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**Saeh System Design**

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Table of Contents.....	
Revision History/Preface.....	
<b>Chapter 1</b>	
1.0 Introduction.....	4
1.1 Problem Statement.....	5
1.2 Domain Study.....	6
1.3 Existing Systems.....	7
1.4 Purpose of the requirements document .....	9
1.5 Scope of Project .....	9
1.6 Architecture.....	10
1.7 Glossary.....	11
1.8 References.....	11
1.9 Overview of Document .....	12
<b>Chapter 2:</b>	
2.0. Overall Description.....	12
2.1 Product perspective.....	12
2.2 User Characteristics and use cases.....	13
2.3 Operating Environment.....	14
2.4 Design and Implementation Constraints.....	14
2.5 Assumptions and Dependencies.....	14
<b>Chapter 3</b>	
3.0. Requirements Specification.....	15
3.1 User requirements.....	15
3.2 System requirements .....	16
3.3 Detailed Non-Functional Requirements.....	19
<b>Chapter 4</b>	
4.0 System Model.....	20
4.1 context diagram.....	20
4.2 Architectural design.....	21
4.3 use cases .....	22
4.3.1.1 Login use cases.....	22
4.3.1.2 Login activity diagram.....	23
4.3.1.3 Login sequence diagram.....	23

4.3.2.1	upload photo use case .....	24
4.3.3.1	data entry use-case diagram.....	24
4.3.3.2	data entry sequence diagram.....	25
4.3.3.3	data entry activity diagram.....	26
4.3.4.1	tourist use-cases diagram.....	27
4.3.4.2	tourist activity diagram.....	28
4.3.4.3	tourist sequence diagram.....	28
4.4	class diagram .....	29
4.5	ER diagram.....	30
<b>Chapter 5</b>		
5.0	Conclusion.....	31
5.1	Future work.....	31

## 1. Introduction

Modern technology in general and especially the Internet and applications are considered the future of humans and nations. Countries are currently racing to make modern technology industry more active and present among their people and depend more on applications. Therefore, we must explore and exploit modern innovations while keeping in mind our resources and capabilities. In this era of time, we can't rely solely on the traditional tourism and cultural heritage as the only factor for tourism attraction, but also start exploring how we can use the technological information and invest in applications for tourism. Tourism plays a major role in the recovery of the economy of countries and with financial resources if properly exploited.

The Android system has become the most popular and most used system on mobiles and tablets. The Android system was created by a company named Android Inc. in 2003 whose founder was Andy Rubin. While the company founded for developing Operating System (OS) for cameras, they realized how much an OS is needed for smart phones.

Mobile apps are one of the most powerful marketing methods corporations use nowadays. Applications generally speaking are programs that stay on the user's device in the background all the time so having an application for your products gives you a golden chance in marketing and reaching the client more easily.

Android application have many categories, one of them being travelling applications, which are usually used before any trip.

SAEH - is an Android app we're developing for tourists. It consists of many features that help tourists, such as navigation through maps, currency conversion, the identification of tourist and overnight areas, the identification of the most famous restaurants in the city and the most famous shops ...

This section gives a scope description and overview of everything included in Saeh System document. Also, the purpose for this document is described and a list of abbreviations and definitions is provided.

## **1.1 Problem Statement**

This application which we are developing includes services based on many individual applications as there is no application that includes all the assistance that the tourists need, as the tourist must download multiple applications to access all services. Here, this application allows tourists to create a public or semi-public profile within a specific system while making it easier to access all the services they might need in one place.

Since the beginning, travelling applications have attracted millions of users, many of whom have accommodated these applications into their daily lives. Most applications support many services and offer a lot of help, but this might lead to confusing the customer as each application offer only one service.

Tourism applications are not only created to help tourists, but they are also one of the most effective ways to promote tourism activities in a city. Modern applications must be changed to suit our current resources and capabilities to promote tourism and its products while not relying only on the cultural heritage. By developing the technological side alongside tourism and our culture, tourism will play a major role in reviving the economy of societies and returns with huge financial resources if exploited correctly. Therefore, we expect the application of tourists to increase tourism attraction in Nablus-Palestine and encourage tourism activities in the future.

SAEH is an Android application or an assistant system for tourists that focuses on aiding the tourists by paying attention to all details of they need from hotels, transportation, currency exchange, the identification of famous areas, finding group trips proposed by the application, calendar planning, city maps, tourists that transfer experiences through building

social networks between profiles who participate in tourism in a particular area which will promote the use of the application, for example, interests, activities, backgrounds or real contacts. This application consists of a representation of each user (often a profile), and social links. Most application services are created in Java and provide users with tools for online interaction, such as email, instant messaging, and map tracking.

## **1.2 Domain Study**

Many of early tourism applications have focused on providing many useful services for tourists in terms of booking hotels, traveling, maps, books about cities and the most importantly areas for tourism, and bringing together people to interact with each other through tourist chat rooms to transfer experiences.

We are trying to gather everything the tourist needs in one easy-to-use android application that will encourage tourists to share personal information and ideas through this application by providing easy-to-use publishing tools a free or inexpensive application for download through the mobile stores. This results that the tourist will obtain a cheap application that offers all the services they might need in their travels.

## 1.3 Existing Systems

1. **Google Maps:** Google Maps is one of the most popular applications that helps you navigate easily. Google maps helps you navigate to places you want to go through maps, coordinates, and guide the traveler to the right path. The application is easy to use.
2. **kayak flights for hotel, airline and car reservations:** Kayak flights helps you to book your reservation, choose tickets, book your car and hotels.
3. **Google Translate** application
4. **Uber application:** Uber has recently proved its worth in many countries by becoming the main trusted source of transportation of which many people depend on. It is the best option to move at low and competitive prices. Just what the traveler has to do is install the application and choose the destination that you want to move from your place to it with ease.
5. Application (يامسافر – **ya msafer**) for hotel reservations
6. **Moovit:** The journey will determine your route and its way or determine where you will travel. The first thing to determine is the place you will travel to then show the way of transportation, such as bus or car. By showing you the road on the map in real time. You can choose the time, route, transportation and then the application shows you the best and fastest way to reach your destination on map. With the ability to press on a button to abandon the application, you will be able to search for directions only using your voice.

7. **Guides by lonely planet:** This app offers maps without internet, currency conversion, and known sites. In order to view famous sites for each area, you need to download the "book" for each area and the book will contain information about all the sites in said area. For example, in order to view famous places in Dubai, you download the "Dubai book" which contains all the information about famous sites.
8. **Headout:** If you need to find tours, concerts or events in nearby areas, this application will show you all the available events you can attend.
9. **Binaural:** Many people suffer the inability to sleep during travels. This application helps with that through providing relaxing music or white noise that helps the brain relax, like the sound of rain.
10. **Localeur:** Reports from local residents about places and the possibilities you need to visit
11. **Trip advisor:** Gives you information about the places you will visit such as times of opening and closing as well as reviews.
12. **XE currency:** An application to convert currency with direct updates whenever internet is available.
13. **Splittr:** It's a useful application that makes it easy to figure out who needs to pay what when visiting restaurants, business trips or vacations with your friends. By using this app, It will split the bill between the number of people present and who owes what easily and quickly.
14. **Hotel tonight:** It provides all the hotel offers in a certain area of your choosing while making sure to display all the new offers first.

