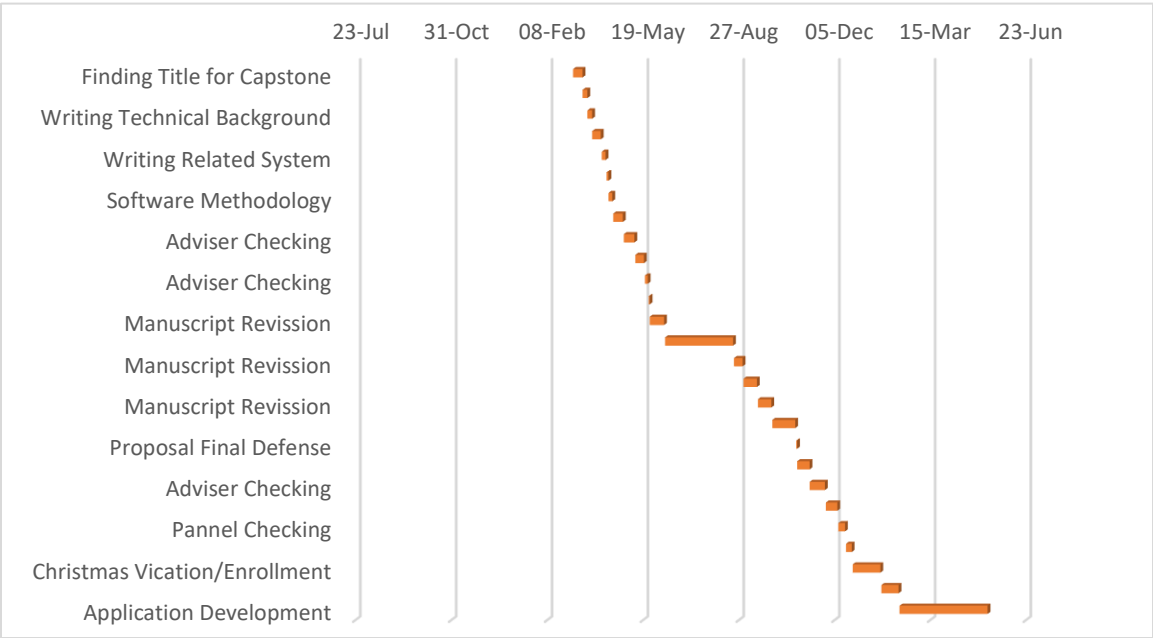
- Brown, B., & M., C. (2003, September 14). *Tourism and Mobile Technology*. Retrieved from Semantic Scholar: <https://www.semanticscholar.org/paper/Tourism-and-Mobile-Technology-Brown-Chalmers/6687b4e0d2bd015b1042f908e7ab72701ef12277>
- Dr. MD Islam, R., & Mazumder, T. (2010, January). *Mobile application and its global impact*. Retrieved from ResearchGate: https://www.researchgate.net/publication/308022297_Mobile_application_and_its_global_impact
- Ducrohet, X., Norbye, T., & Chou, K. (2013, May 15). *Android Studio: An IDE built for Android*. Retrieved from Developers: <https://android-developers.googleblog.com/2013/05/android-studio-ide-built-for-android.html>
- Firebase. (2022). *Firebase Realtime Database*. Retrieved from Firebase: <https://firebase.google.com/docs/database>
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015, August 1). *Smart tourism: foundations and developments*. Retrieved from Springer Link: <https://link.springer.com/article/10.1007/s12525-015-0196-8>
- Harrison, R., Flood, D., & Duce, D. (2013). *Usability of mobile applications: Literature review and rationale for a new usability model*. Retrieved from ResearchGate: https://www.researchgate.net/publication/257884698_Usability_of_mobile_applications_Literature_review_and_rationale_for_a_new_usability_model
- Saqib, A. (2012, July 28). *Pencil Project: A Powerful & Easy-To-Use GUI Prototyping Tool*. Retrieved from AddictiveTips: <https://www.addictivetips.com/windows-tips/pencil-project-a-powerful-easy-to-use-gui-prototyping-tool/>
- K, R. (2021, July 8). *Benefits of Mobile Apps for Travel & Tourism Industry*. Retrieved from LinkedIn: <https://www.linkedin.com/pulse/benefits-mobile-apps-travel-tourism-industry-rushikesh-k/>
- Rashid, R. (2020). Mobile Apps in Tourism Communication: The Strengths and Weaknesses on Tourism Trips. *Journal of Physics: Conference Series*.
- Stoltzfus, J. (2020, November 27). *Java*. Retrieved from Techopedia: <https://www.techopedia.com/definition/3927/java>

