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Vagabond – The Travel App Using Android Studio

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ABSTRACT: The goal is to provide a platform to all the like-minded hitch-hikers to find and map other hitchhikers provided in the portal and decide how to travel to the next destination together or not. Unlike other travel-related apps, this application shows the current position of close travel companions. Since Mobile Application is easy to use, this project is in the form of Mobile application. Because all data about the system, such as user and route information, must be saved in a database for subsequent usage and system functionality, a database management system is an essential software product for hitchhiking system. To achieve the above-mentioned functionalities, the Firebase platform is used as a database. This platform also includes real-time location sharing, which is handled through the usage of Google Map API to deliver geographical services and depict transportations. Users should be able to communicate with one another via the system's Chat feature, which allows them to transmit and receive in the same application. Travelers can chat on the portal by just clicking on the other person's profile, determining whether or not that person is trustworthy, and then deciding whether or not to go together. The effort tries to solve this problem by developing a tourism mobile application that provides tourism information as well as assistive travel features to make tourists' lives easier by utilizing technology that is closest to them.

KEYWORDS: Travel, Connect, Solo-Travel, Hitch-hikers, Travel app, Vagabond.

I. INTRODUCTION

Hitchhiking (commonly referred as thumbing or hitchhiking) is a form of transportation that involves getting ride from passing automobiles, either by luck or inadvertently. It is a mode of transportation obtained by approaching strangers and asking them for a ride in private car or any other vehicle. Usually, but not always, the ride is free. Hitchhikers communicate their need for a ride in a variety of ways. Physical gestures or displays, including written signs, can be used as indicators. Hitchhikers utilize different physical gestures around the world, such as hand signals: in some African states, the hitchhiker's hand is extended with the palm facing up. Hitchhiking is amongst the most cost-effective modes of transportation. be able to meet a bunch of new and create a lot of new friends. People who pick up hitchhikers are often very pleasant. A social media platform is an online platform that users use to create social networks or relationships with others that have similar personal or professional interests, hobbies, backgrounds, or real-life connections. Social media has a significant impact on young people. It's becoming evident that social media has become an integral component of people's life. Mobile devices with location sensing technologies are increasingly used to access online social networking sites. Users can now dynamically connect their location into their social network profiles, resulting in live "friend finder" apps. Location, on the other hand, is fundamentally distinct from other aspects of an online account like name, gender, and age. In contrast to other static components of individuals' social networking

accounts, location is highly changeable. This application combines the above-mentioned elements to produce an easy-to-use platform for connecting people nearby and potentially lowering travel costs dramatically. This software, like social networking apps, allows users/travellers to interact with and communicate with other travellers.

II. RELATED WORK

ChunnuKhawas& Pritam Shah published a research paper, [1] focuses on using Firebase with Android and seeks to familiarize the users with its principles, related technologies, benefits, and drawbacks. The article also attempts to showcase some of Firebase's functionalities by creating an Android app. Firebase is a web application development platform. It aids in the development of high-quality applications. The data is saved in JSON format. It's the part of a system that acts as a database for storing information. Firebase Analytics, Firebase Cloud Messaging, Firebase Auth, Real-time Database, Firebase Storage, Firebase Test Lab for Android, Firebase Crash Reporting, and Firebase Notification are among the services offered by Firebase. By contrasting Firebase with SQL and Firebase with MS SQL Server, the advantages of Firebase may be discovered. The disadvantage of this application is that, users are unable to share other fellow travellers' information.

Mr. Bhavin M. Mehta¹, Mr. Nishay Madhaniet al. [2] proposed a research paper that provides an overview of how to implement Firebase as a backend for Web app development. The analytics feature enables the app developer to see where the users interact with his application. Developers can use authentication to store users and interface with authentication platforms such as Facebook, Google, and GitHub. Cloud Messaging is supported by Firebase, allowing developers to send notifications to its users. The advantages mentioned in this paper are as follows: Do not really consider infrastructure, make sensible choices based on facts, to initiate, users are free to do so, and may easily scale up, interaction across platforms. Since this is a web application, user finds it difficult to gain access to the application quickly

Sai Spandhana Reddy Emmadi, Sirisha Potluri proposed a research paper, [3] the primary goal of this study is to demonstrate a software application for initiating real-time communication between operators/users. This application is built on Android and uses Google Firebase as a backend. This article is about a software which allows operators and users to construct real-time communication services. According to this paper, the ultimate system will be a real-time communication application that lets to easily connect with one another. This program will feature a login page where the user will be able to register and login. The previous messages, if any, are shown on the application's home page. The user may be able to find the other user by searching. The drawback seen in this paper is that, since it is real-time chat application, it does not allow users to chat with near-by fellow traveler.