15. **Been:** An application for people who travel a lot around the world and struggle with remembering the areas they've been to. With this app, you can register all the areas and places you visited and it will display it on a map while showing a percentage of how much you visited of the world.
16. **Spending tracker:** This application will keep track of your finances and where you spend your money making it easier for you to save money in the future. You can enter the categories of which you spend your money on and any transactions you need to do and the app will show you how much money you spent and saved.
17. **Airbnb:** A unique application that helps you find random places you can visit around the world that has beautiful and unique views while providing offers to book anything you need in that area.

#### 1.4 Purpose of requirement document

The purpose of this document is to present a detailed description of the Saeh System. It will explain the purpose and features of the system, the interfaces of the system and interactions, what the system will do, it will also explain system constraints under which it must operate.

This document focuses on describing the software requirements of project, a Mobile framework for help tourists. The document focuses on all the functional, non-functional, performance and requirements of the project.

#### 1.5 Project Scope

This application which we are developing includes services based on many individual applications as there is no application that includes all the assistance that the tourists need, as the tourist must download multiple applications to access all services. Here, this application allows tourists to create a public or semi-public profile within a specific system

while making it easier to access all the services they might need in one place.

By providing access to the idea of creating a profile, easy access to maps, currency conversion, calendar, document sharing, presentation of tourist activities and sending alerts for group tours available from companies, easy of finding a place to stay, help in local promotions, the application will be very helpful for tourists and locals alike.

## **1.6 Architecture**

The application is a composition of several underlying services each of which provides the application with certain functionalities. It also implements specific functionalities which determines

1. The user interface
2. The way services interact with the application and with each other
3. Additional functionalities that cannot be provided with existing services.

The architecture consists of four basic service layers: View, Application Services, Store, Domain.

## 1.7 Glossary

Term	Definition
Saeh	name of application
users	tourists & Business Owners
maps	google maps
process	a set of interacting activities which transforms input to output
services	All the services needed by the tourist in the area of the existence of eating and sleeping and the identification of archaeological areas
Product	The result of a process

## 1.8 References

[https://www.slideshare.net/AkalanakaLiyanage/tour-guidance-srs-software-requirements-specification?from\\_action=save](https://www.slideshare.net/AkalanakaLiyanage/tour-guidance-srs-software-requirements-specification?from_action=save)

<https://www.slideshare.net/AkalanakaLiyanage/tour-guidance-srs-software-requirements-specification>

Our references are several applications for tourists we have compiled some of them and supported our application

## 1.9 Overview of Document

The second chapter is the Overall Description section, provides more details of the system Description in and its functionality. This chapter also introduces different types of stakeholders and their interaction with the system. Further, the section also mentions the system constraints and assumptions about the product. The third chapter provides the requirements specification in detailed terms and a description of the different system interfaces.

## 2.0 Overall Description

This section will provide an overview of the whole system. The system will be explained in its context and show basic functionality of it. It will also describe what type of stakeholders that will use the system and what functionality is available for each type.

### 2.1 Product perspective

The application of Saeh is an application to help tourists to identify the city and explore the features of it , business owners that this application enables the shops to register their information, this information will appear to tourists when search in the application ,tourists used to get to the places they want and to get the services they want in the simplest ways.

Basic elements in the system:

- The app home page is an interface for a tourist program
- The application is registered by an entry page for restaurants to populate the form that will appear to tourists when the app is signed in
- A transport access page to populate the form that will appear to tourists when the app is signed in

- An entry page for shops to fill out a form that will appear to tourists when they sign in
- An entry page for police stations to populate the form that will appear to tourists when the application is accessed An entrant entry page to populate the form that will appear to tourists when the app is signed in.
- Visitor Login Page: This page contains a map and several icon icons for sleeping places, a restaurant icon, an icon for shops and a map of the city in general, which will lead us to the models of shops ...
- And a currency conversion system to help tourists.

## 2.2 User Characteristics and use cases

There are several types of users who interact with the system for example owners of business, restaurants, shops... and tourists. Each of these types of users has different use of the system so that each of them have their own requirements.

Business owners, through their account, enter a page of their own through the application to fill out the forms that will appear to the tourists, And for tourists.

The application is also registered by email.

In addition to the user access pages to the application there are several properties of the system as a whole for example:

1. The tourist page contains a map of the city in general and the search box and on several icons, for example the icon of the sleeping places, the icon of restaurants, the icon of shops and a map of the city in general...etc.
2. If a user enters the application as a data entry, he can fill in his data as a restaurant, hotel or transportation .... etc.
3. If the user logs on as a tourist, he can access the application and choose what the tourist is looking for in the application from restaurants or other displayed items.

## **2.3 Operating Environment**

The program will be able to be installed and run on mobile devices, Saeh application - is an Android app.

## **2.4 Design and Implementation Constraints**

This application consists of a representation of each user (often a profile), and social links. Most application services are created in Java and provide users with tools for online interaction, such as email, instant messaging, and map tracking.

The Saeh application will be implemented by the Android Studio using the Java language and connect with database for storage and retrieval data (firebase). The system contains several active users, and therefore we will create links and relationships between database tables for easier access the correct information. We will provide the program with many interfaces Depending on the current user, whether a business owner or a tourist.

## **2.5 Assumptions and Dependencies**

We assume that this application is an easy-to-use application for all users and is safe to use while maintaining the privacy of users, so that we could consider uploading it to app store and profit from it in the future. We assume that we will get the satisfaction of tourists so that the tourists will find all the services that they needed in one comprehensive application that will have All the services needed by the tourists, in the future we want to complete this huge project so that we will make improvements on it. intensively, to be the basic for all tourists to get their various services in one application.

### **3. Requirements Specification**

This section contains all of the functional requirements of the system. It gives a detailed description of the system and all its features.

SAEH provides many possibilities to help tourism become a main reason for the recovery of the economy and the return of huge financial resources if properly done, and can become important for tourism by attracting many citizens and residents of domestic tourism in Palestine. We not only want to provide tourism services that meet the requirements of international tourism. Through this application, it will be possible to increase the tourist turnout in the country.

Tourism applications have become the subject of scientific research increasingly. It has an impact on attracting tourists. When a tourist wants to visit a country or a city and wants comfortable roaming, they will find an application that helps the tourist find of the facilities in traffic and various activities.

Researchers in many fields have begun investigating the impact of mobile applications and how these applications affect the overall economy. These applications provide a way to link fragmented industries and small enterprises without resources to reach a wider audience with interested tourists.

#### **3.1 User requirements**

- The listing of hotels: all hotel that register to application will be seen on map. When tourist click on the hotel the tourist will see all information about it that the hotel makes in the app.
- Tourist areas in the city: the application will show all the tourist area on the city with some information.
- User maps for navigation: we will insert maps on application (google map).
- Transport vehicles: The tourist will have access to the transportation that they need and contact them with the least effort through this application.
- Restaurant: the application will show all the Restaurants in that area on the map with some information.

- hospital in city: the application will show all the hospitals in the city with some information.
- police station: the application will show all the police stations in the city with some information.
- Search, sort-by and rating systems.

## **3.2 System requirements**

### **1. The listing of hotels**

- 1.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails,) that related to hotels.
- 1.2 The owner of (the hotels) account selects the menu for the item to be entered correct description.
- 1.3 The owner of (stores, police station, hospitals, hotels, transportation, public places) account selects can enter information about the place who own it for example name, address, description, phone, emails, photos about the place.
- 1.4 tourist will see all information about hotel that the owner of hotel filled in data entry section.
- 1.5 tourist can also call the hotels if they the phone information is filled.

### **2. public places in the city:**

- 2.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails,) that related to public places.
- 2.2 The owner of (public places) account can enter information about the place he's responsible for it for example name, address, description, phone, emails, photos for the place.
- 2.3 owner works on adding places in the system.
- 2.4 tourist will see all information about public places that the administrator of public places filled in data entry section.