- Team, T. (2016, December 3). *How Mobile Apps are Transforming the Travel and Tourism Industry*. Retrieved from Techahead:
<https://www.techaheadcorp.com/blog/mobile-apps-transforming-travel-tourism-industry/>
- Aarathi Krishnan. 1/20/2022. "Humanitarian Digital Ethics: A Foresight And Decolonial Governance Approach". Carr Center Discussion Paper Series.
<https://carrcenter.hks.harvard.edu/files/cchr/files/krishnan.pdf>.
- Buhalis, D., Rosanna, L., & Law, R. (n.d.). *Information Technology Applications in Hospitality and Tourism*. Retrieved from Academia:
https://www.academia.edu/195679/Law_R_Leung_R_and_Buhalis_D_2009_Information_Technology_Applications_in_Hospitality_and_Tourism_A_Review_of_Publications_from_2005_to_2007_Journal_of_Travel_and_Tourism_Marketing_Vol_26_5_pp_599_623
- Rivera, M., Robertico, C., & Yunying, Z. (2016). Developing mobile services: a look at first-time and repeat visitors in a small island destination. *International Journal of Contemporary Hospitality*, Vol.28 Iss 12 pp.
- Brown, & Chalmers. (2003, September 14). *Tourism and Mobile Technology*. Retrieved from Semantic scholar: <https://www.semanticscholar.org/paper/Tourism-and-Mobile-Technology-Brown-Chalmers/6687b4e0d2bd015b1042f908e7ab72701ef12277>

APPENDICES

Appendix A

Gantt Chart



Appendix B

Advisory Agreement

Appendix C

Statistician




Republic of the Philippines
DAVAO ORIENTAL STATE UNIVERSITY
Guang-guang, Dahican, City of Mati, Davao Oriental

C E R T I F I C A T I O N

This is to certify that the BSIT Capstone Project entitled "**Davao Oriental ETour**" by Leirey S. Languay, Daniel P. Aradan and Khalid I. Dalman has been statistically reviewed by the undersigned.

This certification has been issued for whatever purpose it may serve them best. Given this 26th of June 2023 at Davao Oriental University.


ALGASMER B. ATO
Statistician

Appendix D

English Critic Certification




Republic of the Philippines
DAVAO ORIENTAL STATE UNIVERSITY
Guang-guang, Dahican, City of Mati, Davao Oriental

C E R T I F I C A T I O N

This is to certify that the BSIT Capstone Project entitled "**Davao Oriental ETour**" by Leirey S. Languay, Daniel P. Aradan, and Khalid I. Dalman has undergone thorough corrections.

This certification has been issued for whatever purpose it may serve them best.

Given this 30th of June 2023 at Davao Oriental University.


ALVIN JOHN M. ALIGATO
English Critic

Appendix E

User Testing/ Evaluation

Sheet (Blank)

SURVEY QUESTIONNAIRE

Capstone and Research Title: **“Davao Oriental ETour”**

Dear Sir/Madam:

This survey questionnaire is conducted by student of Davao Oriental State University under the Faculty of Computing, Data Science, Engineering, and Technology for the purpose of Capstone and Research.

We humbly request your permission to conduct a survey. The purpose of the survey is to gather information about your experience on our system. The data collected will be used to find what is lacking in our system and it will help a lot, such as improve our design and interface, improve usability, gain a better understanding of user needs.

If you have any questions or concerns, please do not hesitate to contact me at leireylanguay@gmail.com.

Thank you for considering our request.

Name:(Optional) _____ Age: ____ Sex: ____

Address: _____

Rubrics		
1	Unsatisfactory	The work or performance does not meet the minimum requirements or expectations.
2	Needs Improvement	The work or performance meets some of the requirements or expectations, but not all of them.
3	Satisfactory	The work or performance meets the minimum requirements or expectations.
4	Good	The work or performance exceeds the minimum requirements or expectations.
5	Excellent	The work or performance is outstanding and demonstrates exceptional understanding and skill.

Functional Suitability:

	1	2	3	4	5
User can view the destination in Davao Oriental					
User can able to use 360/Street View					
User can search destination					
Users can get relevant information about the destination					
Users can rate and provide feedback on destination					
The applications route is easy to navigate					

Performance Efficiency:

	1	2	3	4	5
The amount of time it takes for application to load.					
The application function correctly and consistently over time.					
The time it takes the information of mobile application to fetch					

Compatibility:

	1	2	3	4	5

The mobile application integrates effectively with external APIs or third-party software components.					
The mobile application effectively coexists with other installed programs on the same device without creating conflicts or performance difficulties.					

Usability:

	1	2	3	4	5
The application is easy to use					
The information in application is easy to understand					
The application is able to accomplish the intended tasks and satisfy the users' needs.					

Reliability:

	1	2	3	4	5
The application is able to handle unexpected inputs.					
The application is able to handle error and exceptions					

Security:

	1	2	3	4	5
The system secures against unauthorized access and manipulation of data.					
The system ensures that personal data are accessible only to those authorized to have access.					
The destination and events can be added only by verified account. So that they cannot be later denied.					

Maintainability:

	1	2	3	4	5
The mobile application is composed of discrete components such that a change to one component has minimal impact on other components.					

