CGIS
Centre for Geographical Information System

Session: MSC GIS Fall 2017-2019

Supervised by: Muhammad Burhan Khalid

Submitted By

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STATEMENT OF SUBMISSION

This is to certify that **Maira Ijaz** Roll No. **MGSF17A006**, **Aqsa Akram** Roll No. **MGSF17A005, Maria Tariq** Roll No. **MGSF17A003, Hafsa Iftikhar** Roll No. **MGSF17A007** and **Rameen Farrukh** Roll No. **MGSF17A008** have successfully completed the final project named as **Location Based Tourist Guide System** for The Punjab University College of Information Technology, University of The Punjab, Lahore, to fulfill the partial requirement of the degree in **Masters in Geographical Information System**.

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Proofreading Certificate

It is to certify that I have read the document meticulously and circumspectly. I am convinced that the resultant project does not contain any spelling, punctuation or grammatical mistakes as such. All in all I find this document well organized and I am in no doubt that its objectives have been successfully met.

_____

Business Communication and Technical Writing,
Lecturer, CGIS

Acknowledgment

First of all, we are grateful to The **ALLAH ALMIGHTY** for establishing us to complete this project. We like to express our deep gratitude to all our Teachers. Our profound sense of gratitude is due to all our Teachers who taught us and made us capable to complete this project. We truly acknowledge the cooperation and help by our worthy Supervisor **Mr. Muhammad Burhan Khalid, Visiting Lecturer CGIS**. He has been a constant source of guidance throughout the course of this project. We are highly indebted to him for his guidance and constant supervision as well as for providing necessary information regarding the project & also for his support in completing the project. We are also thankful to our friends and families whose silent support led us to complete our project. Our thanks and appreciations also go to all our teachers and people who have willingly helped us out with their abilities.

Date:
18 March, 2019

Abstract

The research study focuses on proposing a Location Based Tourist Guide System for general public. A prototype is designed to show the workflow of the proposed system. The proposed system will show the current location of the user, then we will allow the user to select his attraction using alternative paths or to plan his/her whole tour. The system facilitates the clients to identify the best option while planning his/her tour by providing alternative paths form his/her current location to the desired destination combined with all available service areas of that particular route.

LIST OF ABBRIVTONS

Abbreviations	Explanations
GIS	Geographical Information System
HTML	Hyper Text Markup Language
PHP	Hypertext Preprocessor File
AJAX	Asynchronous JavaScript and XML
API	Application Programming Interface
CSS	Cascading Style Sheet
SQL	Structured Query Language
JS	JavaScript
KML	Keyhole Markup Language
Shp	Shape file

LIST OF FIGURE

CGIS-Centre for Geographical Information System	Version: 1.0
Location Based Tourist Guide System	Date: 22 April, 2019

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CHAPTER 1

PROJECT OVERVIEW

1.Introduction

A Geographic information system (GIS) is a computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface. By relating seemingly unrelated data, GIS can help individuals and organizations better understand spatial patterns and relationships. GIS is unique it deals with Spatial as well as Non-Spatial Data. In this system we are going to develop a system which provides different types of facilities for client to plan his/her tour in best way. Our system will help the client by planning a whole tour with details for him. Client will interact with our system with a provided interface where he/she will provide input about the desire locations, client will able to select multiple places and he/she will able to schedule the visit of that places as he/she desired. After that, the system will provide a tour plan for client by providing alternative paths to reach his/her destination with total time and distance details for each path. From the current location to the destination inform user about all the nearest services available in the surroundings of that particular route in a specific radius. The system will also highlight the most visited places to client. Client can view details about a certain place by searching it by using our client-friendly interface, the details are including images, reviews, ratings of that place and some historical background of that place.

1.1 Project Title

Location Based Tourist Guide System

1.2 Project Overview Statement Template

Project Title: Location Based Tourist Guide System

Group Leader: Maira Ijaz

Project Members:

Name	Registration #	Email Address	Signature
Maira Ijaz	MGSF17A006	Mgsf17a006@pucit.edu.pk	
Aqsa Akram	MGSF17A005	Mgsf17a005@pucit.edu.pk	
Maria Tariq	MGSF17A003	Mgsf17a003@pucit.edu.pk	
Rameen Farrukh	MGSF17A008	Mgsf17a008@pucit.edu.pk	
Hafsa Iftikhar	MGSF17A007	Mgsf17a007@pucit.edu.pk	

Project Goal: To build a system which help tourists to select high rated places and view their details and schedule their visit of high rated places as their desire. Also provide the nearest services areas of that particular route.
Organization Address (if any): CGIS University of the Punjab
Assumptions, Risks and Obstacles: Limited Study area (Lahore). Must connect with Internet.
Type of project: ☐Research ☐**Development**
Target End clients: Tourists
Development Technology: ☐Object Oriented ☐**Structured**

Platform: ☐Web based   ☐**Distributed**
          ☐Desktop based ☐Setup Configurations
          ☐Other_____

Suggested Project Supervisor: Muhammad Burhan Khalid
Approved By: Muhammad Burhan Khalid
Date: 16 November, 2018

Table 1: Project Overview Statement

1.3 Project Goals and Objectives

1.3.1. Goal:

The major goal of this system is to develop such a GIS web-based system that will facilitates the clients to identify the best option while planning his/her tour by providing alternative paths from his/her current location to the desired destination combined with all available service areas of that particular route.

1.3.2. Objectives:

- User will pin point his/her desired locations.
- System will create the whole day spatial plan from starting point to ending point.
- Alternative paths will show on map with distance and time.
- Highlight the most visited places that will be visited by the users

1.4 High-Level System Components:
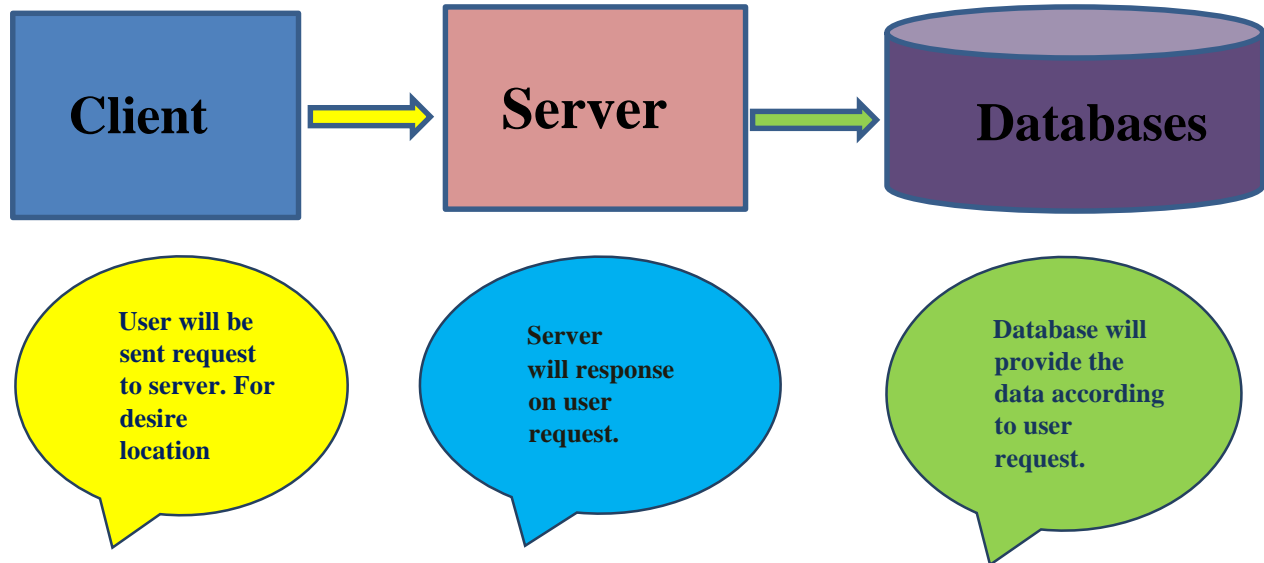
Figure 1: High level System Components

1.4.1. Input:
The client will input the desire locations and send the request for further processing.

1.4.2. Processes:
The request will be going to the server for further process in a system environment. PHP will use for this purpose.

1.4.3. Output:
After processing output will be view in a form of maps. The maps will generate on the basis of multiple desired destinations of visitors. The map will show alternative paths for each destination with each path estimated time and distance.

1.4.4. Data Store:
Following data will be saved in database.
- Point data of the Restaurants.
- Point data of the ATM.
- Point data of the Malls.
- Point data of the Cinemas.
- Point data of the Parks.
- Point data of the Forts.
- Point data of the Petrol Station