### **3.hospital in city**

- 3.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails,) that related to hospital.

3.2 The owner of (hospital) account selects the menu for the item to be entered correct description.

3.3 The Responsible for (hospital) account selects can enter information about the place who own it for example name, address, description, phone, emails, photos for the place.

3.4 Administrator works on adding places in the system.

3.5 tourist will see all information about **hospital** that the Administrator of **hospital** filled in data entry section.

3.6 tourist can also call the hospital if they the phone information is filled.

#### 4. User maps for navigation:

4.1 maps are available for Android applications through Google Maps: The Maps SDK for Android includes built-in support for accessibility.

4.2 Administrator of every place works on adding places on map in the system.

4.3 tourist will see the map in the page of each place in the application.

4.4 the tourist can also look at a page that shows all the places entered in the application.

4.5 tourist can also call the police station if they the phone information is filled.

#### 5. Transport vehicles:

5.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails, photos) that are related to transportation.

5.2 The owner of (transport vehicles) account selects the menu for the item to be entered correct description.

5.3 The Responsible for (Transport vehicles) account can enter information about the place he owns for example name, address, description, phone, emails, photos about the place.

5.4 Administrator works on adding places in the system.

5.5 tourist will see all information about **Transport vehicles** that the administrator of **transportation** filled in data entry section.

5.6 tourist can also call the transport office if they the phone information is filled.

## **6. Restaurants:**

6.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails, photos) that related to transportation.

6.2 The owner of (Restaurant) account selects the menu for the item to be entered correct description.

6.3 The Responsible for (Restaurants) account selects can enter information about the place he owns for example name, address, description, phone, emails, photos about the place.

6.4 Administrator works on adding places in the system.

6.5 tourist will see all information about Restaurants that the Administrator of Restaurants fill in data entry section.

6.6 tourist can also call the restaurant if they the phone information is filled.

## **7. police station**

7.1 The data entry user will review all the data and enter important information (name, address, description, phone, emails, photos) that related to.

7.2 The owner of (police station) account selects the menu for the item to be entered correct description.

7.3 The Responsible for (police station) account selects can enter information about the place he owns for example name, address, description, phone, emails, photos about the place.

7.4 Administrator works on adding places in the system.

7.5 tourist will see all information about police station that the Administrator of police station fill in data entry section.

7.6 tourist can also call the police station if they the phone information is filled.

## **8. search and classifications**

8.1 The property of arranging available areas on the application

from the closest to the tourist to the farthest. As well as the possibility of classifying places according to the evaluation and rating given by the tourist to the business or by name.

8.2 the tourist can search for any place by name in the search bar, they can also filter their research based on the price of the place, the type of the restaurant, etc.

## **9. Favorites list**

There is a favorite feature with a list of favorites from the places chosen by the tourist.

## **10. Rating System:**

There is a feature that allows tourists to rate any place (restaurant, hotel, etc) between one and five stars. The rating system also Shows the number of tourists who rated this place.

## **11. Editing System:**

All the information entered by the Administrators can be edited at any time.

## **3.2 Detailed Non-Functional Requirements**

- Security

System actors only after correct authentication the system will allow to act and access data, add and retrieve.

- Flexibility

The system consists of easy interfaces that any user can quickly understand and move between them and at any time he can access the information to perform operations on them.

- Reliability Information entered by the manager can be accessed easily and edited at any time.

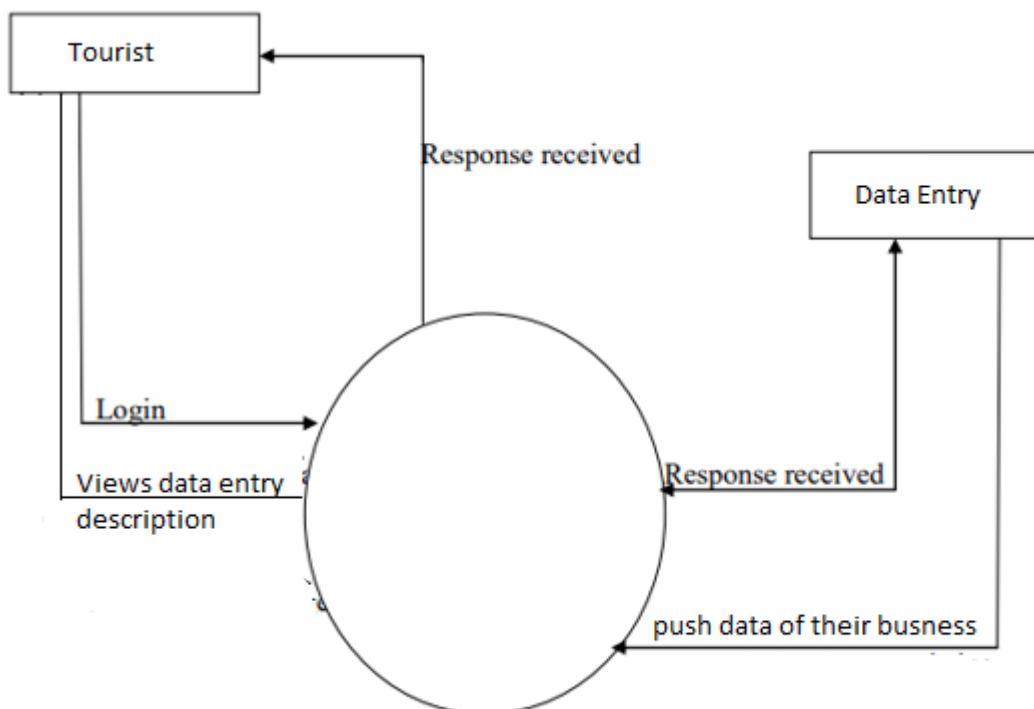
## 4. System model

### 4.1 context diagram

The highest-level data flow diagram is the context diagram.

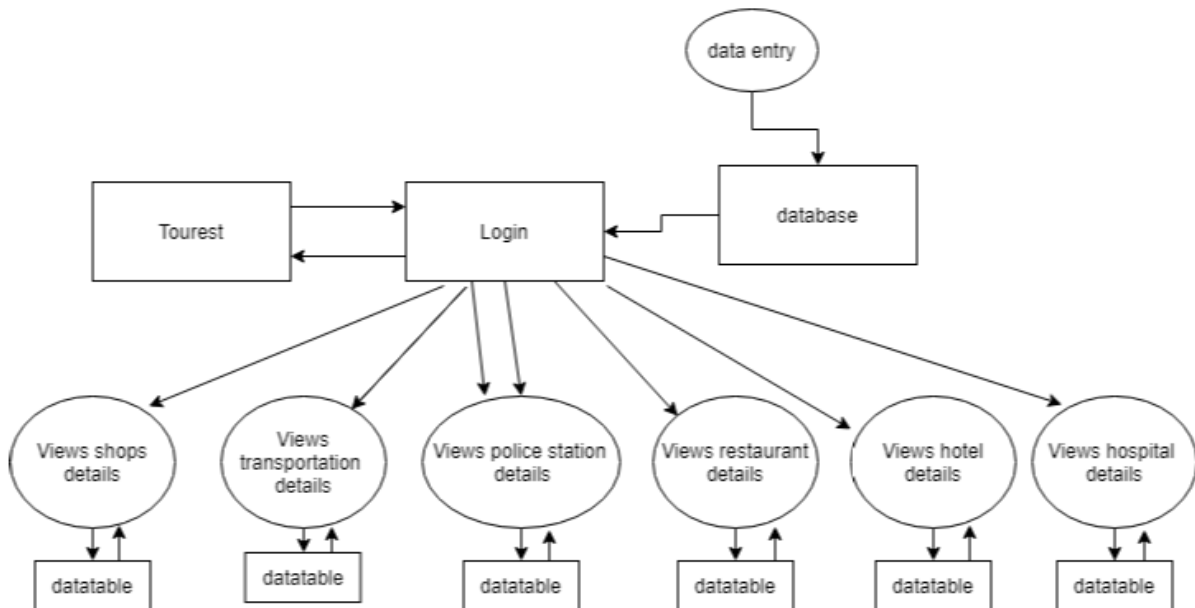
- The context diagram shows the interaction of the system with its environment in terms of data flows.
- The context diagram defines the boundary of the system (the scope of the system).
- Only the data flows which leave the system and the data flows which come from outside the system are shown.