The mobile application can be effectively and efficiently modified without introducing defects or degrading existing product quality.					
---------------------------------------------------------------------------------------------------------------------------------------	--	--	--	--	--

Portability:

	1	2	3	4	5
The mobile application is compatible with older versions starting with Android 5.0.					
The mobile application can be successfully installed and uninstalled according to preference.					
The mobile application can withstand technology evolution and changes without costly redesign, reconfiguration, or recoding.					

Comments/Suggestions:

Appendix F

Evaluation Result

Item	1	2	3	4	5	Weighted Mean
Functional Suitability						
User can view the destination in Davao Oriental	0	0	1	4	25	4.63
User can able to use 360/Street View	0	0	1	7	22	4.56
User can search destination	0	0	0	3	27	4.73
Users can get relevant information about the destination	0	0	1	4	25	4.66
Users can rate and provide feedback on destination	0	0	2	2	26	4.63
The applications route is easy to navigate	0	0	1	3	26	4.70
Performance Efficiency						
The amount of time it takes for application to load.	0	1	0	17	12	4.20
The application function correctly and consistently over time.	0	0	1	11	18	4.43
The time it takes the information of mobile application to fetch	0	0	1	19	10	4.16
Compatibility						
The mobile application integrates effectively with external APIs or third-party software components.	0	0	4	11	15	4.23
The mobile application effectively coexists with other installed programs on the same device without creating conflicts or performance difficulties.	0	0	0	11	19	4.50
Usability						
The application is easy to use	0	0	1	2	27	4.73
The information in application is easy to understand	0	0	0	6	24	4.66
The application is able to accomplish the intended tasks and satisfy the users' needs.	0	0	1	12	17	4.43
Reliability						
The application is able to handle unexpected inputs.	0	0	0	13	17	4.43
The application is able to handle error and exceptions	0	0	0	15	15	4.36
Security						
The system secures against unauthorized access and manipulation of data.	0	0	0	8	21	4.53
The system ensures that personal data are accessible only to those authorized to have access.	0	0	1	5	25	4.70

The destination and events can be added only by verified account. So that they cannot be later denied.	0	0	0	4	26	4.73
Maintainability						
The mobile application is composed of discrete components such that a change to one component has minimal impact on other components.	0	0	4	16	10	4.10
The mobile application can be effectively and efficiently modified without introducing defects or degrading existing product quality.	0	0	2	13	15	4.30
Portability						
The mobile application is compatible with older versions starting with Android 5.0.	0	0	1	15	14	4.30
The mobile application can be successfully installed and uninstalled according to preference.	0	0	2	2	26	4.63
The mobile application can withstand technology evolution and changes without costly redesign, reconfiguration, or recoding.	0	0	3	16	11	4.16

Appendix G

User's Manual

User's Manual

Davao Oriental E-Tour

Developers:

Leirey S. Languay, Daniel Jay P. Aradan, & Khalid I. Dalman

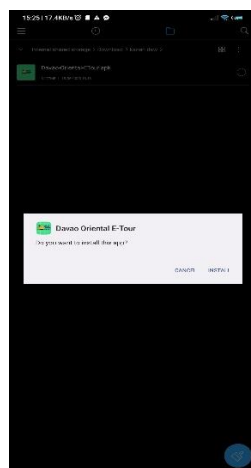
Pre-Installation

Before installing the Davao Oriental E-Tour application, please take note that the said application only works on android smart phones with the following minimum system and hardware requirements:

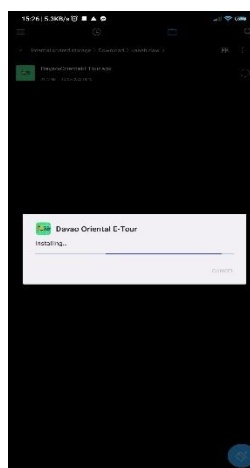
- Android OS minimum version is 5.0 or Lollipop
- Internet Connection
- At least 2GB RAM
- Google Play Service

To check if your phone does have the listed minimum specifications, you may refer to your phone's user manual.