1.5 System Architecture:
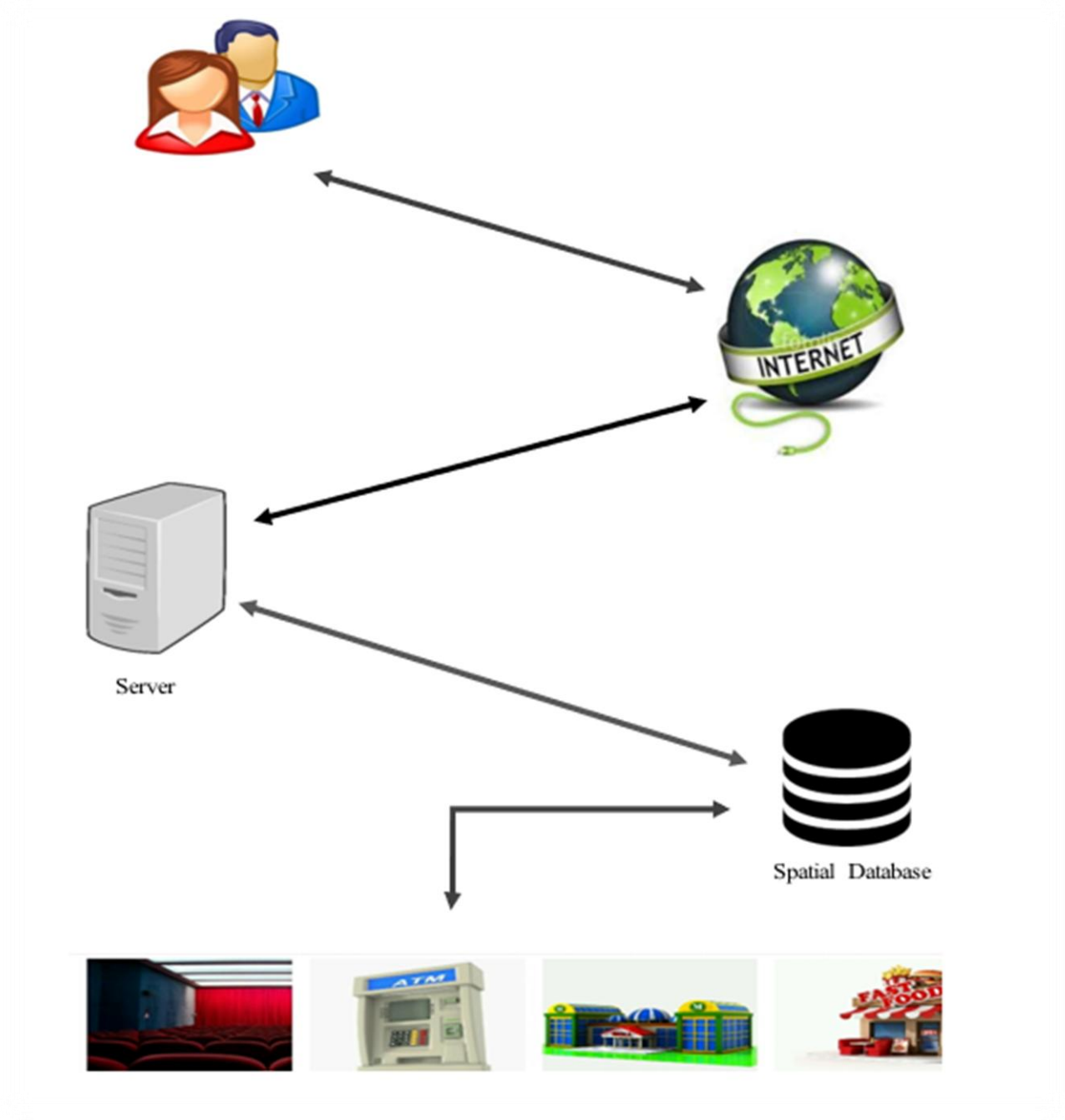
Figure 2: System Architecture

1.6 Gantt chart

		Task Name	Duration	Start	Finish	Predeces
1		Plan Of Project	8 days?	Wed 10/17/18	Sun 10/28/18	
2		☐ Proposal	15 days	Mon 10/29/18	Fri 11/16/18	1
3		Project Scope	5 days	Mon 10/29/18	Fri 11/2/18	
4		Goal And Objective	5 days	Mon 11/5/18	Fri 11/9/18	3
5		System Architecture	4 days	Mon 11/12/18	Thu 11/15/18	4
6		Proposal Submission	1 day	Fri 11/16/18	Fri 11/16/18	5
7		☐ Planning And Requirements	39 days?	Sat 11/17/18	Tue 1/8/19	
8		Feasibility Report	12 days?	Sat 11/17/18	Mon 12/3/18	
9		Existing System Review	10 days	Tue 12/4/18	Sun 12/16/18	8
10		Usecase Diagram	15 days	Mon 12/17/18	Fri 1/4/19	9
11		Submission Of Deliverable1	2 days	Mon 1/7/19	Tue 1/8/19	10
12		☐ Project Design	29 days	Wed 1/9/19	Mon 2/18/19	
13		UseCase Diagram And Discription	8 days	Wed 1/9/19	Fri 1/18/19	
14		ERD Diagram	6 days	Mon 1/21/19	Mon 1/28/19	13
15		Logical Diagram	7 days	Tue 1/29/19	Wed 2/6/19	14
16		Design Prototype	6 days	Thu 2/7/19	Thu 2/14/19	15
17		Submission Of Deliverable2	2 days	Fri 2/15/19	Mon 2/18/19	16
18		☐ Project Implementation	43 days	Tue 2/19/19	Thu 4/18/19	
19		Data Collection	10 days	Tue 2/19/19	Mon 3/4/19	
20		Physical Schema	11 days	Tue 3/5/19	Tue 3/19/19	19
21		Save Collected Data In Spatial DataBase	8 days	Wed 3/20/19	Fri 3/29/19	20
22		Server side Programming	6 days	Mon 4/1/19	Mon 4/8/19	21
23		Use Analysis Techniques	3 days	Tue 4/9/19	Thu 4/11/19	22
24		Conclusion	2 days	Fri 4/12/19	Mon 4/15/19	23
25		Final Document Submission	3 days	Tue 4/16/19	Thu 4/18/19	24

Figure 3: Gantt Chart

1.7 Hardware and Software Requirements:

Hardware:

- Laptop having CORE i5, Processor

Software:

- MS Project
- XAMP/WAMP
- Arc GIS 10.5

1.8 Languages:

- HTML
- CSS
- JAVASCRIPT
- Google MAP API

- PHP
- My SQL

1.9 Tools and technologies:

1.9.1. ArcGIS 10.2:
It is used for digitizing the map and creating the shape files of rescues and hospitals in Lahore.

1.9.2. Xampp/WampServer[1]:
It is a free and open source cross-platform web server solution consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP.

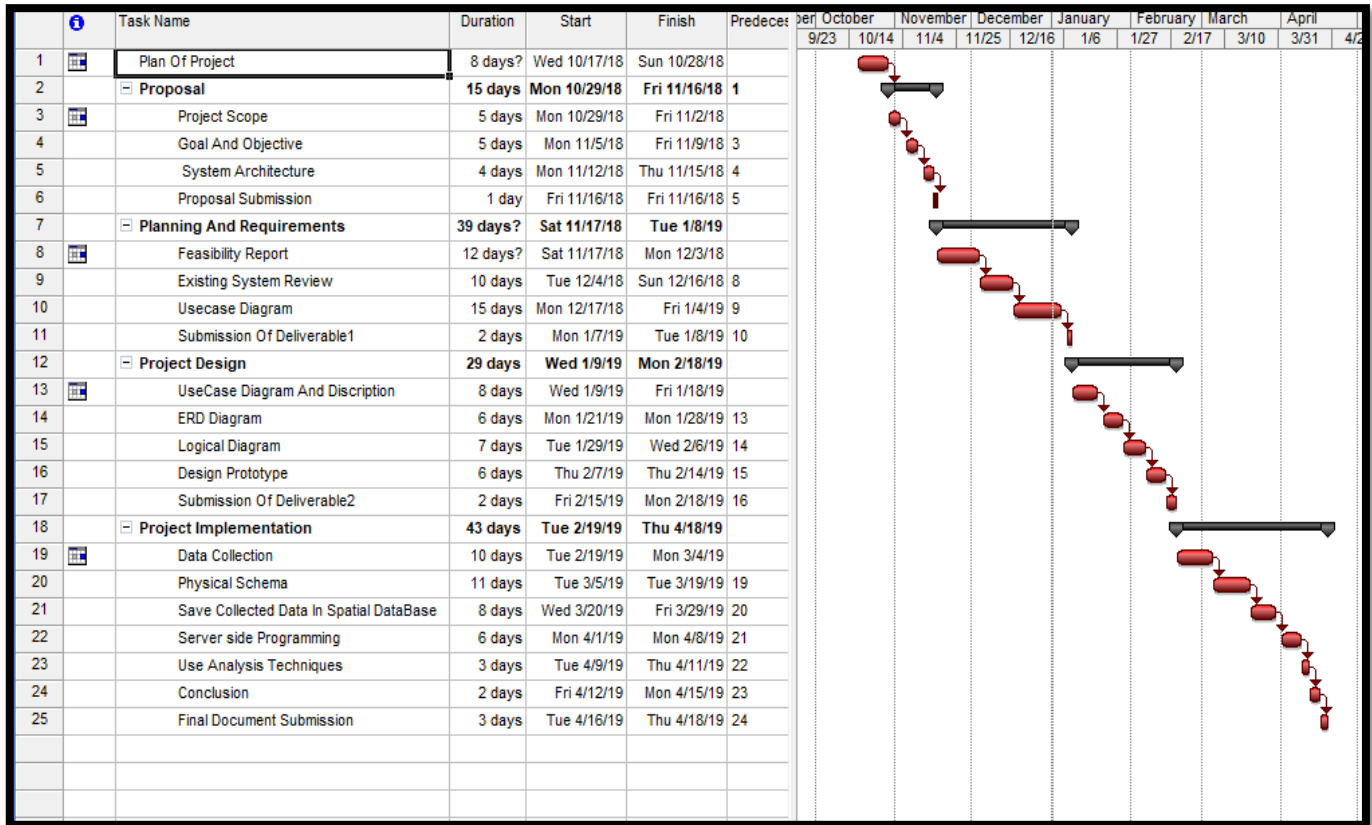### 1.9.3. My SQL database[2]:
Used for physical modeling, basically, it is an open source database that's why it is chosen for storing spatial data.

1.9.4. JavaScript, Html, CSS, PHP[3]:
These languages are used to design a system through coding and will be used for server-side programming.

1.9.5. Google Maps APIs[4]:
Google Map APIs is an open source site. It is used to directly access our required maps to Identify a location.

CHAPTER 2

REQUIREMENT ANALYSIS

2. Project Plan:

In this project we'll be acquired data of the Restaurants, ATM, Malls, Petrol Stations, Cinemas, Parks and Forts used for processing. This proposed system would use web based system so that user could avail the Tour facility. Google maps API would be used to track the actual location of the user and afterward the analysis would be done so that user could find the nearest available services and their alternative paths. For server side we'll be using PHP so that the entered data stored in spatial databases.

2.1 Project Feasibility Report:

Feasibility report includes consideration of all the possible ways to provide a solution for the given problem. The proposed solution should satisfy all the user requirements. Product should be flexible enough so that future changes can be easily done based on future upcoming requirements.

2.1.1. Technical
2.1.2. Operational
2.1.3. Economic
2.1.4. Schedule
2.1.5. Information
2.1.6. Legal and Ethical

2.1.1. *Technical Feasibility:*

Technical feasibility includes the complete study of the project in terms of input, processes, output, program and procedures. It is a very effective method for long term planning and trouble shooting. It also includes different constraints that may affect the ability to achieve an acceptable web base application. The project members have knowledge in the tools & technologies such as, Google map API, Html, Java Script, PHP, MySQL Database, MS Project and MS Office which are used in this project is technical feasible as most of these software's are open source and free to use.

2.1.2. *Operational Feasibility:*

The major goal of this system is to develop such a GIS web-based system that will facilitates the clients to identify the best option while planning his/her tour by providing alternative paths form his/her current location to the desired destination combined with all available service areas of that particular route. This system will create whole day spatial plan for user.

2.1.3. *Economic Feasibility:*

We estimate the cost through the acquisition, maintains and operation costs which is spend during the development of this project. We estimate our benefit through better serve using less cost and provide efficient services by using user friendly interface. The system can beneficial for all the users to plan whole day tour with alternative paths and all available service areas.

2.1.4. Schedule Feasibility:

A proper schedule is established and all the tasks are completed in given timeline, so the project will successfully complete within certain time. By using all the relevant resources, the project complete within a certain frame work.

2.1.5. Information Feasibility:

This system will help user to facilitate by providing a user-friendly interface which will help them to create or plan their whole day tour system, also save the time of user. The proposed project will be completed within a certain time period successfully.

2.1.6. Legal & Ethical Feasibility:

Our project meets the entire legal and ethical requirement. An ethical behavior for a website during its developments means not to use pirated versions of any software. As we are using registered tools and technologies, there is no chance of an illegal activity in this project.

2.2 Project Scope:

The major scope of the system is to develop such a GIS web-based system that will facilitate the clients to identify the best option while planning his/her tour by providing alternative paths from his/her current location to the desired destination combined with all available service areas of that particular route.

The system will help user to select high rated places and view their details and schedule their visit of high rated places as their desire. Also provide the nearest services areas of that particular route.