0 Level DFD: A level 0 DFD, also called a fundamental system model or context diagram represents the entire software element as a single bubble with input and output data indicated by incoming and outgoing arrows, respectively

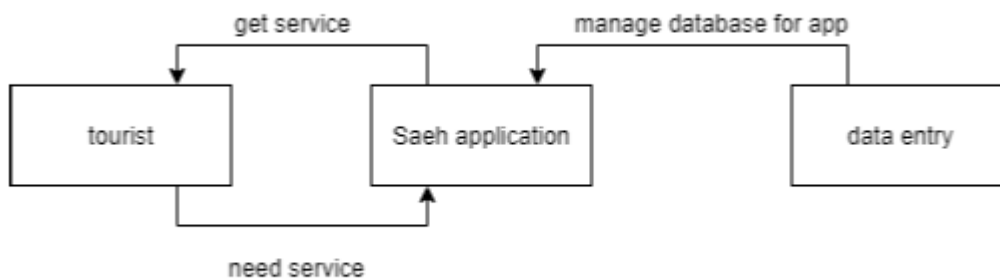


## 1 Level DFD:

This level of DFD provide more detailed structure. It provides a detailed view of requirements and flow of data from 1 bubble to another



## 4.2 Architecture Design



**data entry:** who manages the system and owns all the information about every data entry in the app (hospital, hotel, police station, restaurant, shops).

Services:

- 1- entering information related to items (hospital, hotel, police station, restaurant, shops), address, name ,location.

Service:

- 1- add location on the map that the tourist will see.
- 2- add some photo about data entry.

**tourist:** Someone who need to find places on the city.

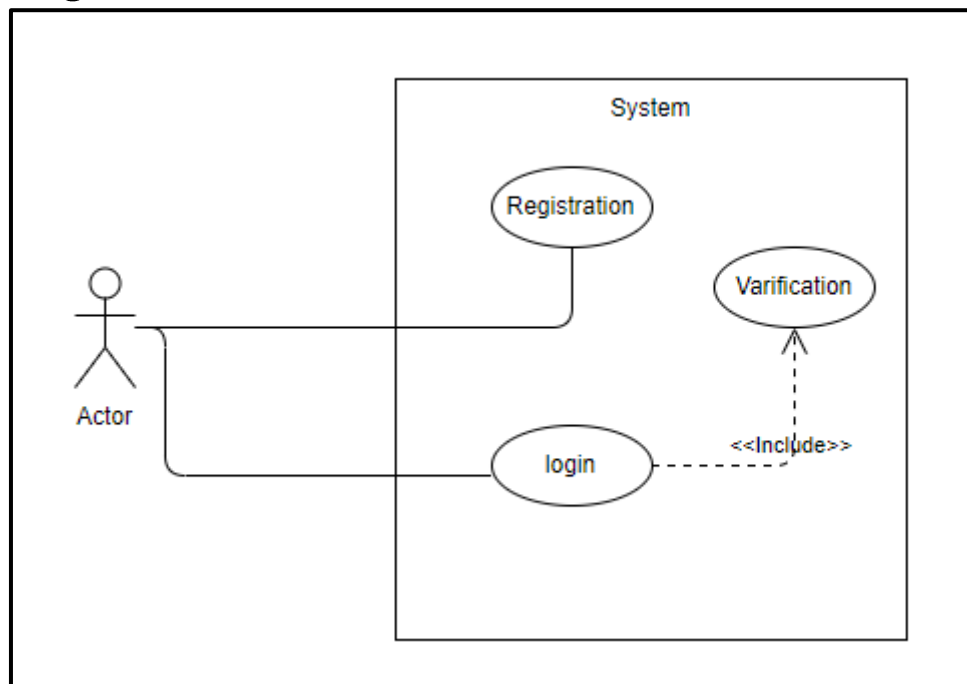
Service:

- 1- See the available items that entire to app (data entry).
- 2- Make a search process on app.
- 3- Make order and wait for the invoice.

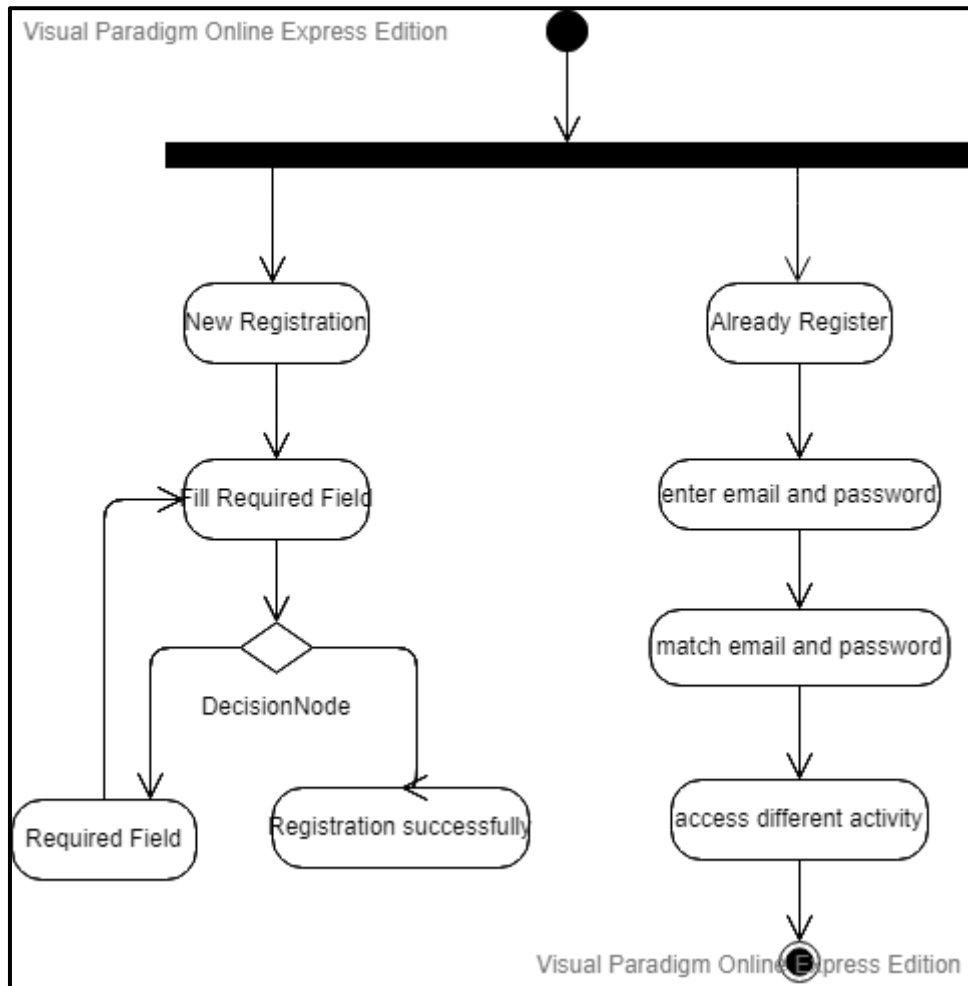
\*data entry: the manager Enter seller information such as name, salary, phone number and address, photo.