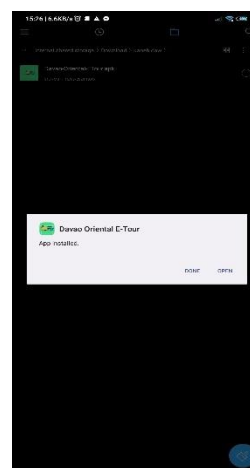
Installation



Prompt to install

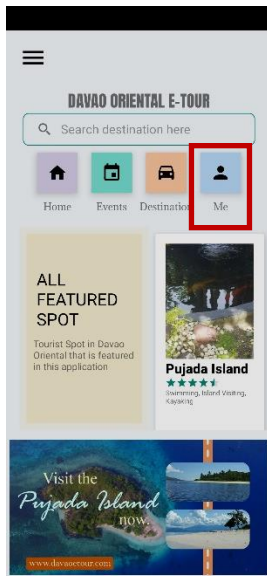


Installing app

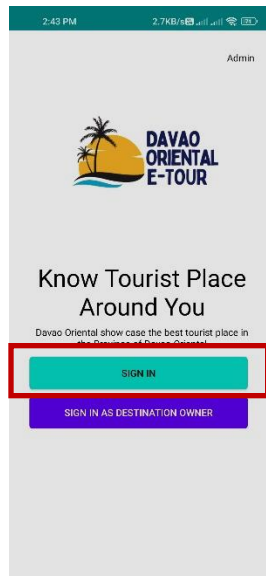


App is installed

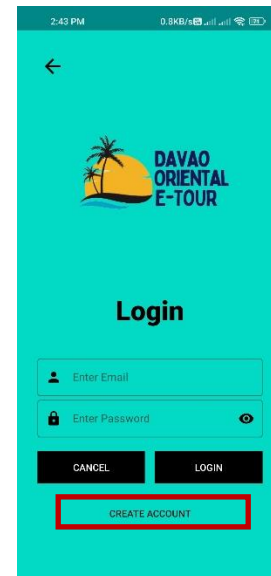
How to Create Account in the application.



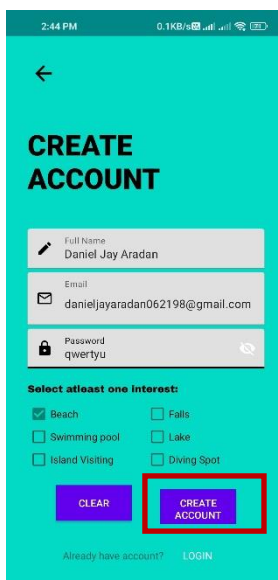
Step 1: After launching the app, tap the “Me” button in the dashboard.



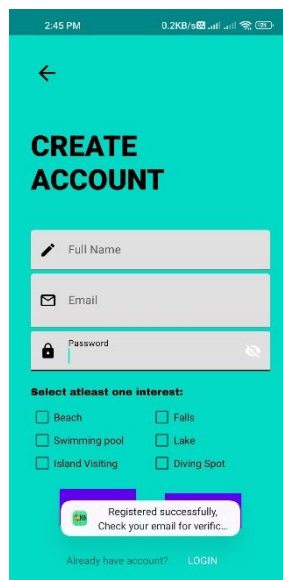
Step 2: Tap the “SIGN IN” button.



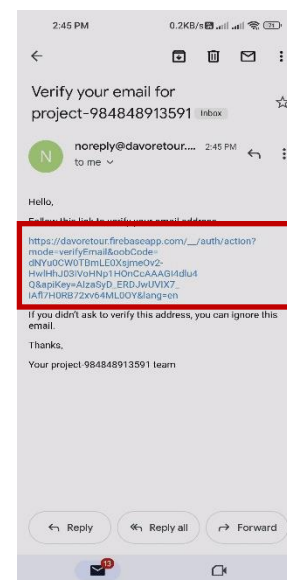
Step 3: Tap the “CREATE ACCOUNT”.



Step 4: Filled-up the form. Then tap the “CREATE ACCOUNT” button

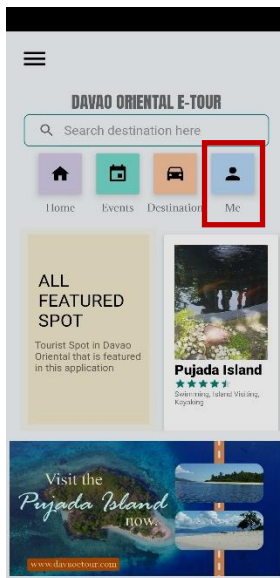


Step 5: Check your email address used in creating the account.

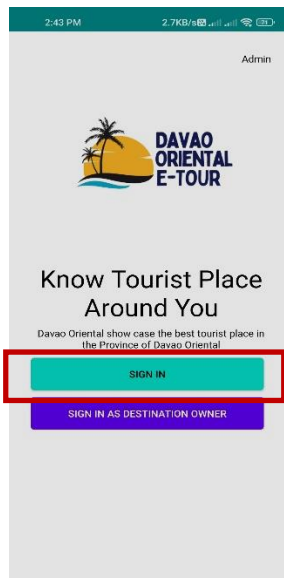


Step 6: Click the provided link to verify your account.

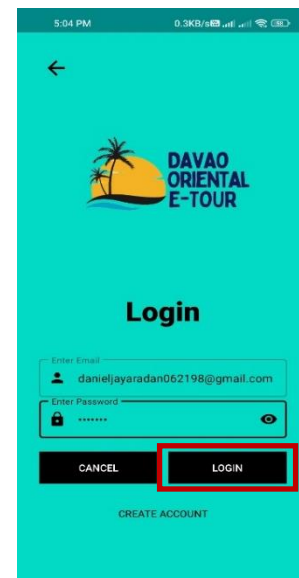
How to login in the application.