Noor Sabah, Jamal M. Kadhim, et al. [4] proposed a research paper, This article presents a set of requirements for creating a secure chat application, and this program was created based on these needs. The following are the paper's key contributions: Propose a client-server mobile chat application that supports the state of conversing parties, whether online or offline, a friendship request service, secure key exchange, then calculate the session key, secure end-to-end message exchange, and analysis and testing of the proposed chat. When a user creates an application on the client side, he or she has the option of registering or logging in. The chat server comprises of a users' server and a message server on the server side. The user's server, which keeps track of the user's credentials.

This paper [5] describes how the technological functionalities incorporated in this application are the subject of this research. Mobile tourist who can change their trip plans based on real-time and destination updates are greatly useful. This paper goes into further insight about the use of smartphones in travel apps. The smartphone, when used in combination with basic tags such as Quick Response (QR) codes, may greatly enhance the visitor experience at a destination or site, just as it does in the tourism industry. QR codes allow the operator of the attraction to directly publish information about certain objects, exhibitions or sites to those destinations, which tourists can then access by scanning the QR code with their smartphone. The paper also discusses how the data should be used by both the end user and the program. The disadvantages are so obvious that it never mentions how to attract people.

Dr. Omar A. Ibrahim and Khalid J. Mohensen [6] proposed a research paper, where this study demonstrates how location-based services are one of the most essential applications of cell phones (Location Based Services - LBS). In terms of interaction with the user, these programs do not satisfy the demands of the user. Navigation systems, finding nearby destinations, and display locations on a map are all examples of these uses. The article outlines a way for creating a Google map-based online interactive navigation map. This may be accomplished by combining a centralized

MySQL database on a server with client-side apps (in mobiles). This also includes a comparison of the proposed solution to some of the most well-known applications that operate in the Online Mode, such as "Google Maps" and "Hare Maps." This application is a client/server architectural representation. Though it is a location-based service, this application is unable to check the near-by travellers.

Akanbi A. K, et al.[7] proposed a research paper discussing EDE, a city in Nigeria's south-western region, is explored and utilized as a case study in this study. The attribute data of the research area saved in XML databases will be linked with the matching existing spatial data of the study region using Google Map API and Google Earth API to produce a web-based 3D geospatial application. The efficacy of web-based Geographical Information Systems (GIS) and the overall user experience would be enhanced by this approach. This architecture has the benefit of making development, deployment, and maintenance easier. The main advantage of server-side computing is that it is really cross-platform on the client side.

KolapNurudeen, et al.[8] proposed a research paper, where the goal is to create a tracking / monitoring Android application (mobile) that uses object GPS devices to determine its current location and previous location at specified intervals. This system allows users to bookmark their current location and route back to it from anywhere using Google Maps APIs if user miss where it is. The Global Positioning System (GPS) receiver on Android devices collects radio signals from satellites and compares them to local geo data information to determine the device's or object's exact position on the planet. Google Maps API may be used to get the address / street name of the device's location. Satellite data may be used to calculate two- or three-dimensional location (two-dimensional contains just longitude and latitude, whereas three-dimensional includes longitude, latitude, and altitude), which can improve the accuracy of the result. The proposed methodology would employ a predictive algorithm that will allow users to save certain locations that users want to remember, after which the system will be able to route them to that site using Google Maps API.