## 4.3 use cases

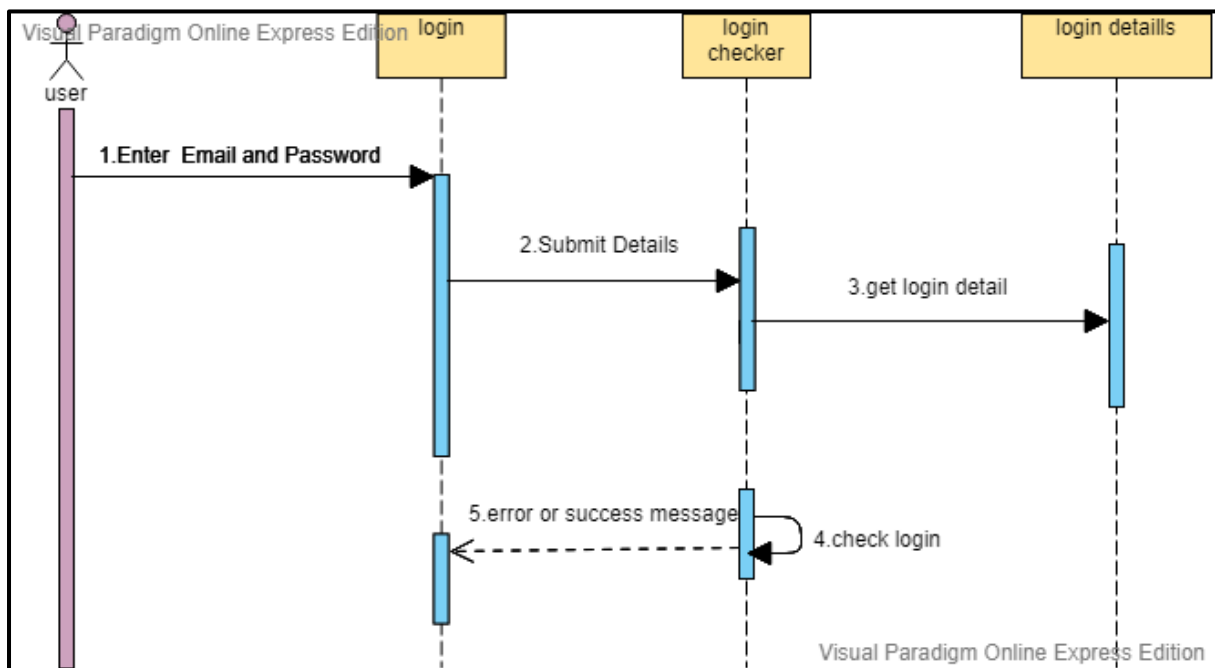
### 4.3.1.1 login use cases



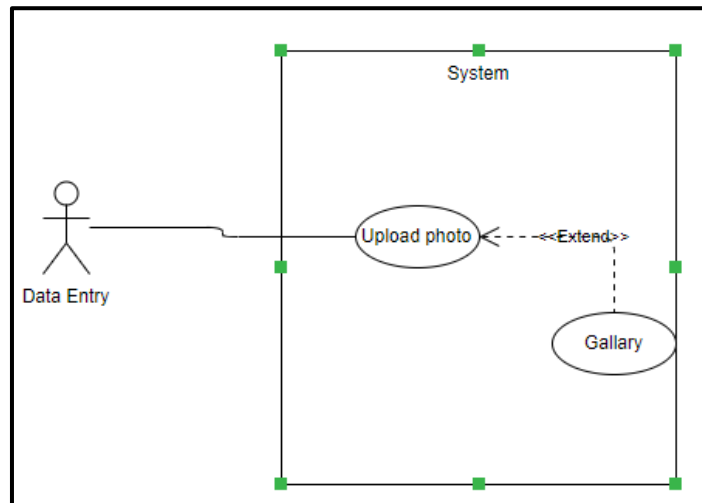
### 4.3.1.2 login Activity diagram



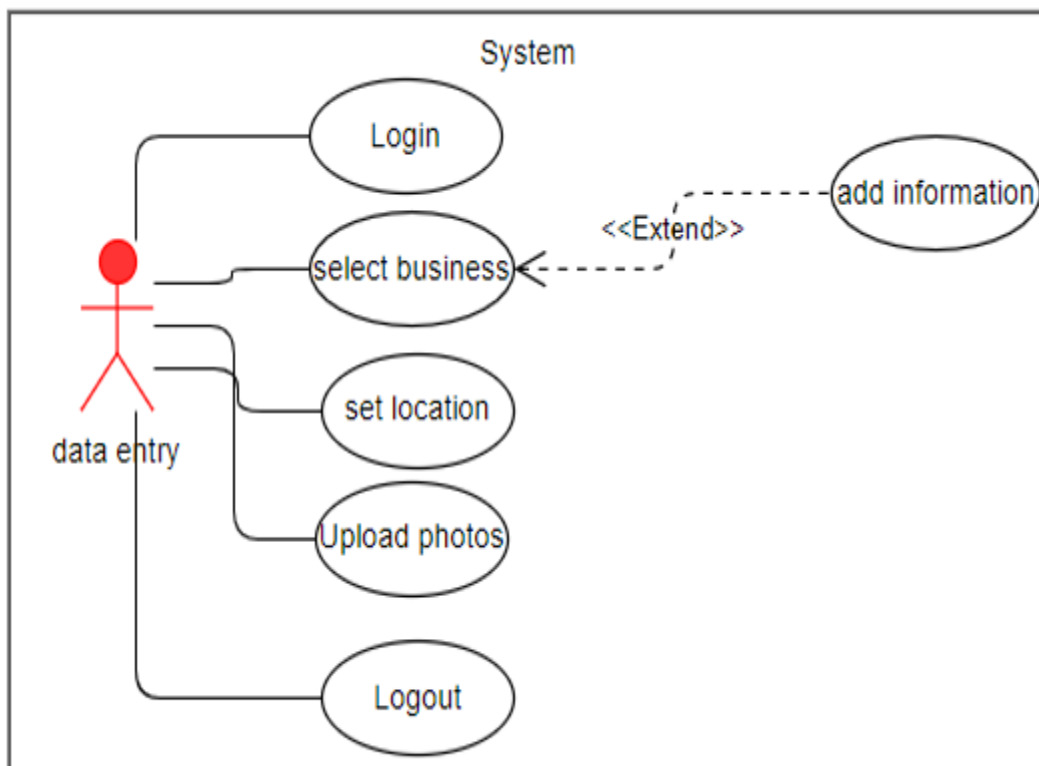
### 4.3.1.3 login sequence diagram



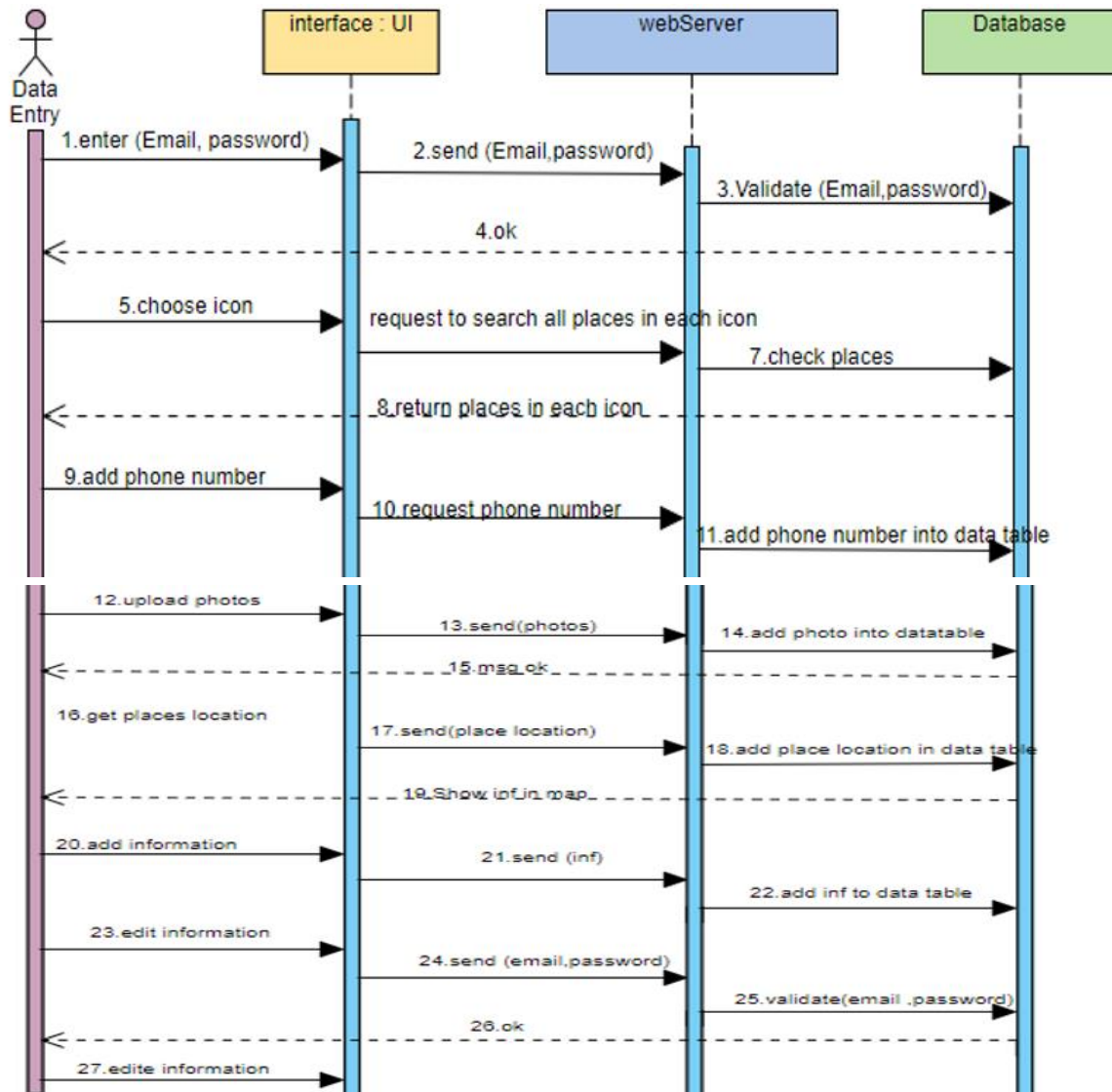
### 4.3.2.1 upload photo use cases



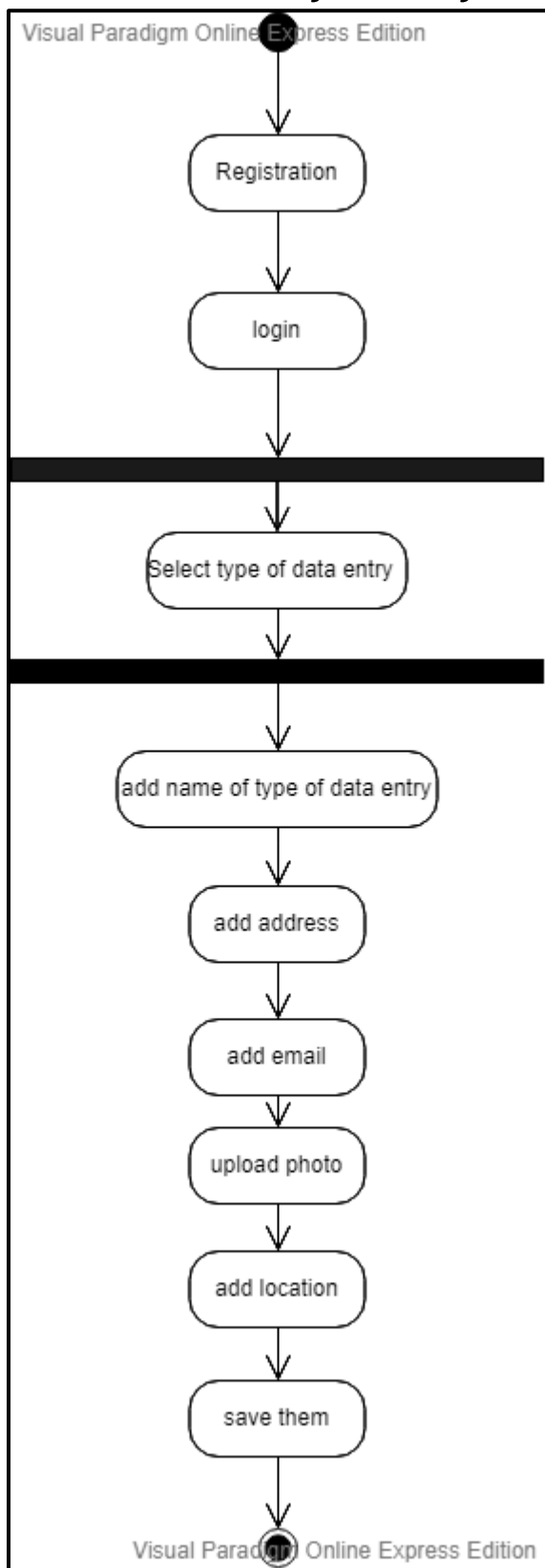