Step 1: After launching the app, tap the “Me” button in the dashboard.

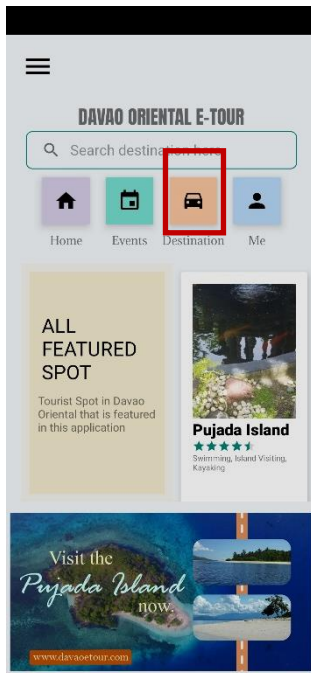


Step 2: Tap the “SIGN IN” button.

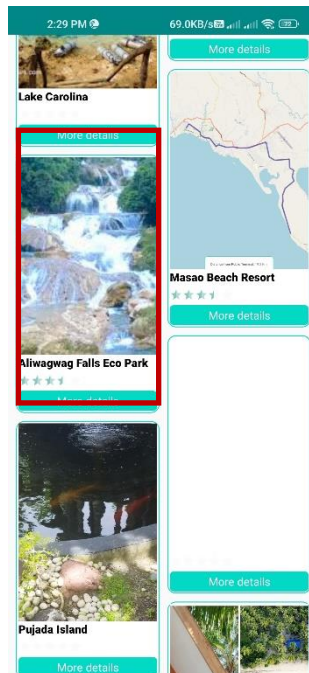


Step 3: Filled-up the form. And tap the “LOGIN” button.

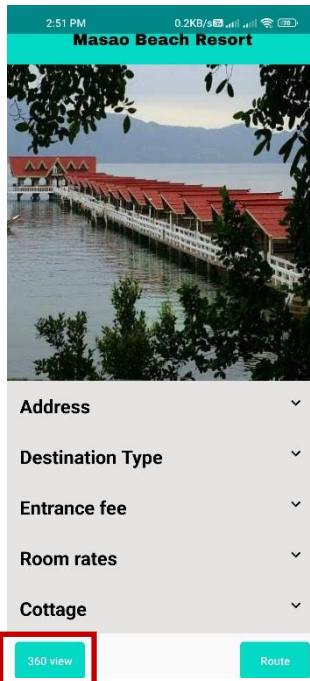
How to view the destination and its information.



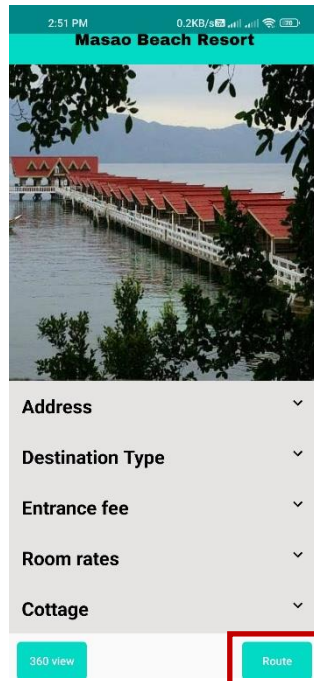
Step 1: After launching the app, tap the “Destination” button in the dashboard to view the destination list.



Step 2: To view the chosen destination information, tap the image or the “More details” button.

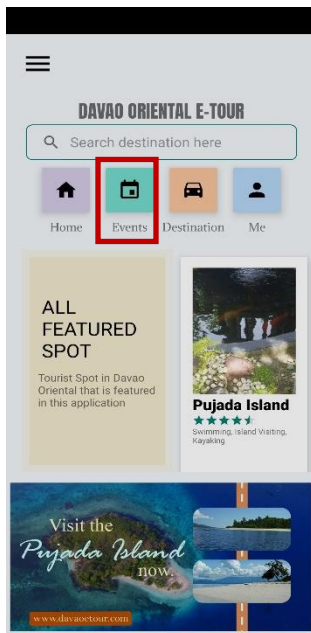


Step 3.1: To view the route of the chosen destination, tap the “Route” button.

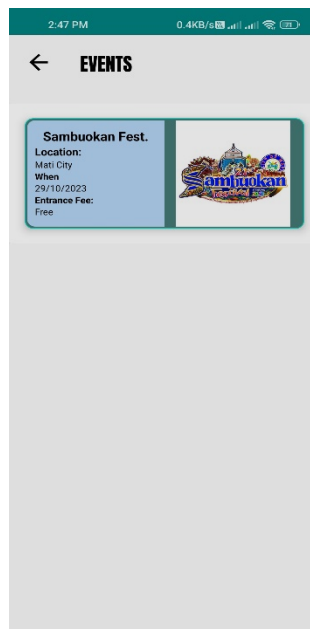


Step 3.2: To view the 360-image view.