2.3 Literature Review:

Smart Space-Based Intelligent Mobile Tourist Guide: Service-Based Implementation:
In this research Alexy Kashevnik [1] explains the intelligent mobile tourist guide system that allows tourists to get information about attractions around the current geographic location based on tourist and region context and estimations of other tourists, region context includes such information as weather, traffic jams, closed attraction, etc. propose different transportation means for reaching the attraction. It allows the tourist to rate attractions, their images, and descriptions after acquaintance. Providing the information how to reach the preferred attraction by public transport or with drivers who are going to the same direction.

Developing a Location Based Tourist Guide Application:
Todd Simcock, Bruce H. Thomas (2003) [2] explains the functionality of software that supports location based applications; this project is not just interested in the location but also other elements of the user's context, such as buildings in view attractions and equipment nearby, such as public telephones and toilets. The hand held computing device used in the

project is the Compaq Aero color palm-size PC. Display the user's position graphically on the tour map based on their position from a GPS. This device has the following three modes: *map mode*, *guide mode*, and *attraction mode*. The user may switch between the three modes selecting a tab on the top of the screen. Provide functionality for other tours to be created and uploaded onto the system and used.

Guide Me-A Tourist Guide with a Recommender System and Social Interaction:
In this research Artem Umanets, NunoLeite (2014) [3] try to explain mobile and Web application that provide consultation, publication, and recommendation of touristic locations. Each user may consult places of touristic interest, receive suggestions of previously unseen touristic places according to other user's recommendations, and to perform its own recommendations. The service offers a set of search filters to facilitate the exploration of new locations. To attract new users, the Facebook and Twitter social services are to easily register as a new user or to login into the Guide Me service. The system suggests new locations based on both the user's past actions and its current location. It takes into account the preferences of other users, through a recommender system(RS).

Context-awareness in Service-oriented Mobile Tourists Guide System:
In this research Farhad Samad zadegan (2008) [4] explain the service-oriented architecture to use the context information in mobile tourist guide systems to enable them to present the users more suitable services. It is used to build a context-aware tourist guides based on services. To implement the system, it provides a service oriented architecture (SOA) to respond the request of user. There are three types of key actors in SOA, these are service requestor (the tourist in our case), service provider and service matchmaker (which help the requestors to find the right services). When a tourist requests a service, the requestors and service brokers need to collaborate to find the right services.

Location-Based Mobile Tour Guide Services Towards Digital Dunhuang:
In this research Ma Chang-jie, Fang Jin-yun (2008) [5] try to explain the attractions that facilitate the visitors to search the shortest paths or best paths. The users can also pick up an optimum path by designating starting, destination, mid-point or key-point. This research paper taking technologies of wireless network and geographical information as the foundation. The Mobile Tour Guide (MTG) services based on the location awareness. It also facilitates the tourist to make full use of mobile tour guide services at any time anywhere through mobile phones and other handheld devices. Its characteristics of location services, attractions guide and traffic information become the core of tourist's attention.

Mobile Location-Based Tour Guide System:
Dr R Praveen Sam (2013) [6] explain the android based city tour guide system that identifies the places in video wise and it is responsible to do video search using Google search engine.

It provides the information of hotel, attractions and restaurants to the users. It searches your address and locates cities quickly, and provides the current temperature, current weather condition, humidity and wind speed and direction. The system is a combination of smart phone and Internet services and will facilitate tour and life for tourists.

Web Based Tourism Information System Using Geographical Information System (GIS):

In this research Mohan Lalit, Dhawan, Karishna A. P. [7] try to explain a web-based GIS application that is developed to promote the tourist with their desired information on tourism related to departments, agencies, hospitality industries and other services. It is also capable of providing both spatial and non-spatial tourism information for tourists. GIS is the core component of this application as it provides the world wide users with spatial information. This application assists the prospective domestic and foreign tourists to the city in advance planning of their tour in time and with desired spatial details.

Web Based Information System for Tourism Resorts; A Case Study for Side/ Manavgat:

E. Duran, D.Z. Seker and M. Shrestha [8] explain the new trend in the field of tourism and involves the use of mobile devices as electronic tourist guides. This article is on study area of Mediterranean cost of turkey that is famous for tourism this system helps to solve problems to find what they are looking for, especially in reference to the geographic position of the object and its surroundings. In most cases, it is not satisfying to find a nice hotel without a reference to restaurants, sights or event locations located nearby. The study presented in this paper starts from the user needs, to present the tourism object in geographic context on interactive tourist maps supports planning for tourism, focusing on the analysis, decisions making and management using GIS technique and presenting the results on the internet.

Case study on tour guiding: professionalism, issues and problems:

In this research John AP, Kevin K.F. Wong (2001) [9] try to explain the professional tourist guide application that provide elective combination of enthusiasm, knowledge, personality qualities and high standards of conduct and ethics. This paper help to examine the current state of tour guiding practice in Hong Kong; to identify the issues and problems faced by the tour guiding profession, to recommend strategies to raise the standard, recognition, and quality of services provided by tour guides, and to examine the implications of the Hong Kong experience for the guiding profession elsewhere around the world.

2.4 Gantt chart:

		Task Name	Duration	Start	Finish	Predecessors
1		**Plan of Project**	10 days	Wed 10/17/18	Tue 10/30/18	
2		⊟ **Proposal**	11 days	Wed 10/31/18	Wed 11/14/18	
3		Project Scope	3 days	Wed 10/31/18	Fri 11/2/18	1
4		Goal and Objective	6 days	Mon 11/5/18	Mon 11/12/18	3
5		System Architecture	3 days	Mon 11/5/18	Wed 11/7/18	3
6		Proposal Submission	2 days	Tue 11/13/18	Wed 11/14/18	5,4
7		⊟ **Planning and Requirement**	51 days	Mon 12/17/18	Mon 2/25/19	
8		Feasibility Report	15 days	Mon 12/17/18	Fri 1/4/19	6
9		Project Scope	12 days	Fri 1/4/19	Mon 1/21/19	6
10		Existing System Review	10 days	Tue 1/22/19	Mon 2/4/19	9
11		Usecase Daigram	9 days	Tue 2/5/19	Fri 2/15/19	9
12		Submission of Deliverable	1 day	Mon 2/25/19	Mon 2/25/19	8,9,10,11
13		⊟ **Project Design**	17 days	Wed 2/27/19	Tue 3/19/19	
14		usecase Daigram(Refined)	2 days	Wed 2/27/19	Thu 2/28/19	12
15		ERD daigram	4 days	Tue 3/5/19	Fri 3/8/19	12
16		Logical Daigram	3 days	Mon 3/11/19	Wed 3/13/19	15
17		Design Prototype	3 days	Thu 3/14/19	Sat 3/16/19	16
18		Submission of Deliverable :	2 days	Mon 3/18/19	Tue 3/19/19	17,14,15,16
19		⊟ **Project Implementation**	31 days	Wed 3/20/19	Tue 4/30/19	
20		Data Collection	10 days	Wed 3/20/19	Tue 4/2/19	18
21		Physical Schema	5 days	Wed 4/10/19	Tue 4/16/19	20
22		Save Collection Data in Spi	3 days	Wed 4/17/19	Fri 4/19/19	21
23		Server Side Programming	2 days	Sat 4/20/19	Mon 4/22/19	22
24		Use Analysis Techniques	2 days	Tue 4/23/19	Wed 4/24/19	23
25		Conclusion	1 day	Fri 4/26/19	Fri 4/26/19	24
26		Final Document Submission	2 days	Mon 4/29/19	Tue 4/30/19	25

Figure 4: Gantt Chart

2.5 Critical Path Method:
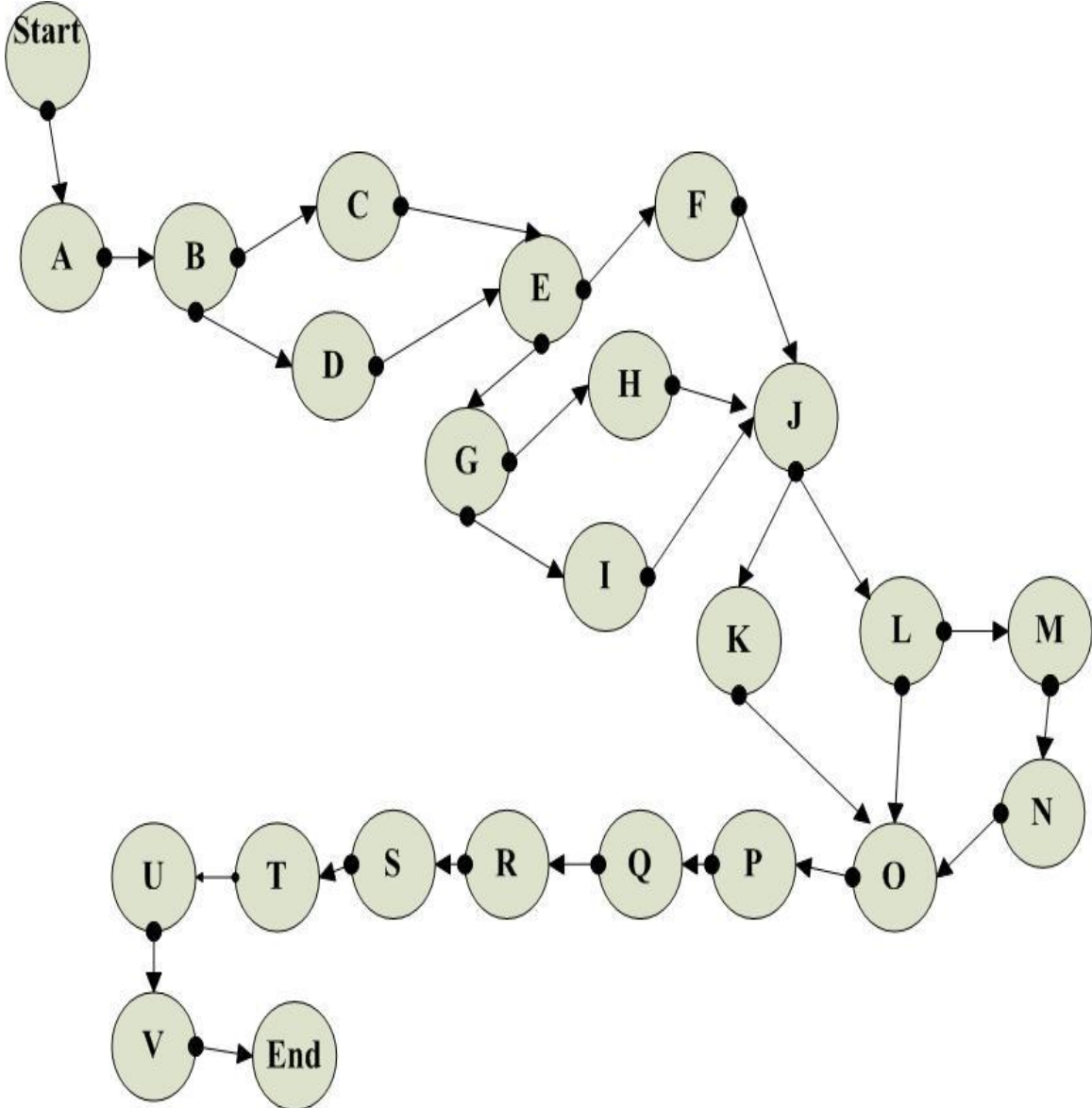
Figure 5: Network Diagram

ACITIVITIES	duration	Dependencies	Early Start	Early Finish	Late Start	Late Finish	Total Slag	Final Slag
A	10 days	-	0	10	0	10	0	0
B	3 days	A	10	13	10	13	0	0
C	6 days	B	13	19	13	19	0	0
D	3 days	B	13	16	16	19	3	3
E	2 days	D,C	19	17	19	17	0	0
F	15 days	E	17	32	24	39	7	7
G	12 days	E	17	29	17	29	0	0
H	10 days	G	29	39	29	39	0	0
I	9 days	G	29	38	30	39	1	1
J	1 day	F,H,I	39	40	39	40	0	0
K	2 days	J	40	42	48	50	8	8
L	4 days	J	40	44	40	44	0	0
M	3 days	L	44	47	44	47	0	0
N	3 days	M	47	50	47	50	0	0
O	2 days	K,L,N	50	52	50	52	0	0
P	10 days	O	52	62	52	62	0	0
Q	5 days	P	62	67	62	67	0	0
R	3 days	Q	67	70	67	70	0	0
S	2 days	R	70	72	70	72	0	0
T	2 days	S	72	74	72	74	0	0
U	2 days	T	74	76	74	76	0	0
V	2 days	U	76	78	76	78	0	0