### 4.3.3.1 data entry usecase



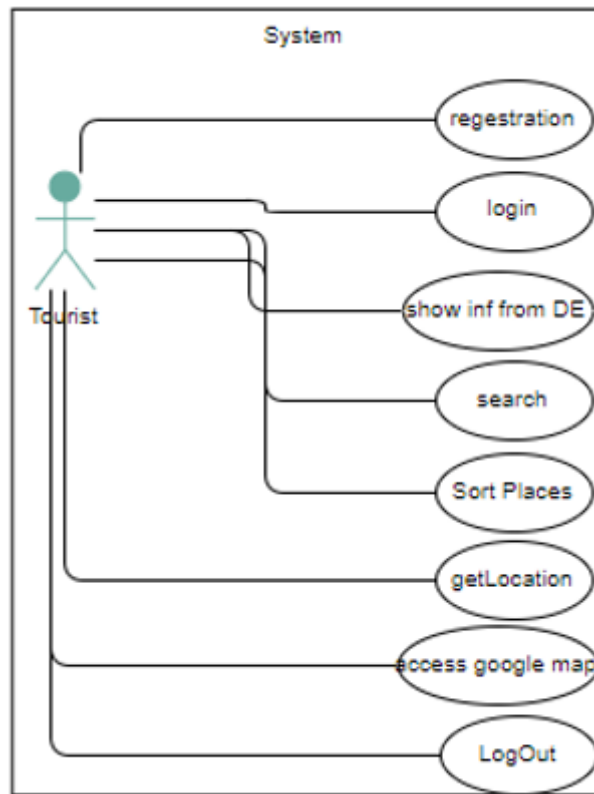
### 4.3.3.2 data entry sequence diagram



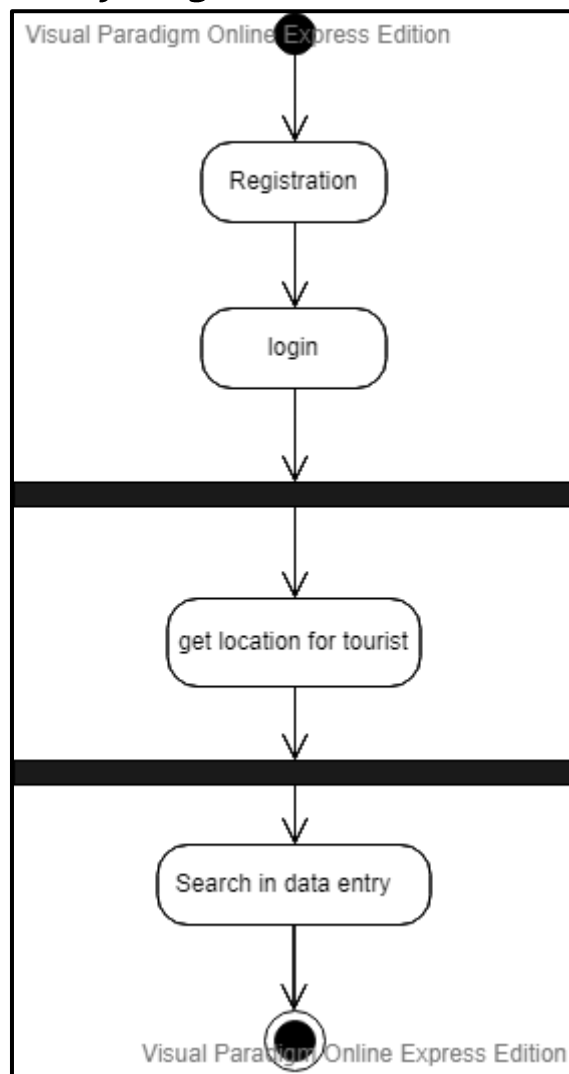
### 4.3.3.3 data entry Activity diagram



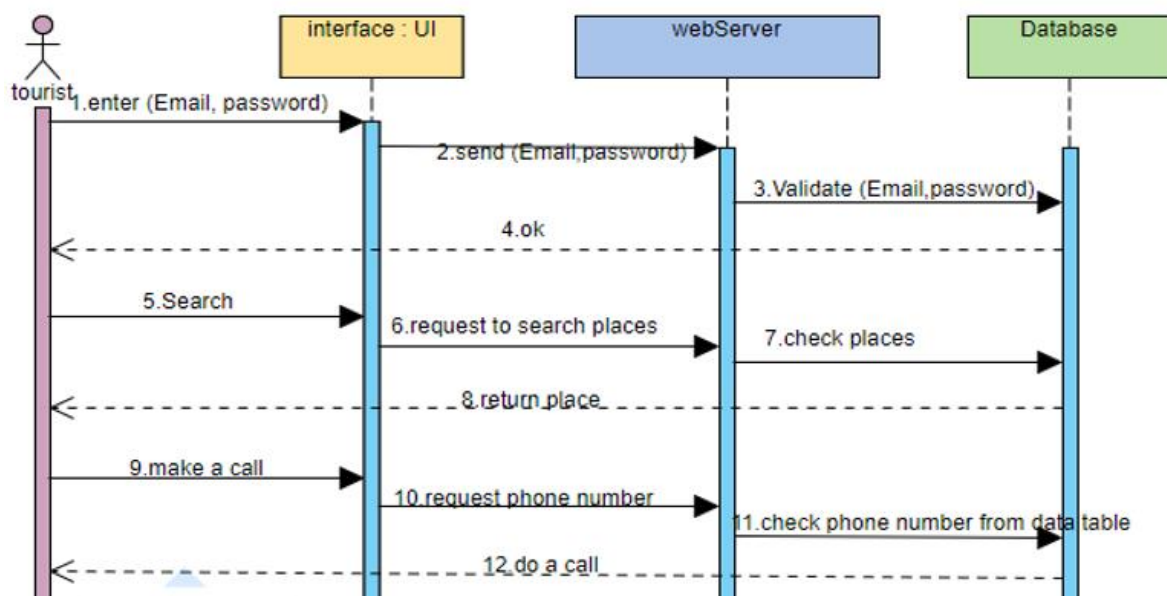
### 4.3.4.1 tourist use cases

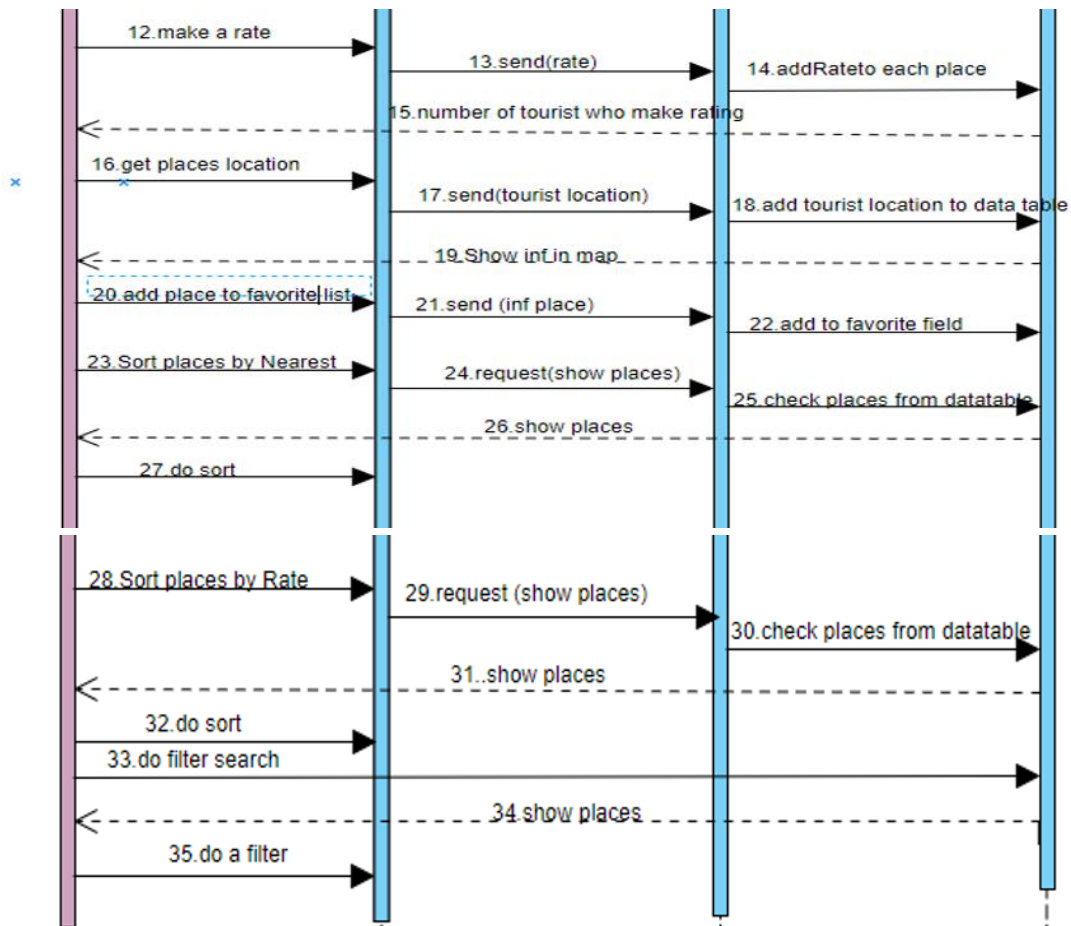


### 4.3.4.2 tourist activity diagram

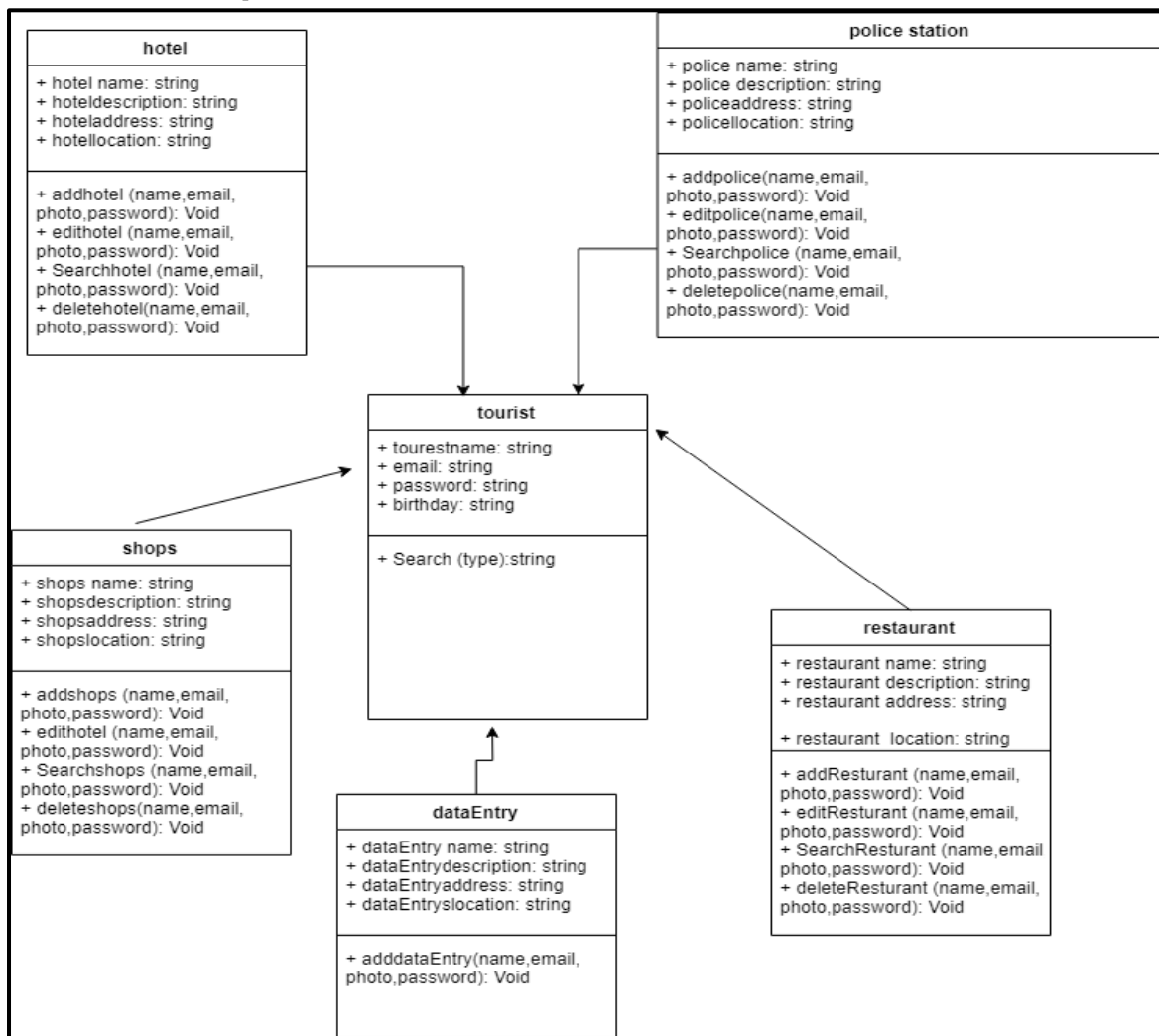