How to view the events of the application.

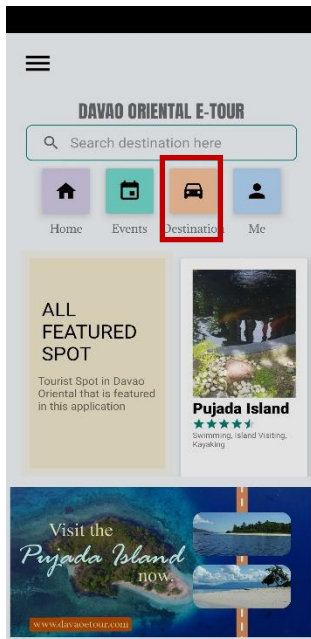


After launching the app, tap the “Events” button in the dashboard.

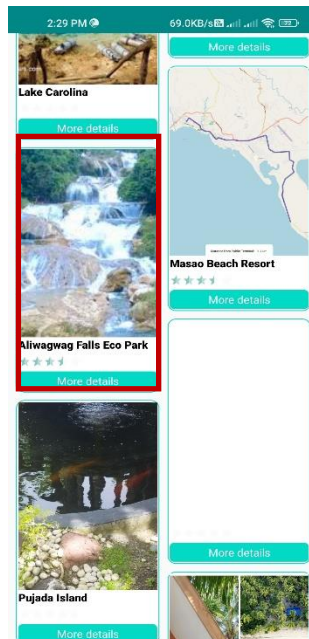


The events will display.

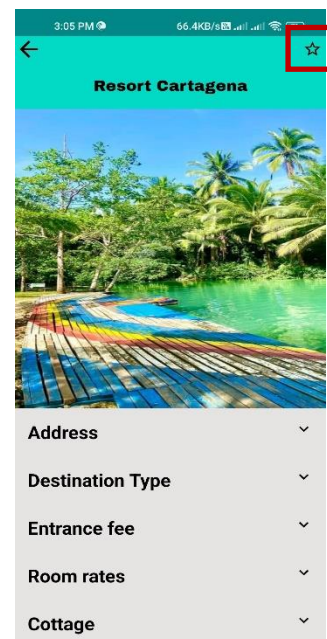
How to rate the destination.



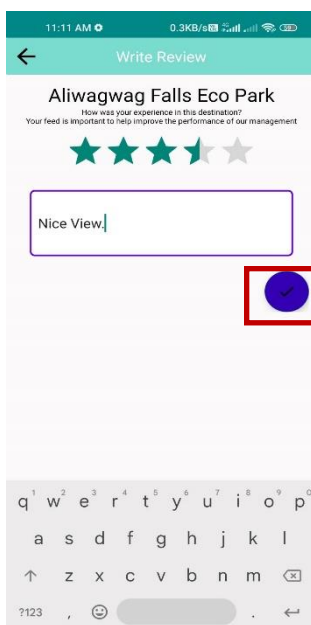
Step 1: After launching the app, tap the "Destination" button.



Step 2: Tap the image or the "More details" button.

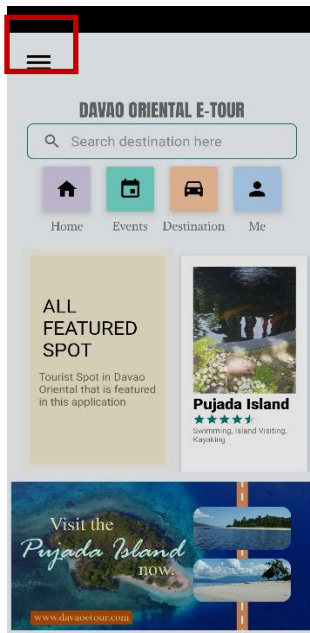


Step 3: Tap the rating icon.

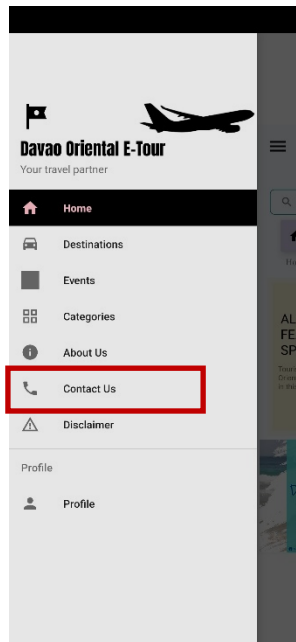


Step 3: Fill the form and tap the submit icon.