Table 2: Critical Path Method

*Critical Path***:**

Start->A->B-> C->E->G->H->J->L->M->N->O->P->Q->R->S->T->U->V->End.

2.6 Introduction to Team Members and Their Skills:

Team Members	Skills
Maira Ijaz **MGSF17A006**	MS Office, MS Project, Arc GIS Desktop, HTML, PHP, Java Script, Spatial Database, Google Map API , Presentation Skills.
Maria Tariq **MGSF17A003**	MS Office, Arc GIS Desktop, HTML, PHP, Java Script, Adobe Photoshop, Spatial Database, Google Map API, Presentation Skills.
Aqsa Akram **MGSF17A005**	MS Office, Adobe Photoshop, Arc GIS Desktop, HTML, Java Script, PHP, programming and development Skills, Spatial Database.
Hafsa Iftikhar **MGSF17A007**	MS Office, Arc GIS Desktop, HTML, PHP, Presentation and Data Preparation Skill.
Rameen Farrukh **MGSF17A008**	MS Office, Arc GIS Desktop, HTML, Java Script, PHP, MY SQL, Designing and Presentation Skills.

Table 3: Introduction to Team Members and Their Skill Sets

2.7   Use Case Diagram:

Figure 6: Use Case Diagram

CHAPTER 3
DESIGN & IMPLEMENTATION

3. Introduction:

The tourist guide system is available in Lahore, our purpose is to provide a more efficient system and facilitate user to plan a manageable whole day tour. The first step is data preparation and shape file were created in ArcGIS software. Then it has been converted from shape file to database format to store in the spatial database. System grabs longitude and latitude of the current location after the server accepts the request and leave for the incident and then for the location of user and calculate all alternatives and service areas of routes that is saved in the database.

3.1 Detailed Entity Relationship Diagram:

Figure shows the detailed entity-relationship diagram. Each entity present in this system is linked with other entity in the form of relationship. Firstly, we created a conceptual schema of entities "tbl-places" have attributes id, name, type_id, geom and status. Places are of many types, "tbl-types" have attributes id and type that are visited by many users, "tbl-users" have attributes visited places, contact no, geom and name. Users may search many paths, "tbl-path" have attributes id, user_id, poi_id, status, rating. A single type has many poi, "tbl-poi" have attributes id, name, geom, status, date_time. Different points has many paths that are searched by many users.
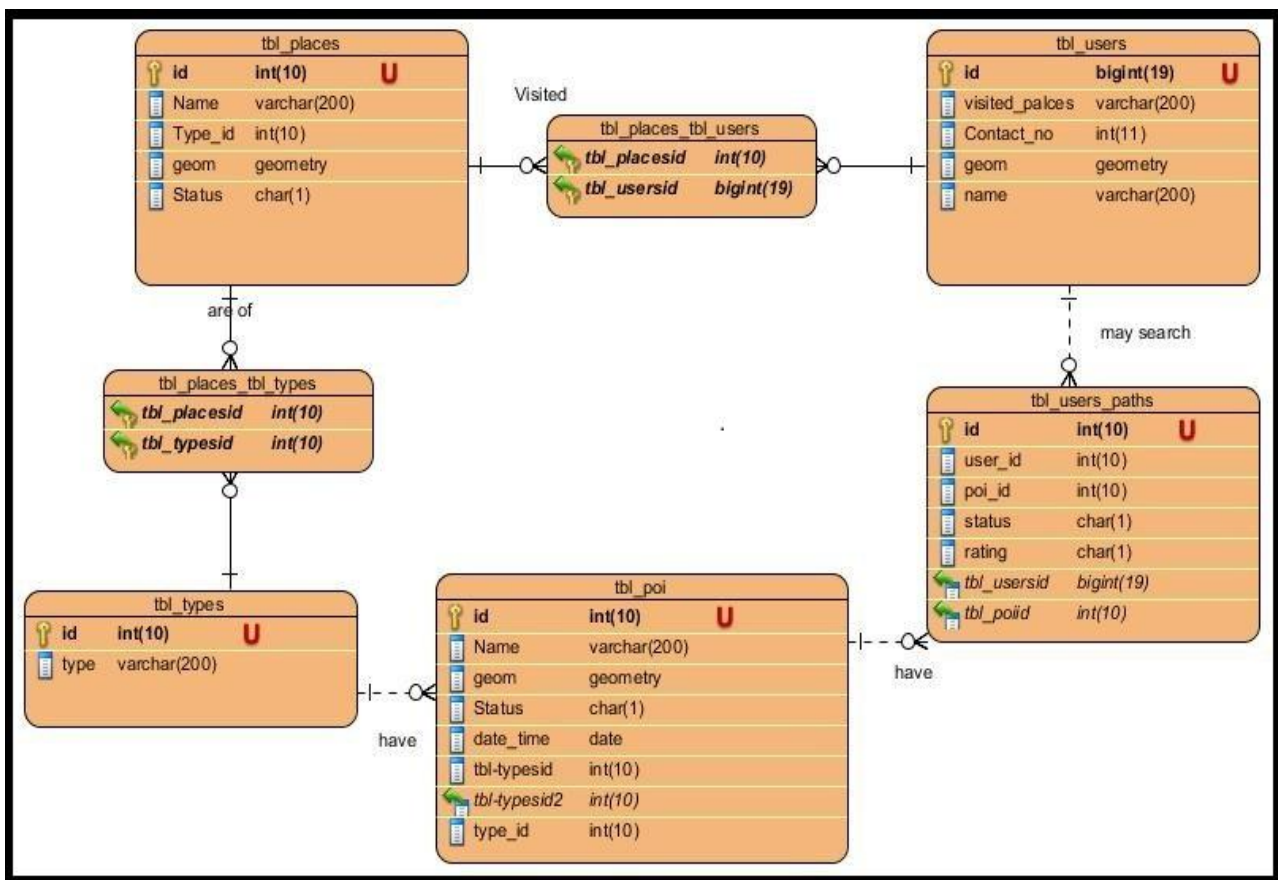
Figure 7: Detailed Entity Diagram

3.2 Physical Schema

Places Table:
CREATE TABLE `tbl_places` (
 `id` int (10) NOT NULL,
 `name` varchar (200) NOT NULL,
 `type_id` int (10) NOT NULL,
 `geom` geometry NOT NULL,
 `status` char (1) NOT NULL
)

Places-Types Table:
CREATE TABLE `tbl_places_tbl_types` (
 `tbl_placesid` int (10) NOT NULL,
 `tbl_typesid` int (10) NOT NULL
)

Places-Users Table:
CREATE TABLE `tbl_places_tbl_users` (
 `tbl_placesid` int (10) NOT NULL,
 `tbl_usersid` bigint (19) NOT NULL
)

Point of Interest Table:
CREATE TABLE `tbl_poi` (
 `point` geometry NOT NULL,
 `ogc_geom` geometry DEFAULT NULL
)

Places-Types Table:
CREATE TABLE `tbl_types` (
 `id` int (10) NOT NULL,
 `type` varchar (200) NOT NULL
)

Users Table:
CREATE TABLE `tbl_users` (
 `id` bigint (19) NOT NULL,

```
`visited_palces` varchar (200) NOT NULL,
`contact_no` int (11) NOT NULL,
`geom` geometry NOT NULL,
`name` varchar (200) NOT NULL
)
```

Users-Path Table:
```
CREATE TABLE `tbl_users_paths` (
 `id` int (10) NOT NULL,
 `user_id` int (10) NOT NULL,
 `poi_id` int (10) NOT NULL,
 `status` char (1) NOT NULL,
 `rating` char (1) NOT NULL,
 `tbl_usersid` bigint (19) NOT NULL,
 `tbl_poiid` int (10) NOT NULL
)
```
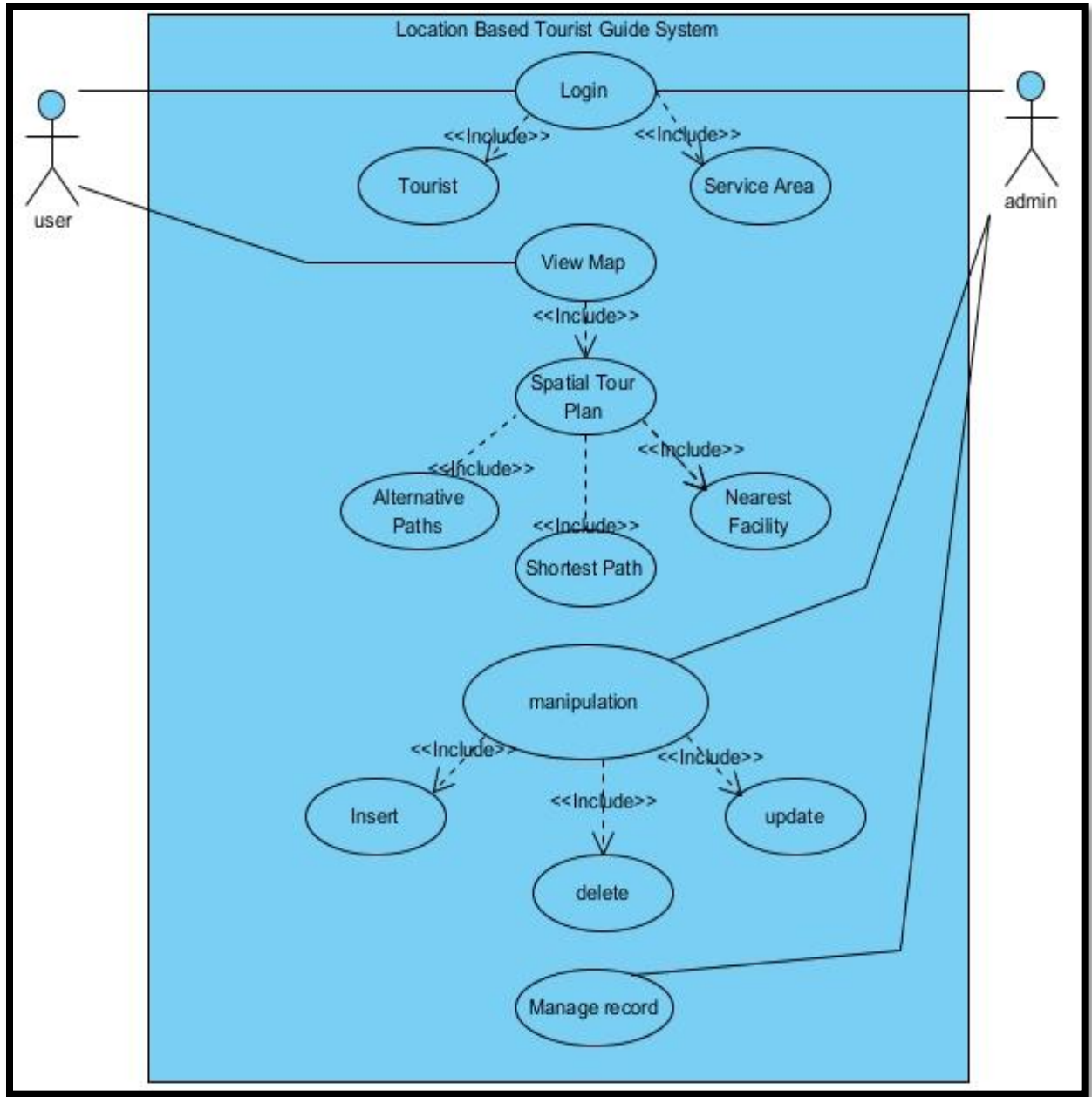
3.3 Use Case Diagram:

Figure 8: Use Case Diagram

3.4 Use Case Description:

- **Tourist – Use Case**

Use Case Details

Name: Tourist
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.A person who is travelling or visiting to places in Lahore for pleasure
2. A person who want to travel from one place to another in Lahore.

- **Service Area – Use Case**

Use Case Details

Name: Service Area
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.That areas which are access by tourist by using our system.
2.Restaurants, ATM, Malls, Petrol Stations, and Cinemas, Parks and Forts are the facilities provided by our system to the Tourist

- **Login – Use Case**

Use Case Details

Name: Login
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.To access our system the user will first login into our website by providing unique key.
2.A unique key that will allow our system to recognize our specific entity as admin.

- **View Map – Use Case**

Use Case Details

Name: View Map
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.In this use case the user will see the alternative paths from his current location to destination
2.The user will also see the estimated time and distance of each path.

- **Spatial Tour Plan – Use Case**

Use Case Details

Name: Spatial Tour Plan
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.In this use case the user will plan his/her whole day tour.
2.The input provided by the user to able our system to plan a whole day tour for a specific entity.

- **Alternative Paths – Use Case**

Use Case Details

Name: Alternative Paths
Rank: Unspecified
Leaf: False
Root: False

Flow of Events

Flow of Events
1.In this use case alternative routes provided to the user.
2.The user will input his/her current location and our system will provide alternative paths to each destination.

- **Shortest Path – Use Case**

Use Case Details
Name: Shortest Path
Rank: Unspecified
Leaf: False
Root: False
Flow of Events

Flow of Events
1.In this use case the system will help user to reach his/her desire destination in less time.
2.User will provide his/her current location and destination point and our system will provide shortest path along with its estimated time and distance to reach the destination.

- **Nearest Facility – Use Case**

Use Case Details
Name: Nearest Facility
Rank: Unspecified
Leaf: False
Root: False
Flow of Events

Flow of Events
1. In this use case our system will provide the information of available services along a specific route.
2. The user will also access these facilities.

- **Manipulation – Use Case**

Use Case Details
Name: Manipulation
Rank: Unspecified
Leaf: False
Root: False
Flow of Events

Flow of Events
1.Manipulation would allow admin to manipulate data in the website. Admin can delete, insert and update data.

- **Insert – Use Case**

  Use Case Details
  Name: Insert
  Rank: Unspecified
  Leaf: False
  Root: False
  Flow of Events

Flow of Events
1.This query would let both users and administrator to insert data in databases of the website.
2. The admin will insert data of Restaurants, ATM, Malls, Petrol Stations, and Cinemas, Parks and Forts
3.The user will rate a specific place and that data will insert in to the database.

- **Delete – Use Case**

  Use Case Details
  Name: Delete
  Rank: Unspecified
  Leaf: False
  Root: False
  Flow of Events

Flow of Events
1.The Administrator would be provided a front end or admin panel where admin can delete the existing records.

- **Update – Use Case**

  Use Case Details
  Name: Update
  Rank: Unspecified
  Leaf: False
  Root: False
  Flow of Events

Flow of Events
1.The administrator can Update data and can do changes in the already stored data of Restaurants, ATM, Malls, Petrol Stations, and Cinemas, Parks and Forts in the databases with the help of admin panel.

- **Manage Record – Use Case**

  Use Case Details
  Name: Manage Record
  Rank: Unspecified
  Leaf: False
  Root: False
  Flow of Events

Flow of Events
1.Only Administrators will be able to manage and handle records through the admin panel.

- **Admin – Actor**

  Actor Details
  Name: Admin
  Leaf: False
  Root: False

- **User – Actor**

  Actor Details
  Name: User
  Leaf: False
  Root: False

3.5 Study Area:

The area of interest is Lahore city, the capital of Punjab province of Pakistan, located between 31°15′—31°45′ N and 74°01′—74°39′ Lahore is a Famous city due to its historical signification it is one of the most famous city for tourism in Pakistan. Every year a large number of tourist visit Lahore. Due to its large geographical area it is very difficult for tourist to find their way in such a big city like Lahore. Our system helps tourist by given a solution in a web-based system which provide alternative paths and related total time and distance from his/her current location to destination, also user can plan whole day tour by using this system.