Kannan Hemachandran, Shubham Tayal, et al.[9] proposed a research paper of an application, that is used to determine the precise location of a vehicle using various approaches such as GPS trackers and other course-finding frameworks that function via satellite and earth station. We may isolate the complete activity of the vehicle following framework into two pieces by dividing it into three components: vehicle unit, fixed 2 based stations, and database with programming framework. The region of a vehicle is monitored using a GPS-based tracking framework, and its display is dependent on a mobile phone content informing framework. For speed and area, the framework can send out text-based messages on a regular basis. In most cases, the current region may be bolted, and the framework will alert the owner if the vehicle is weary due to current bolted. It also includes an equipment get-together that functions as a networking tool.

André Constantino Da Silva, et al.[10] proposed a research paper which includes four case studies for one tourist conducted in four cities utilizing a total of 26 mobile applications. It is feasible to highlight certain essential aspects and difficulties in these applications by analyzing the data acquired in the study cases. Because of the large number of LBS applications accessible, the majority of the applications examined in this study are LBS. This article explains the methodologies and materials employed, as well as the study cases and applications. It also discusses several issues and highlights the features of these programs, which are separated into groups. Travelers can utilize applications that provide information on public transit, language, bars and restaurants, museums, and other events. This is referred to as m-Traveling, and it includes the design and usage of mobile applications to target a person or a group of individuals during a trip in a certain location. The main disadvantages of this project is that the fellow traveler's cannot chat and connect with each other

Cristian Gustav Cristescu, et al.[11] proposed a research paper. This work aims to close that research gap. The present investigation's major research goal is to look at how tourism apps affect the visitor experience. This study explores how different tourism apps influence visitors' experiences and why some individuals choose to use specific applications. There were seven candidates, all of them were between the ages of 25 and 35 and held a graduate or master's degree. The results of the survey and interviews in this study provide a foundation for claiming that digital apps have had a significant impact on the visitor experience. The majority of these effects are linked to specific niches in which digital applications address difficulties that were previously unaddressed, such as Onavo, TripIt, or PackingPro.

This paper [12] proposed a research paper on how, in recent years, academics have taken a keen interest in mobile application development. Many individuals own a smartphone and utilize mobile applications for transportation, travel, shopping, and medical services, among other things. These applications have also proven to be useful in the tourist

industry. Various applications have been developed to help travellers find lodging alternatives, must-see sights, restaurants, and so on, but the fundamental disadvantage is that many of them are independent applications. As a result, consumers must move between all of these programs. This article aims to improve the user experience by combining all of the previously described features into a single application. The main disadvantages of this project, is that the fellow traveller's cannot chat and connect with each other.

Madhuram, Ashu Kumar and Pandyanmanian, et al.[13] proposed a research paper that explains the technologies that are utilized in cross-platform programming. Examining the most recent cross-stage mobile app development methodologies that are now available on the market. Phone Gap, Titanium, and other cross stage flexible application advancement techniques are a few examples. Phone Gap, which is a hybrid system, and Titanium are two examples of cross-stage application development tools. In other words, cross-stage portable development using an HTML5-based web-application that can be accessed from any mobile browser. The weather updates will be displayed on the app's main page, which will include wind speed, temperature, and humidity. This information is shown on the screen via icons, making the program more user-friendly. The user can input his or her location and, as a result, the weather conditions for that region on the main page. The user can also set reminders and create a timetable for themselves on their smartphone, which will help them better manage their crops.

AakankshaTashildar Nisha Shah, et al.[14] proposed a research paper, it discusses the software and technologies that are utilized in the creation of applications. A mobile application must become familiar with two distinct platforms, Android and iOS, in order to provide it to the majority of consumers. These two platforms have a lot in common, which means they require different skill sets to grow. For example, for Android, Java or Kotlin, and for iOS, Object-C or Swift. As a result, developers and businesses frequently struggle to deal with the complexities of designing cross-platform apps. This paper, the application created a flutter-based mobile application for the billing and reward system. Each time a consumer makes a purchase, they are awarded a specific number of points based on the amount of money spent. They defined the systems in the proposed system as having two parts: "the client" and "the server." On an Android or iOS based mobile phone, the client side is installed. The server is running on a Windows operating system.