### 4.3.4.3 tourist sequence diagram

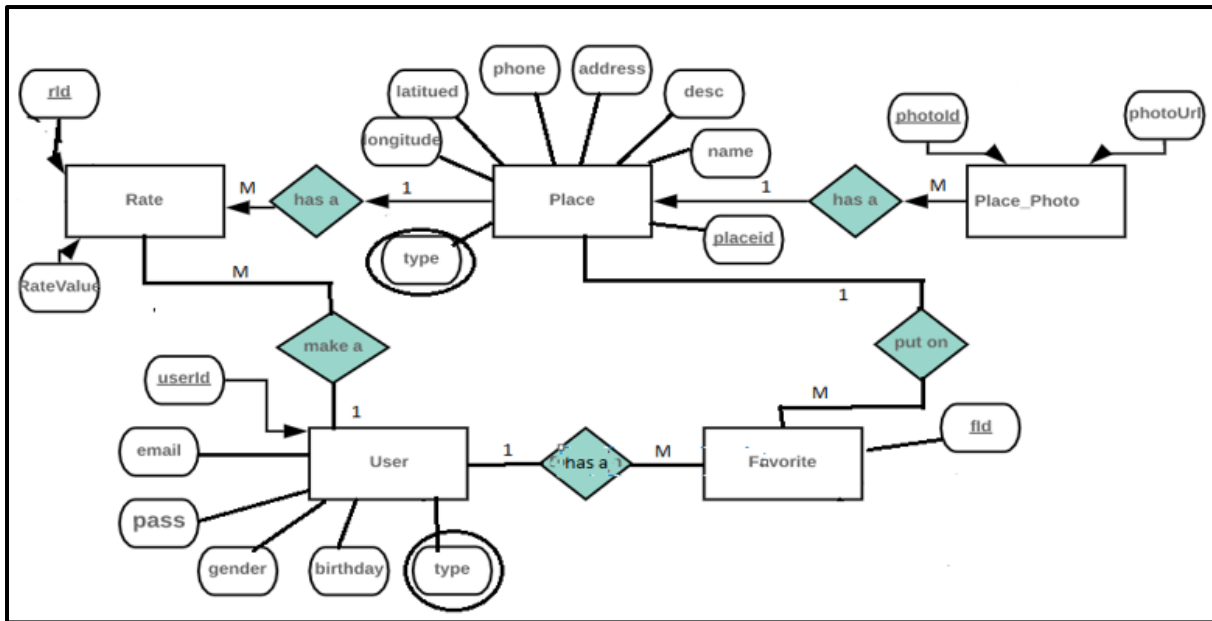




## 4.4 class diagram



## 4.5 ER diagram



## **5. Conclusion**

This work is designed to help the tourist plan an easy travel, and find anything he needs easily from restaurants, hotels, tourist places, etc.

### **5.1 Future work**

While there are certain features in the application, there are others that won't be included in the final project. However, we plan on Continuing our work on this project and including the following Features:

- Improving the interface and making it look more inviting for the user.
- Including a currency converter.
- Working on improving the maps and including more details in them.