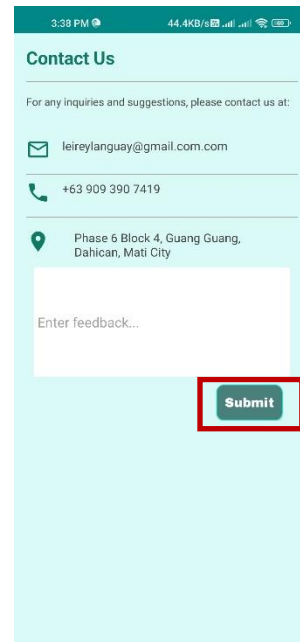
How to provide feedback on application.



Step 1: After launching the app, tap the “Menu” button.




Step 2: Tap Contact Us or the contact icon.



Step 3: Enter feedback and tap the submit button.

Appendix H

Certificate/Grammarly

 **grammarly**

Report: Coders_Capstone_Version1

Coders_Capstone_Version1

by DORSU BSIT

General metrics

44,801	6,273	778	25 min 5 sec	48 min 15 sec
characters	words	sentences	reading time	speaking time

Score

94

This text scores better than 94% of all texts checked by Grammarly

Writing Issues

140	10	130
Issues left	Critical	Advanced

Plagiarism

3%

11 sources


3% of your text matches 11 sources on the web or in archives of academic publications

Report was generated on Friday, Jun 16, 2023, 03:32 PM

Page 1 of 69

Writing Issues

25	Correctness	
2	Determiner use (a/an/the/this, etc.)	<div><div></div></div>
1	Faulty tense sequence	<div><div></div></div>
1	Incorrect noun number	<div><div></div></div>
3	Text inconsistencies	<div><div></div></div>
1	Misplaced words or phrases	<div><div></div></div>
1	Conjunction use	<div><div></div></div>
2	Incorrect citation format	<div><div></div></div>
3	Confused words	<div><div></div></div>
7	Incomplete sentences	<div><div></div></div>
1	Pronoun use	<div><div></div></div>
2	Misspelled words	<div><div></div></div>
1	Misuse of semicolons, quotation marks, etc.	<div><div></div></div>
76	Clarity	
29	Unclear sentences	<div><div></div></div>
38	Wordy sentences	<div><div></div></div>
6	Intricate text	<div><div></div></div>
2	Hard-to-read text	<div><div></div></div>
1	Passive voice misuse	<div><div></div></div>
23	Delivery	
3	Tone suggestions	<div><div></div></div>
16	Inappropriate colloquialisms	<div><div></div></div>
3	Incomplete sentences	<div><div></div></div>
1	Potentially sensitive language	<div><div></div></div>
16	Engagement	

<div><div> grammarly</div><div>Report: Coders_Capstone_Version1</div></div>	
<div><div>16</div><div>Word choice</div><div><div></div></div></div>	
<div><div>Unique Words</div><div>Measures vocabulary diversity by calculating the percentage of words used only once in your document</div></div>	<div><div>21%</div><div>unique words</div></div>
<div><div>Rare Words</div><div>Measures depth of vocabulary by identifying words that are not among the 5,000 most common English words.</div></div>	<div><div>39%</div><div>rare words</div></div>
<div><div>Word Length</div><div>Measures average word length</div></div>	<div><div>5.2</div><div>characters per word</div></div>
<div><div>Sentence Length</div><div>Measures average sentence length</div></div>	<div><div>8.1</div><div>words per sentence</div></div>
<div><div>Report was generated on Friday, Jun 16, 2023, 03:32 PM</div><div>Page 3 of 69</div></div>	

Appendix I

Communication Letter

February 22, 2023

To,

Ms. Lyrna Padohinog
Museum Administrator

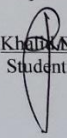
Subject: Letter of Permission for Data Collection

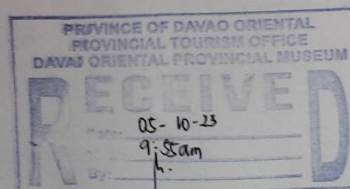
Respected Ma'am,

I am Khalid Dalman, along with my colleagues Leirey Languay and Daniel Jay Aradan in the Capstone Project and Research 2, we are Davao Oriental State University students requesting permission to inquire about tourist destinations here in Davao Oriental, and we will use the gathered data in our Capstone Project which entitled "**Davao Oriental E-Tour**", it is a mobile application that provides the information of all the tourism attractions here in Davao Oriental.

We truly hope that you will be able to accept our request for the data gathering, and give us your consent to collect the information we need we promise to use the gathered data for educational purpose only and we also promise to adhere to all policies, regulations, and recommendations.

Respectfully yours,


Khalid Dalman
Student



May 29, 2023

Mayor Michelle N. Rabat
City Mayor
Mati City, Davao Oriental
8200

Subject: Request for Fare Information here in Mati City for Educational Purpose

Dear Mayor Michelle N. Rabat,

I hope this letter finds you in good health and high spirits. I am **Khalid Dalman**, with my team **Leirey Languay**, and **Daniel Jay Aradan**, we are student from **Davao Oriental State University**. We are writing to formally request information regarding the fare rates and transportation options in Mati City, as part our mobile application development project focused on promoting tourist destinations here in Davao Oriental.