Brian E. Mennecke, et al.[15] proposed a research paper. The study includes a research foundation for GIS and describes the key GIS features, functions, and capabilities. Several study topics are also recommended, including GIS management, organizational implications, collaborative issues, decision-making effectiveness assessments, and societal consequences in both developed and developing nations. The goal of this study is to give information systems researchers an introduction to GIS as well as a research framework. Following that, some study directions for information systems researchers are offered. The goal of this work was to introduce GIS and look at how information systems experts may go about investigating it. The article closed with a discussion of a proposed framework that identifies the areas in which information systems researchers should concentrate their research efforts.

The key concern discovered after referring the above-mentioned articles was that there is currently no application that offers both mapping other travelers and an integrated chatting feature. The suggested solution is to create a platform where users can locate other travelers, speak with them, discover destination ideas, and then decide whether or not to go together.

III. METHODOLOGY

As traditional hitchhiking methods do not secure traveler safety, our program ensures safety by confirming the user's account. The main goal is to connect all hitchhikers and travelers together by creating a platform that allows them to travel with other hitchhikers and travel while staying safe. A suggestion page is offered to help tourists save time. It allows travelers to find friends and visit new locations on a budget. This software features an expense tracker as well as suggestions for reducing travel cost.

System has following functional modules:

- Live location - Help find nearby travelers to tag along with them.
- Expense tracker - Track the expenses incurred during travel such as on food, transportation and accommodation. User can also share the expenses incurred.
- Registration - At the time of signing up user need to submit valid document such as Aadhar, passport, driving license for safety purpose.
- In-app Chat - Connect with like-minded people through in-app chat functionality.