Figure 9: Lahore Study Area Map

3.6 Activity Diagram:
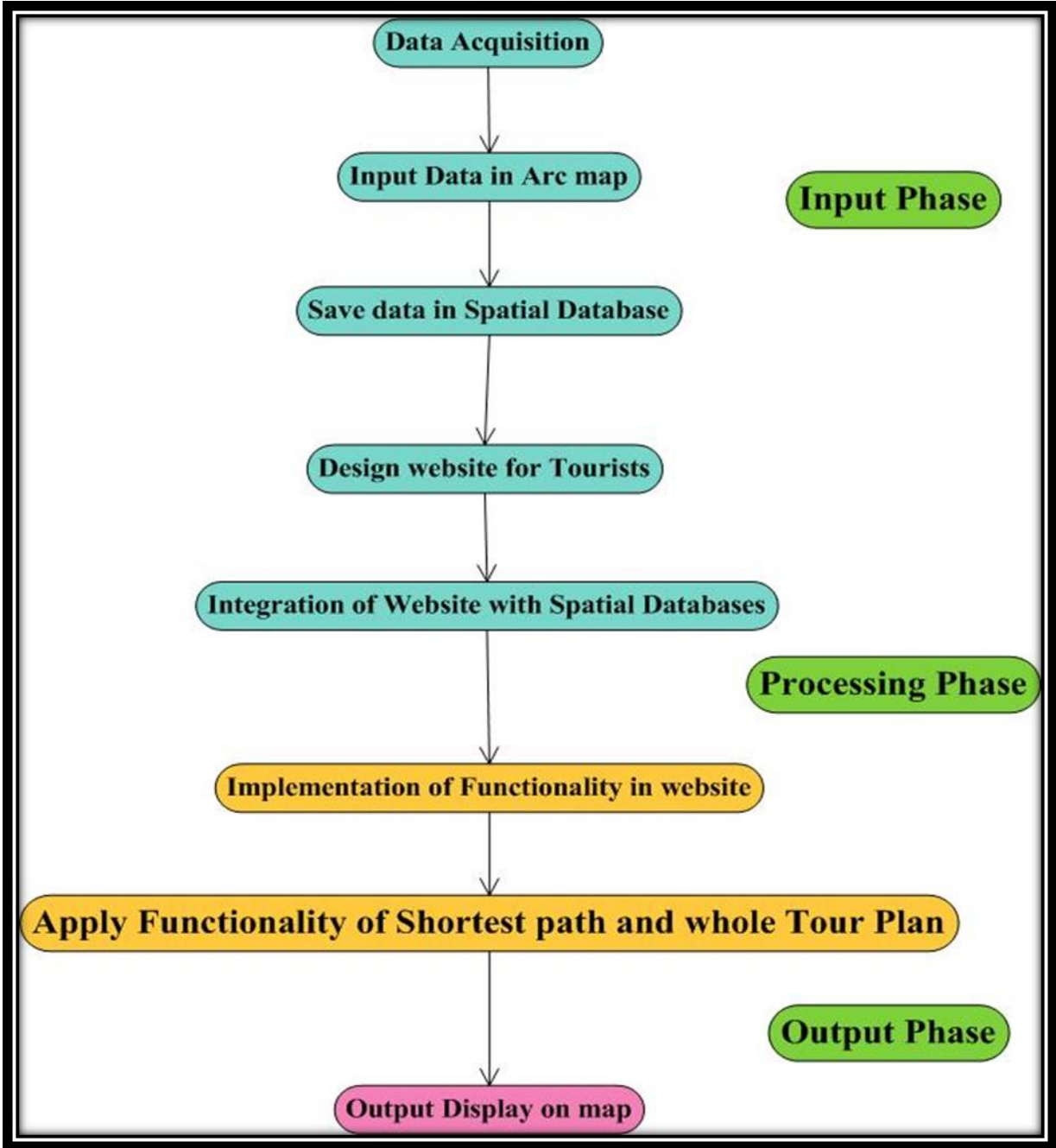
Figure 10: Activity Diagram

3.7 Data Collection and Data Preparation:

The point data of the Restaurants, ATM, Malls, Petrol Stations, and Cinemas, Parks and Forts and shape files has been collected by Google maps. All the point data is converted into shape files using the ArcGIS software. All shape files of Spatial and non-spatial data are maintained by ArcGIS software. In this system only one city is focused on that is "Lahore".
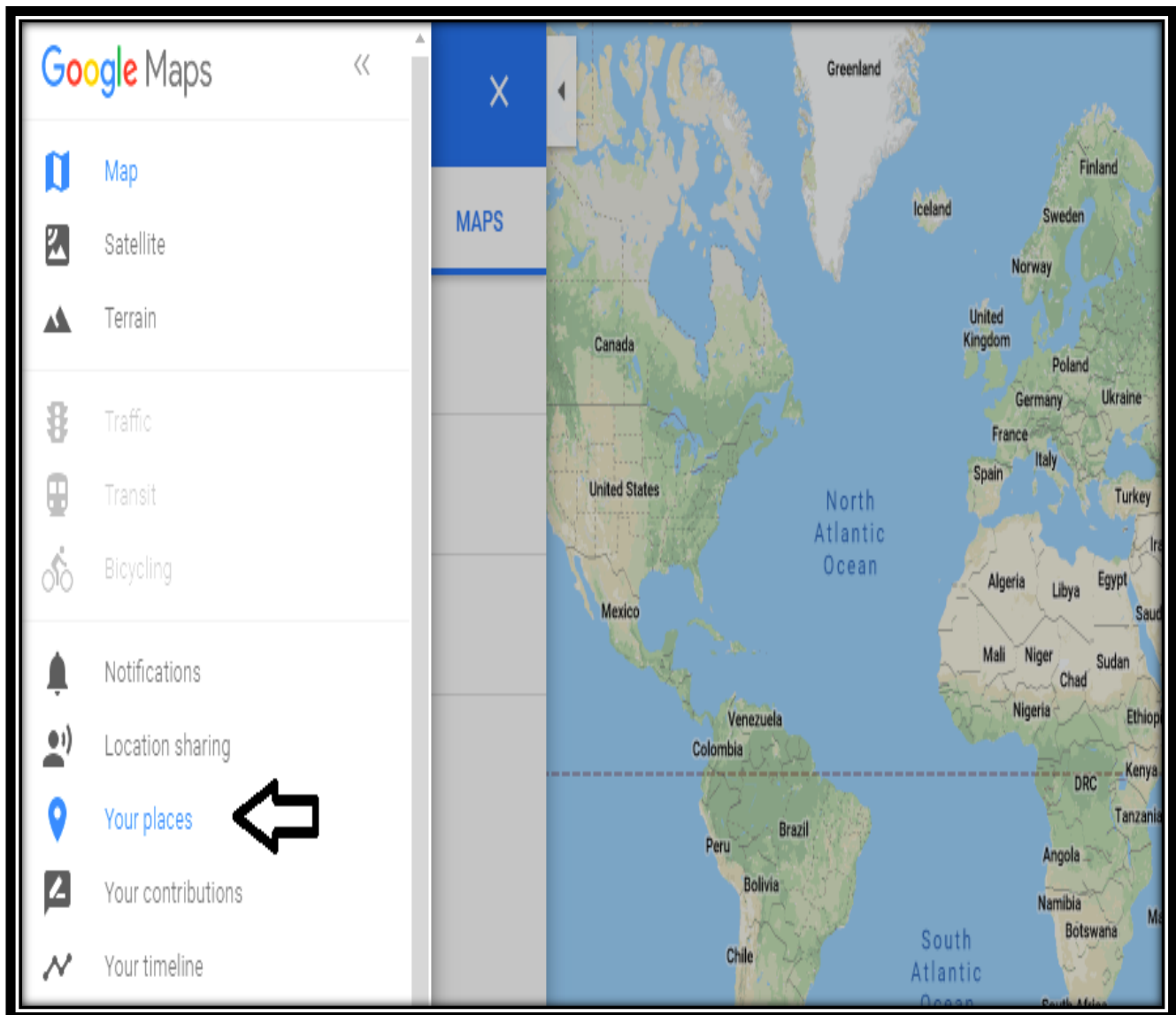
Figure 11: Data Collection of Lahore Tourist Places

3.7.1. Conversion of KML to Shape file:

1. To export map, from top menu we select Export to KML. A new window will appear, check export KML option and select download. Map will be saved in Google drive. We save that KML file in system from drive.
2. To convert KML to Shp. We open ArcMap > Arc Toolbox > Conversion tools > From KML > KML to layer.
3. A new window will appear, we give the KML file and output file destination and click ok.
4. Export the points/data converted from KML
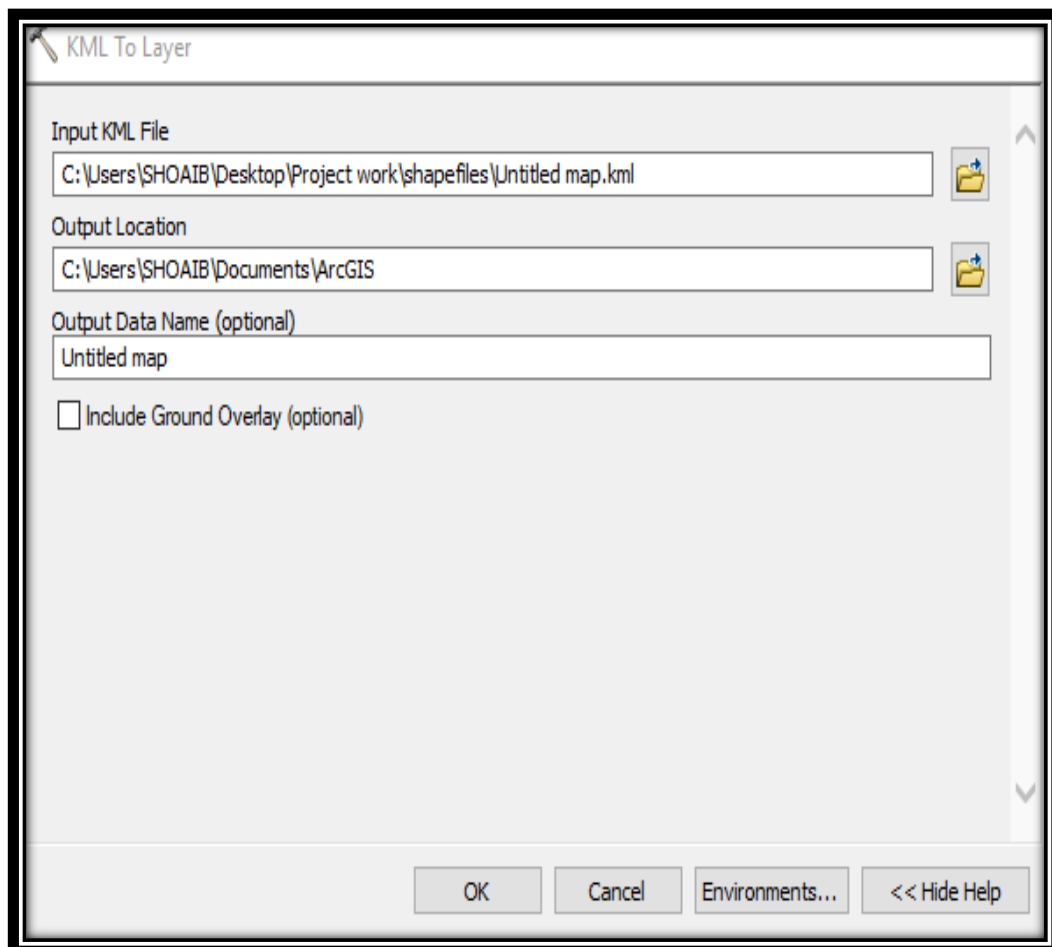
Figure 12: Conversion of KML to shape file

3.7.2 Map of Lahore Tourist Places:

In the given area the point's data shown represents the location and the attribute information of the Restaurants, ATM, Malls, Petrol Stations, Cinemas, Parks and Forts present all over the city Lahore.
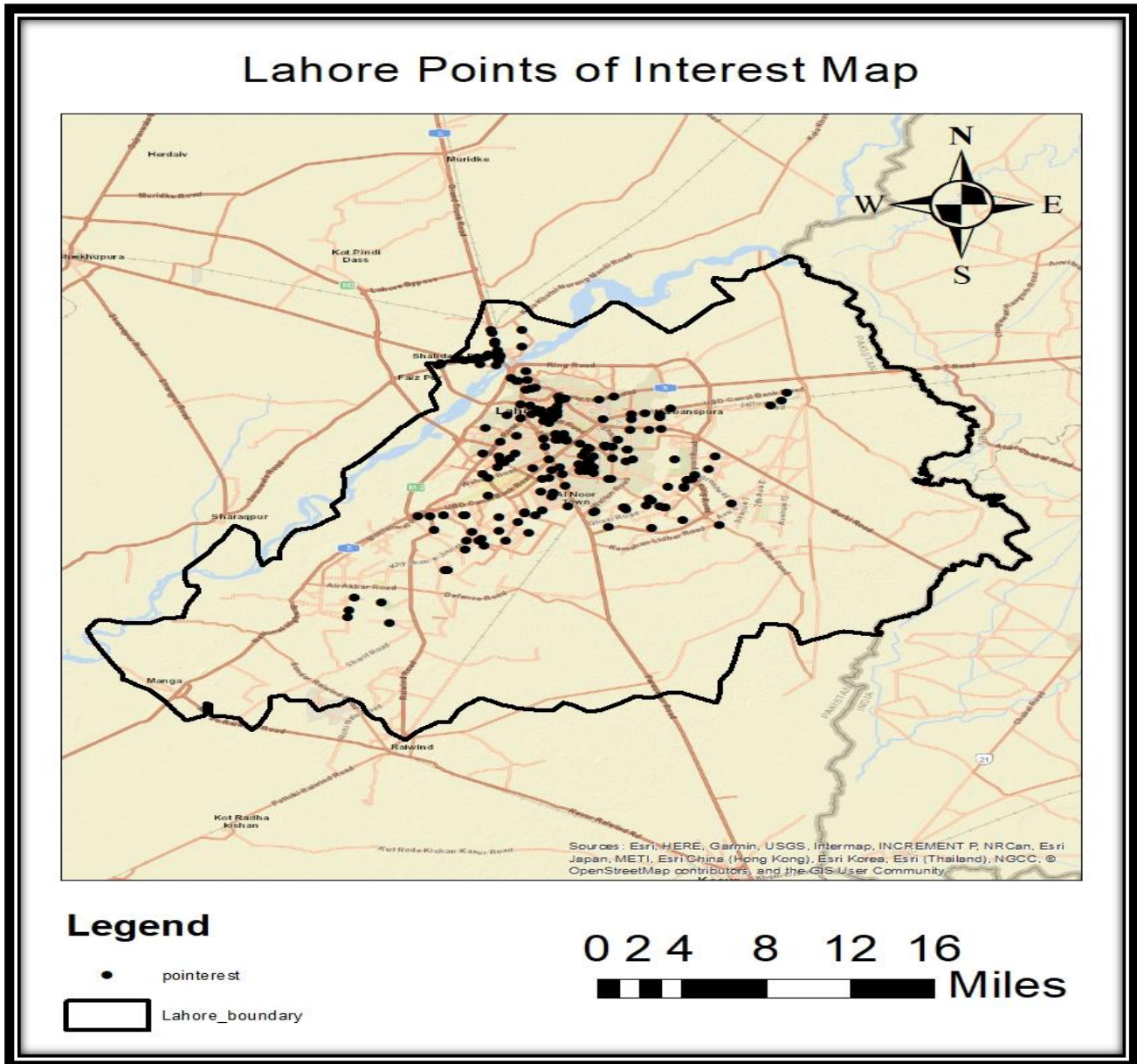
Figure 13: Lahore Tourist Places Map

3.7.4. Shp to MySQL connection description:

Place shape file into MySQL connector folder, from there open Shp-to-MySQL read me file, overwrite here shape file name, database name and table name in which we want to save data from shape file and output file name like this:

shp2mysql Export_Outputtbl_poidatabase_p>database_p.sql

copy this line in DOS here and press enter, output file is automatically save in this folder. Copy all the queries from this files to database MySQL. Shape file Data will be inserted in database table.