Firstly, allow me to provide a brief overview of our project. We are currently in the process of developing a mobile application entitled "**Davao Oriental E-Tour**" that aims to assist tourists visiting Davao Oriental by providing them with comprehensive information about its attractions, amenities, and services. We believe that by offering convenient access to vital details such as fare rates and transportation options, we can enhance the overall experience of visitors and facilitate their exploration of this beautiful province. To achieve this, we are seeking your assistance in obtaining accurate and up-to-date fare information for various modes of transportation commonly used within Mati City. This would enable us to establish direct communication and ensure the accuracy of the fare information within our application.

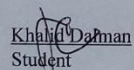
We assure you that all information shared with us will be handled with utmost confidentiality and solely used for the educational purpose of our mobile application development project. We acknowledge that your time and resources are valuable, and we sincerely appreciate your willingness to assist us in making this application a valuable resource for tourists.

If there are any fees or administrative requirements associated with obtaining this information, please do not hesitate to inform us so that we can arrange for the necessary arrangements promptly.

We kindly request a response at your earliest convenience to ensure the timely progress of our project. Should you have any questions or require further clarification, please do not hesitate to contact us via phone number, 09165371238.

Thank you very much for your attention to this matter, and we look forward to your favorable response.

Yours sincerely,


Khalid Dalman
Student



Curriculum Vitae

**LEIREY S. LANGUAGE**

Landing Fish Puntalinao, Banay Banay, Davao Oriental

Mobile no.: 09093907419

Email: driety013@gmail.com

PERSONAL INFORMATION

Date of Birth:	May 31, 2000	
Place of Birth:	Puntalinao, Banay Banay, Davao Oriental	
Citizenship:	Filipino	
Status:	Single	
Religion:	Jesus Christ All Powerful	
Gender:	Male	
Age:	23	
Father's Name:	Lito M. Language Sr.	Occupation: Small scale gold miner
Mother's Name:	Renesa S. Language	Occupation: Housewife

EDUCATIONAL BACKGROUND

Primary:	Looc Puntalinao Elementary School Puntalinao, Banay Banay, Davao Oriental 2012
Secondary:	Pantukan National High School King King, Pantukan, Davao de oro 2019

Tertiary: Davao Oriental State University
Bachelor of Science in Information Technology
Guang- guang Dahican, City of Mati
2022-2023

EMPLOYMENT HISTORY

- Computer Laboratory Technical Team
Immersion
February-March 2019
-

I hereby certify to the correctness of these statements.



LEIREY S. LANGUAGE



DANIEL JAY P. ARADAN

Urban Poor, Dahican, Mati City, Davao Oriental

Mobile no.: +639165371238

Email: danieljay062198@gmail.com

PERSONAL INFORMATION

Date of Birth:	June 21, 1998	
Place of Birth:	Carmen, North Cotabato	
Citizenship:	Filipino	
Status:	Single	
Religion:	Roman Catholic	
Gender:	Male	
Age:	24	
Father's Name:	Carlito M. Aradan	Occupation: Deceased
Mother's Name:	Elizabeth C. Permicio	Occupation: Housewife

EDUCATIONAL BACKGROUND

Primary:	San Jose Elementary School San Jose, Caraga, Davao Oriental 2010
Secondary:	Kibudtungan National High School Kibudtungan, Carmen, North Cotabato 2014

Tertiary: Davao Oriental State University
Bachelor of Science in Information
Technology
Guang- Guang, Dahican, Mati City, Davao
Oriental
2022-2023

EMPLOYMENT HISTORY

Bagger

- KCC Mall of Marbel
2016-2017

Sales Associate

- DCWC-Mati
2017-2018

RRJ/Mr. Lee Promodiser

- DCWC-Mati
2018-2019
-

I hereby certify to the correctness of these statements.


DANIEL JAY F. ARADAN

**DALMAN KHALID, I.**

Purok Matahimik I, Matiao, Mati City, Davao Oriental

Cell Phone #: 09637473741

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PERSONAL INFORMATION

Date of birth: September 26,2000

Age: 22

Mother: Anelita M. Egos

Father: Herminigildo L. Dalman

Religion: Islam

Civil Status: Single

Place of Birth: Davao Oriental Provincial Mati City

Gender: Male

EDUCATIONAL ATTAINMENT

School: Davao Oriental State University

Year: Undergraduate

Degree: Bachelor of Science Information Technology

Address: Guang-guang, Dahican, Mati City Davao Oriental

School Year: 2022-2023

Secondary Education:

School: Matiao National High School

Address: Matiao Archie heights City of Mati Davao Oriental

Elementary School:

School: Matiao Central Elementary School

Address: Matiao Diversion Rd, Mati City Davao Oriental

EMPLOYMENT HISTORY

Immersion in PSA Davao Oriental

February – March 2019

I hereby certify that the information is true and correct.



Khalid I. Dalman