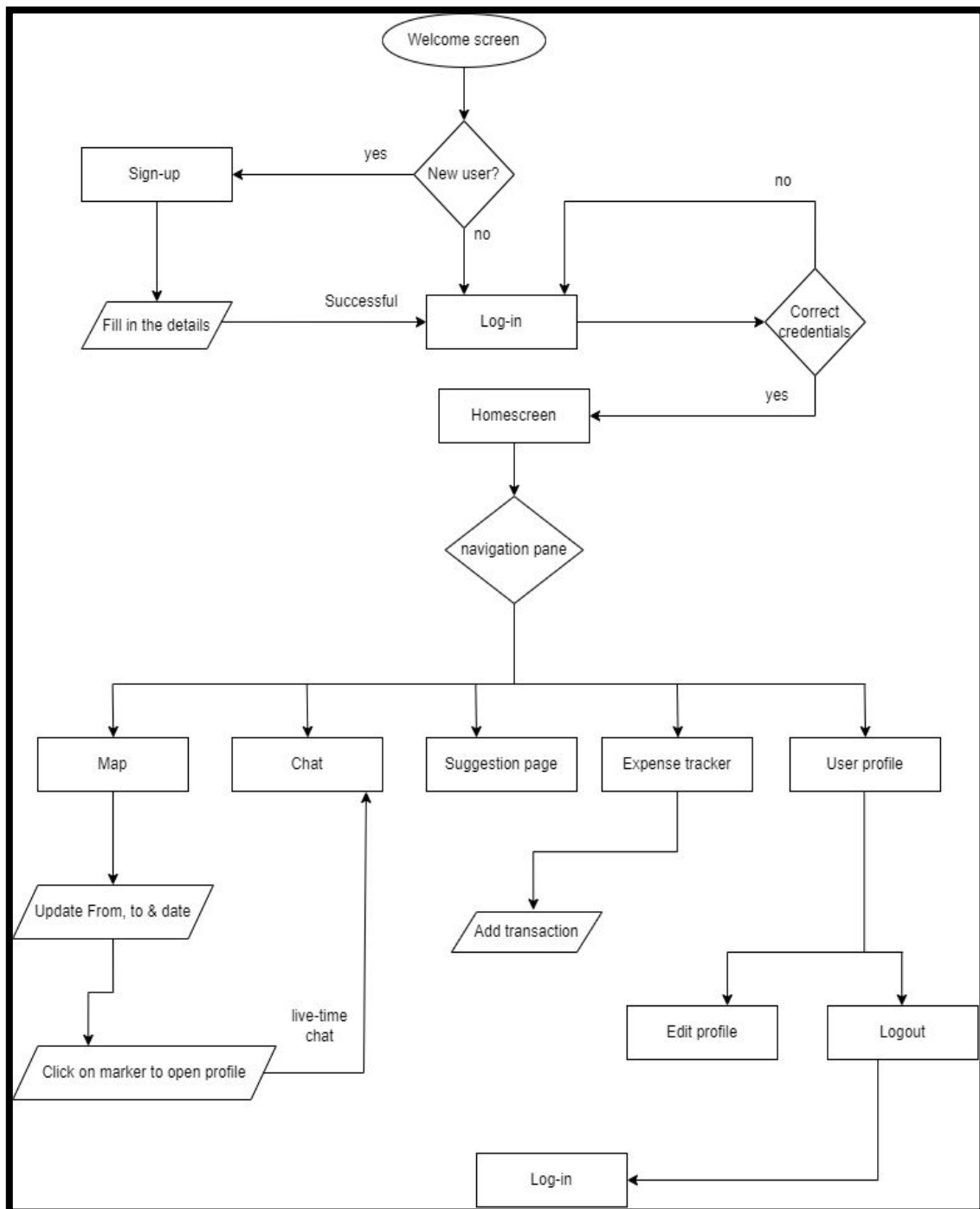


Figure 1: Flow diagram with functionalities

In this work, the merits and disadvantages of previous approaches were reviewed, and an ideal solution was proposed. The purpose is to create a platform for all like-minded hitchhikers to identify and map fellow hitchhikers using the portal, and then determine whether or not to continue to the next location together. Users should be able to communicate with one another via the system's Chat feature, which allows them to communicate within the same application. Travelers can communicate here on portal by simply clicking on the other person's profile, determining whether or not that person is trustworthy, and then deciding whether or not to go together. Because all data about the system, such as user and route information, must be saved in a database for subsequent use and system functionality, a

database management system is an essential development kit for hitchhiking systems. A further server which will be used to deliver geographical services and depict transportations is Google Map Server.