				ID	Name	FolderPath	SymbolID	AltMode	Base	Snippet	PopupInfo	HasLabel	LabelID	ogc_geom
☐	Edit	Copy	Delete	0	Pakistan Restaurant	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	1	Salt'n Pepper Village Lahore	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	2	Mouthful Cafe DD	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	3	Galito's - Flame Grilled Chicken	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	4	Haveli Restaurant	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	5	The Lakhanvi	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	6	Café Aylanto	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	7	Dera Restaurant	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	8	Siddique Kabab Shop	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	9	Subway	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	10	Savour Foods	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
☐	Edit	Copy	Delete	11	McDonald's	again_points	0	-1	0.00000000000	NULL	NULL	-1	0	[GEOMETRY - 25 B]
														[GEOMETRY

Figure 14: Database connection

CHAPTER 4

METHODOLOGY & IMPLEMENTATION

4 .1 HOME Page:

Our tourist guide system provides user friendly interface to their users.
From **HOME** option of system menu, user can see whole introduction of our system with complete working and objectives of our system.
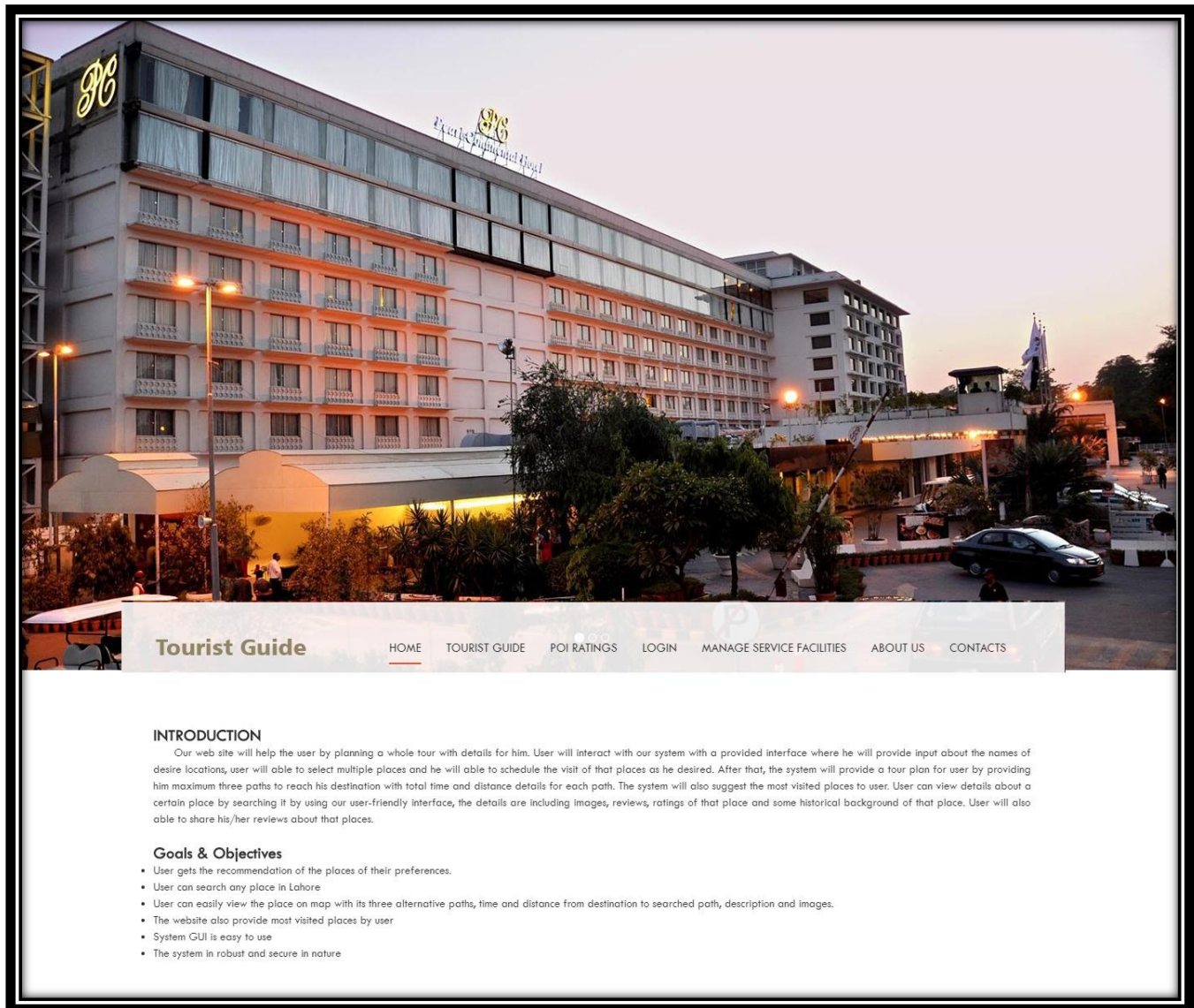

Figure 15:HOME Page

4 .2 Tourist Guide Page:

From **Tourist Guide Page** the user could calculate the total distance and time required for his tour from his current location to the destination by identifying the points , the shortest route and the alternative route shown on the map .Our system also provide the facilities to add multiple points of interests also within alternative path and the shortest path.
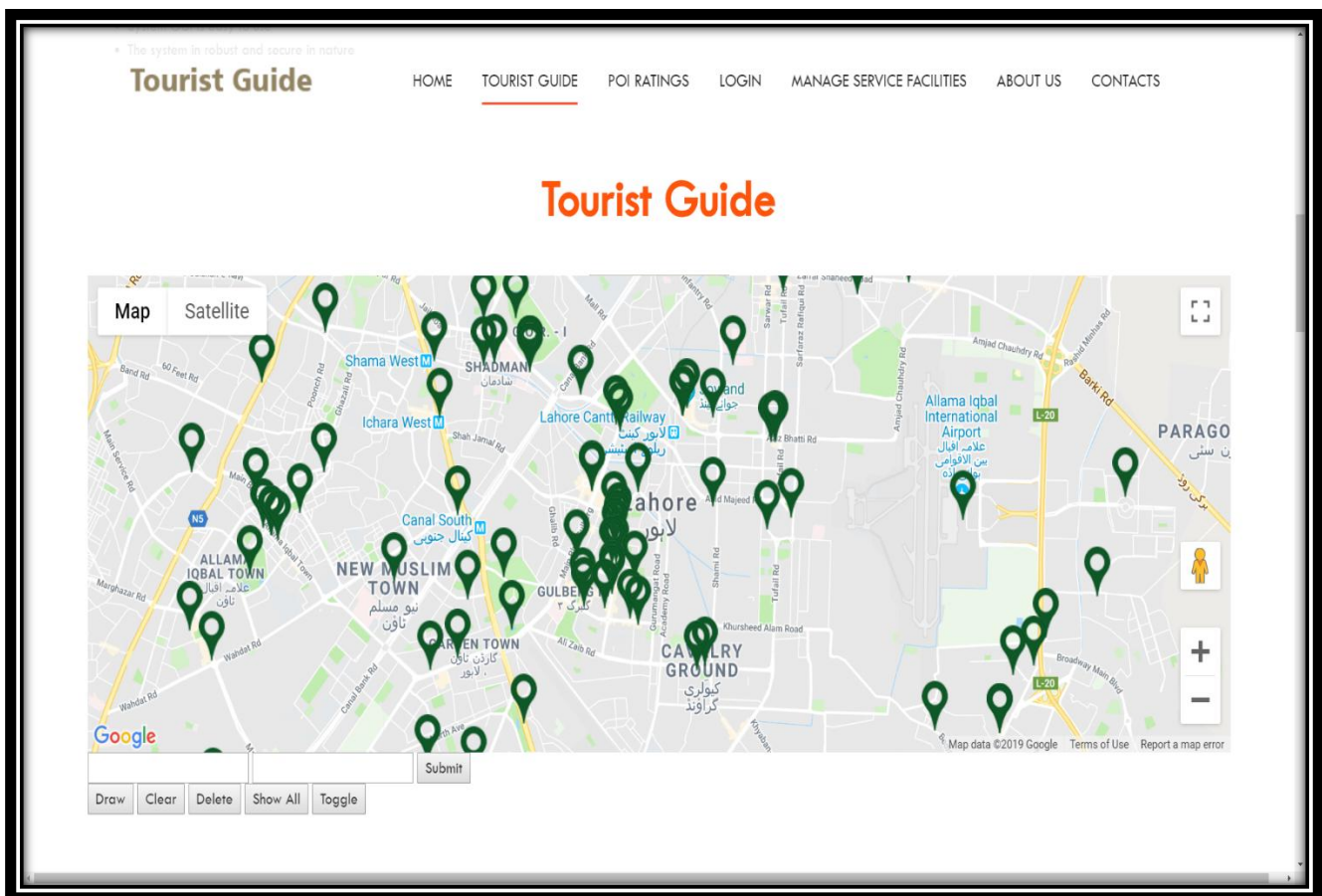
Figure 16: Tourist Guide Page

4 .3 POI Ratings Page:

From **POI Ratings** user can easily see rating of latest destination points that were visited by other users with their short description. From the experiences of the previous visitors the user could easily plan his tour.

Figure 17: POI Rating Page

4 .4 Login Page:

From **Login** option of our system menu, Admin can enter data of other destination points that were recommended by the users to others to must visits. It could help our system to be more efficient.

Figure 18: Log in Page

4 .5 Manage Service Facilities Page:

From **Manage Service Facilities** option of our system menu, Admin can enter type and name of the data which is to be added/removed/modified/deleted/edited, and also defines the status that either it could be active or not for the users then from the submit button admin could save changes to databases.

Figure 19: Manage Service Facilities Page

4 .6 ABOUT US Page:

Next, from **About us** menu, user can see map of admin location with brief description of Admins.