IV. EXPERIMENTAL RESULTS



Figure 2: Log-in

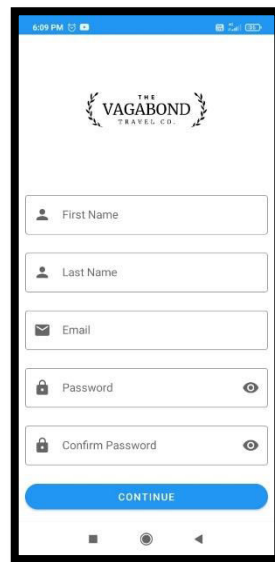


Figure 3: Sign-up

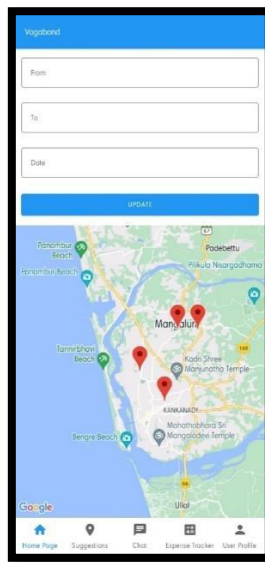


Figure 4: Home screen

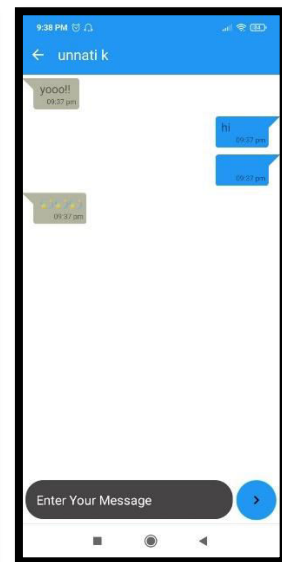


Figure 5: Chat section

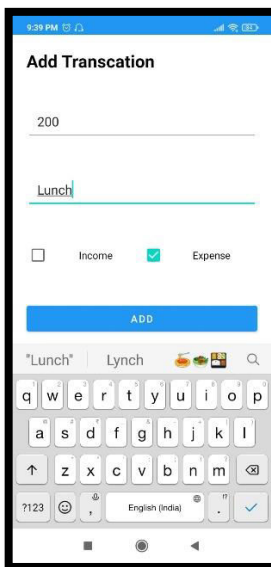


Figure 6: Expense tracker

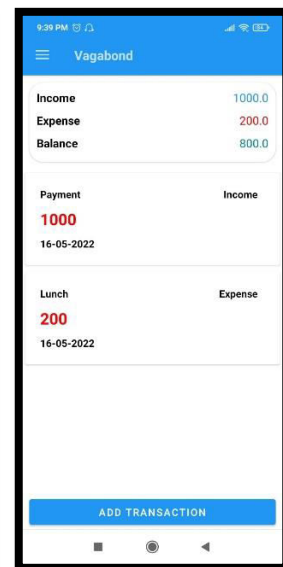


Figure 7: Added transaction

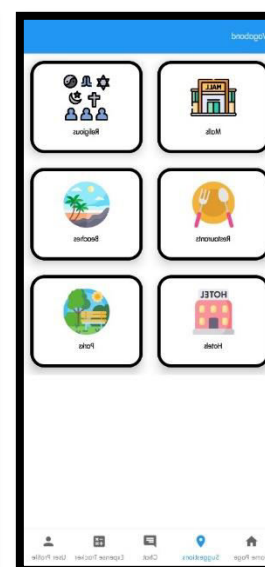


Figure 8: Suggestion page

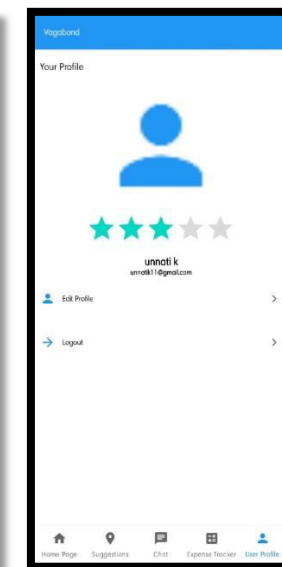


Figure 9: User Profile

Figure 1.1 shows the Log-in page. After registering, a user can log in to the system by entering their username and password in the appropriate fields.

Figure 1.2 shows the Sign-up page. To operate the app, users must first create an account. A username and password should be assigned to each user. They register in the system by entering their First name, Last name, Email and Password.

As shown in the Figure 1.4, Homepage is a double-sectioned beginning page. The first section requires you to provide the following information: From location, to location and on what date you want to look for. The map display is the second section. Other travellers can be found on the map, and by clicking on their position marker, you will be taken to their user profile page.

Figure 1.4 shows the chat section, where travellers can chat on the portal by simply clicking on the profile of the other person. Sending messages, is a way for people to communicate with one another. Reply to a message, when a user receives a message, he or she can read it and respond to it.

Figure 1.5 shows the expense tracker. This allows the user to enter the overall travel budget and continue deducting if a transaction is entered as an Expense (i.e., spent transaction). Wherein, the amount added as income will be summed with the total budget & the expense amount will be deducted from the budget amount.

As shown in Figure 1.6, the added transaction amount with the note will be recorded and displayed to the user for easy tracking of their budget.

Figure 1.7 is Suggestion page. Our application analyses the database on a regular basis and provides personalised recommendations for the optimum departure time, journey time, and closest pickup places, among other things. For recommending a location as the optimal point for boarding the vehicle that is clearly walkable from the user's current location.

Figure 1.8 shows the User profile. The user's details, such as their name and email address, are displayed on this page. It is divided into three sections: -

Edit Profile: This section allows the user to change the information in their profile that was entered when they first signed up to the application.

Settings: Allows the user to choose whether their profile is public or private.

Logout: A user may need to sign out of the system. He/she can do it by clicking the sign out button which is placed on User Profile page.

V. CONCLUSION

Hitchhikers have been working to develop their network in recent years, and our site would be a perfect place for them to give recommendations and find good hitchhiking destinations around the world. This software will assist travelers in saving time, money, and ensuring their safety while creating experiences with other like-minded individuals.

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