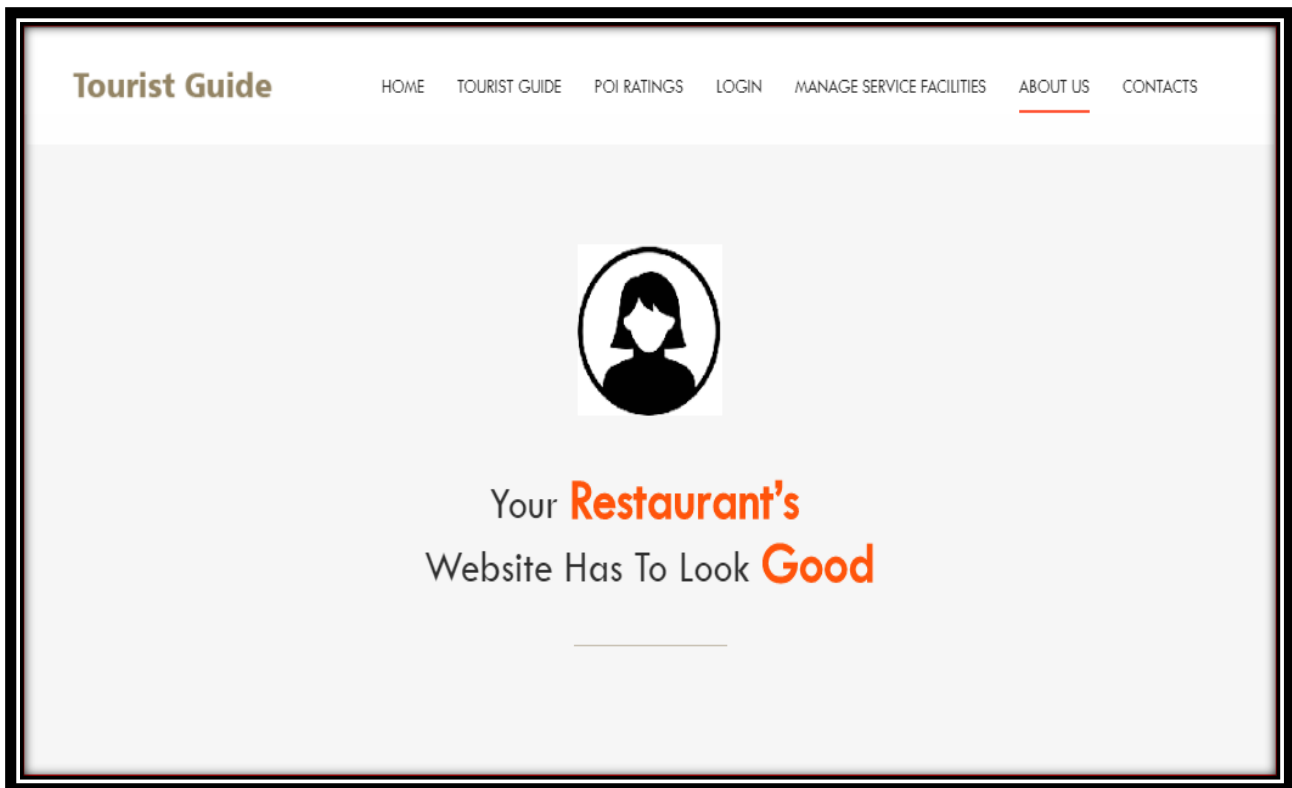**Figure 20: ABOUT US Page**

4 .7 Contacts Page:

From **Contact Us** option of our system menu, the user could easily contact to the admin through email, telephone and address in case of encountered an issue or to have any complain about the website.
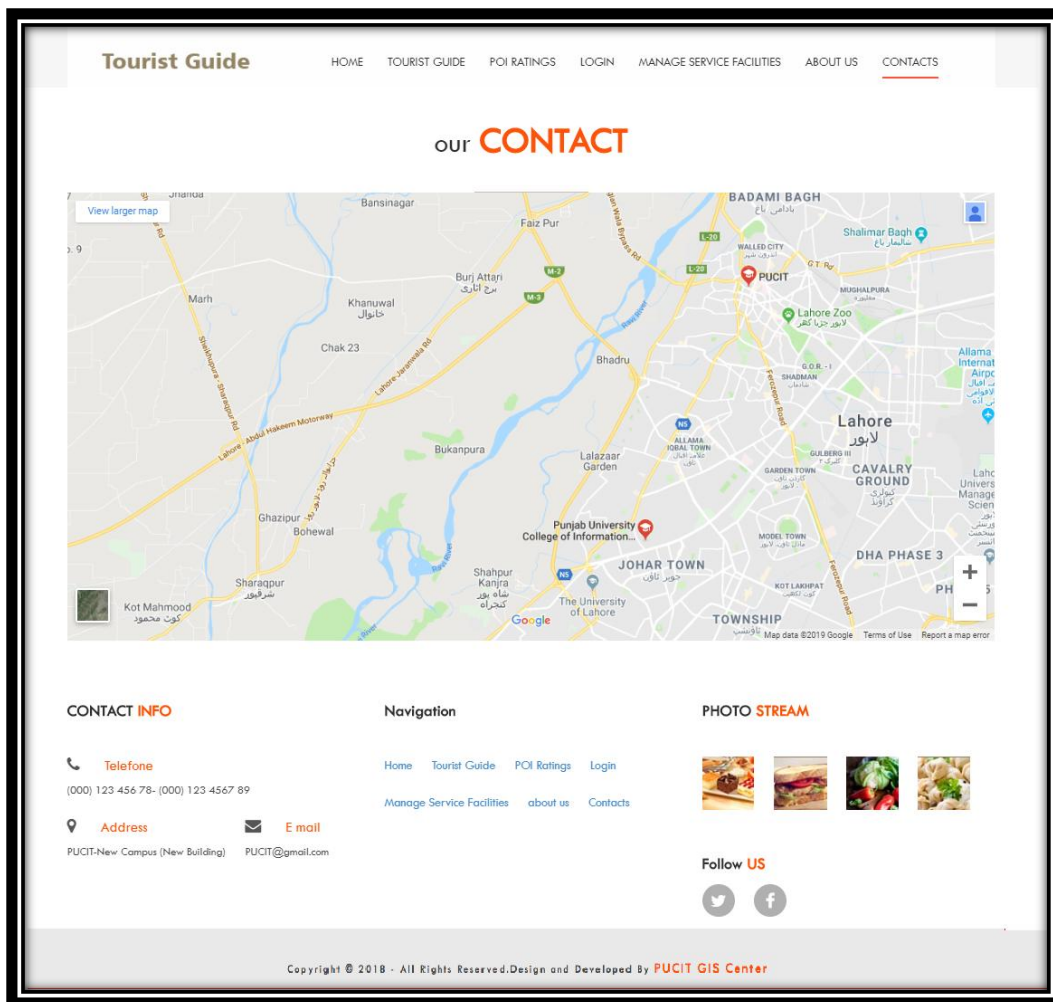

Figure 21: Contacts Page

4.8 Tourist Guide Map:

This is the final output of our system that helps the tourist by given a solution in a web-based system which provide alternative paths and related total time and distance from his/her current location to destination. Also our system helps user to plan his/her whole day tour.

User will pin point his/her desired locations and our system will create the whole day spatial plan from starting point to ending point. Also alternative paths will show on map with distance and time. The system will also highlight the most visited places that will be visited by the users.
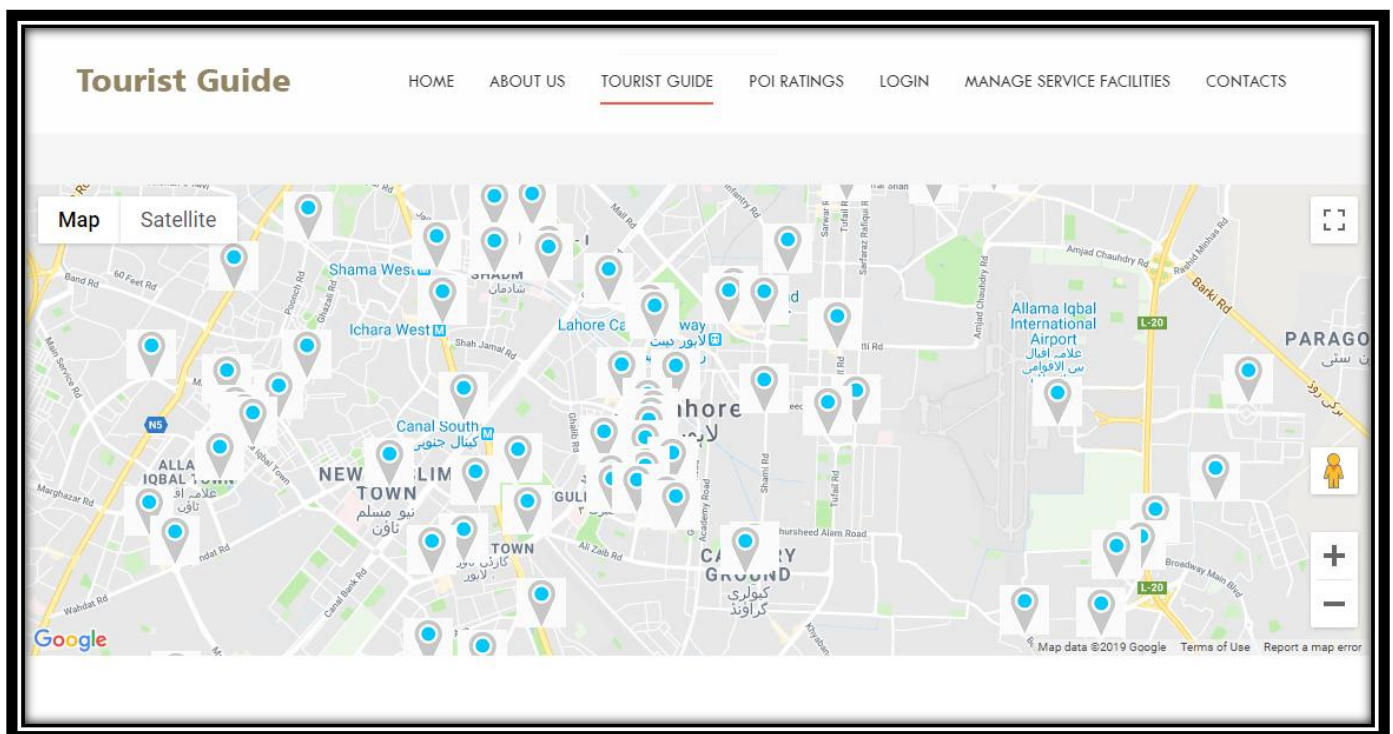

Figure 22: Tourist Guide Map

CHAPTER 5

CONCLUSION & RECOMMENDATION

5.1 Conclusion:

Our system will show its result in the form of map that could help the tourist by showing his/her complete route from his current location to his destination within provided facilities such as the shortest path and the available alternative paths to the destination within total distance and time ,system could also highlight the high rated places within the reviews/comments of the previous users , our system is also capable of planning a whole day spatial plan in no time and completely free of cost and in user friendly environment ,the user could also add his multiple locations and could plan his tour or could assign his priorities by analyzing the total time and appropriate distance provided by the system . The user could gives us reviews about our website or could also give comments about that place that he has visited for upcoming visitors , in the form of mails. The user could also suggest the admin to add the new visited location or tourist attraction that could be added in our system that could made our system more efficient .In any case of complaint or find any error in our system the user could easily contact to the admin to fix that problem.

5.2 Recommendations:

The major Goal of this system is to develop GIS web-based system is that facilitate the clients to identify the best option while planning his/her tour by providing alternative paths. We should also develop an app for this tourist guide to facilitate people of Lahore in future and should also plan the tour in other cities of Pakistan to make tour more efficient within the Pakistan. Our system could be more efficient by providing advanced facilities such as the way to the beauty of that particular city such as its culture , traditional food ,historical places and towards the new advancement of that country . It could also made the tourist to be more updated within that city ,it could additionally determines the user if any festival is helding upon in a city on a particular location or could also help the tourist about the sale on any famous brands outlet . In future we can also modify our website as well.

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