FRIEND LOCATOR

A PROJECT REPORT

Submitted by

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In fulfillment for the award of the degree

Of

**BACHELOR OF ENGINEERING
In
COMPUTER ENGINEERING**

**LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH,
GANDHINAGAR**

Kadi Sarva VishwaVidyalaya, Gandhinagar

2016 - 2017

LDRP Institute of Technology and Research
Computer Engineering Department

<u>CERTIFICATE</u>

This is to certify that the Project Work entitled **"Friend Locator"** has been carried out by **Devraj Patel (1418BECE30139)** under my guidance in fulfilment of the degree of Bachelor of Engineering in Computer Engineering (6th Semester) of Kadi Sarva Vishwavidyalaya University, Gandhinagar during the academic year 2016-17.

Prof. Vaidehi Patel   **Dr. Hiren B. Patel**
Internal Guide,   HOD – CE,
LDRP ITR.   LDRP ITR.

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INDEX

<u>Table of Content</u>

Tables:

List of Figures:

Diagram	No of Diagrams
Class diagram	1
Use case diagram	1
E-R diagram	1
Data Flow Diagram	3
Activity diagram	1
Sequence diagram	4
State diagram	5
Component diagram	1
Deployment diagram	1

List of Tables:

Table	Page No
Elements of Class Diagram	5
Use Case Diagram for executive interaction with customer	7
Elements Of ER Diagram	11
Elements of DFD	13
Elements of Activity Diagram	16
Elements Of State Diagram	21

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1. Introduction

1.1 Scope

- Real time tracking
- Location history of friends
- Real time hatting with friends
- To share location with just a single click
- Know about restaurants, gas stations, malls that are around you

1.2 Project Summary and Purpose

1.2.1 Project Summary

Consider two scenarios: Will your habitually late friend make it to the movie on time? Use Friend Locator to pinpoint his/her exact location and estimated arrival time, so you can plan accordingly. Is your directionally challenged friend lost (again)? Friend Locator is a lifesaver. It pinpoints your missing friend's exact location and provides navigational help (i.e., directions) so you can guide them to their determined destination. It's the friend finder and friend locator that works.

Once installed on your phone, Friend Locator is the ideal friend locator app that helps you communicate, locate and stay connected with the people who matter most. Each friend will appear as their own personal icon on the app's map, so you'll know exactly where they are located in real time. With Friend Locator, you can sleep easy after a night out, knowing when each member of your posse arrives home safely.

1.2.2 Purpose

Our main goal is to connect as many people as possible with Friend Locator. Save time and headaches, make Friend Locator your group outing planner. Want to find a great new restaurant? Is a favorite shop having a sale? This Friend Locator app lets you share information and learn where your friends are shopping, dining or dancing.

2. Software and Hardware Requirement

OPERATING ENVIRONMENT

PARTICULARS	CLIENT SYSTEM	SERVER SYSTEM
Operating System	Android	Windows XP
Processor	1.5 GHz	core to duo, 2.9 GHz
Hard disk	8Gb	1 TB
RAM	1.5GB	4GB

+

- The basic requirement include:-

     Internet

     GPS Location Services

     Application needs to be installed in both the devices

     Google Services

- Software requirement for developers:

     Android Studio

     Star UML 2.0

     OS: Windows 10.

2.2 Assumption and Dependencies

2.1 Assumption

- Requires android version Marshmallow(6.0.1) or more
- Need efficient memory space for storing dynamic and static data

2.2 Dependencies

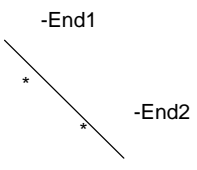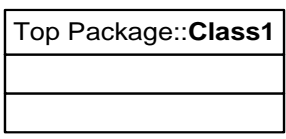- Internet speed upto 512 kbp/s.
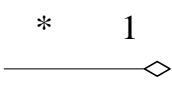- Android smart phone
- Google Services

3. System Analysis

3.1 Gantt chart

	Task Name	Jan					Feb				Mar				Apr			
		Jan 1	Jan 8	Jan 15	Jan 22	Jan 29	Feb 5	Feb 12	Feb 19	Feb 26	Mar 5	Mar 12	Mar 19	Mar 26	Apr 2	Apr 9	Apr 16	Apr 23
1	Need help? Learn how to use this template.																	
2																		
3	Study			Study														
4	Study of Data base system with the language study.			Study of Data base system with the language study.														
5	Set up of Environment				Set up of Environment													
6	Installing req. s/w and o/s				Installing req. s/w and o/s													
7	Defining Scope and Objectives					Defining Scope and Objectives												
8	Preparing project definition						Preparing project definition											
9	Defining feature of product							Defining feature of product										
10	Requirement & System Analysis									Requirement & System Analysis								
11	System Designing										System Designing							
12	Coding											Coding						
13	Testing												Testing					
14	Documentation													Documentation				

3.5 Class Diagram

Components of class diagram

Binary association :	-End1 * -End2 *
Class :	Top Package::**Class1**
Generalization :	
Aggregation :	* 1

User Database

+ List_of_Users : User[ ]

+ Add( ) : int
+ Delete( ) : int
+ Update( ) : int
+ Select( ) : String[ ]

Request

+ Username
+ Email_Id
+ Message

+ accept_request( ) : void
+ reject_request( ) : void

Customer

+ Profile_photo : BLOB
+ Status : varchar(150)
- Location_id : String[ ]

+ allow_access( ) : void
+ add_friends( ) : void
+ accept_request( ) : int
+ send_request( ) : void
+ change_privacy_settings( ) : int

Friends

+ Username : String
+ Email_id : varchar(50)
- Unique_id : number

+ request_friend(Username) : void
+ view_Profile( ) : void

User

+ Username : String
+ Email id : varchar(30)
- Password : varchar(15)
+ Address : varchar(50)
+ Phone no : number
+ Date of Birth : number
+ Age : number
+ City : Text
+ District : Text
+ Country : Text
+ Pincode : longInt

+ Enter_Details( ): String[ ]
+ Verify_Account(Username, Password, email id) : int
+ Delete_Account(Username, Password): int
+ Change_Settings(Username, Password) : int
+ Login( ) : int
+ Logout( ) : int

Admin

+ Type : Text
+ Verfication_code : number
- Admin_password : varchar(15)

+ Change_admin_settings(admin_passwd): boolean
+ adding_features( ) : int
+ resolve_issues( ) : int
+ deal_google_location_services( ) : void
+ database_troubleshoot( ) : void

Location

+ X-Coordinate : longInt
+ Y-Coordinate : longInt
+ Z-Coordinate : longInt

+ Update_location(X, Y, Z) : int
+ Resend_location( ) : void

3.6 Use Case Diagram

The requirements of a system can be captured by Use Case Diagrams. They are modelled to capture the intended behavior of the system. Use Cases interact with human or actors that use the system to accomplish some work. They define a set of sequence of actions that a system performs to yield an observable result of value to an actor. An actor represents a role that a human, a hardware device or another system plays with a system.

<u>Use Case diagram for executive's interaction with customer:</u>
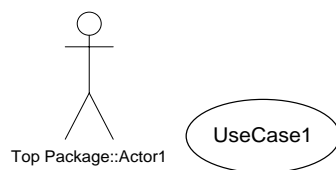
Use Cases are used to come to a common understanding with the systems end users and the domain experts. They help in validating the systems architecture and its evolution process. After a thorough understanding of the requirements of the system the use cases are modelled following the steps mentioned below: -

- Identify the actors that interact with the system.
- Organize actors according to their roles.
- Identify the primary ways in which an actor interacts with the system elements.

Location Provider Android Application
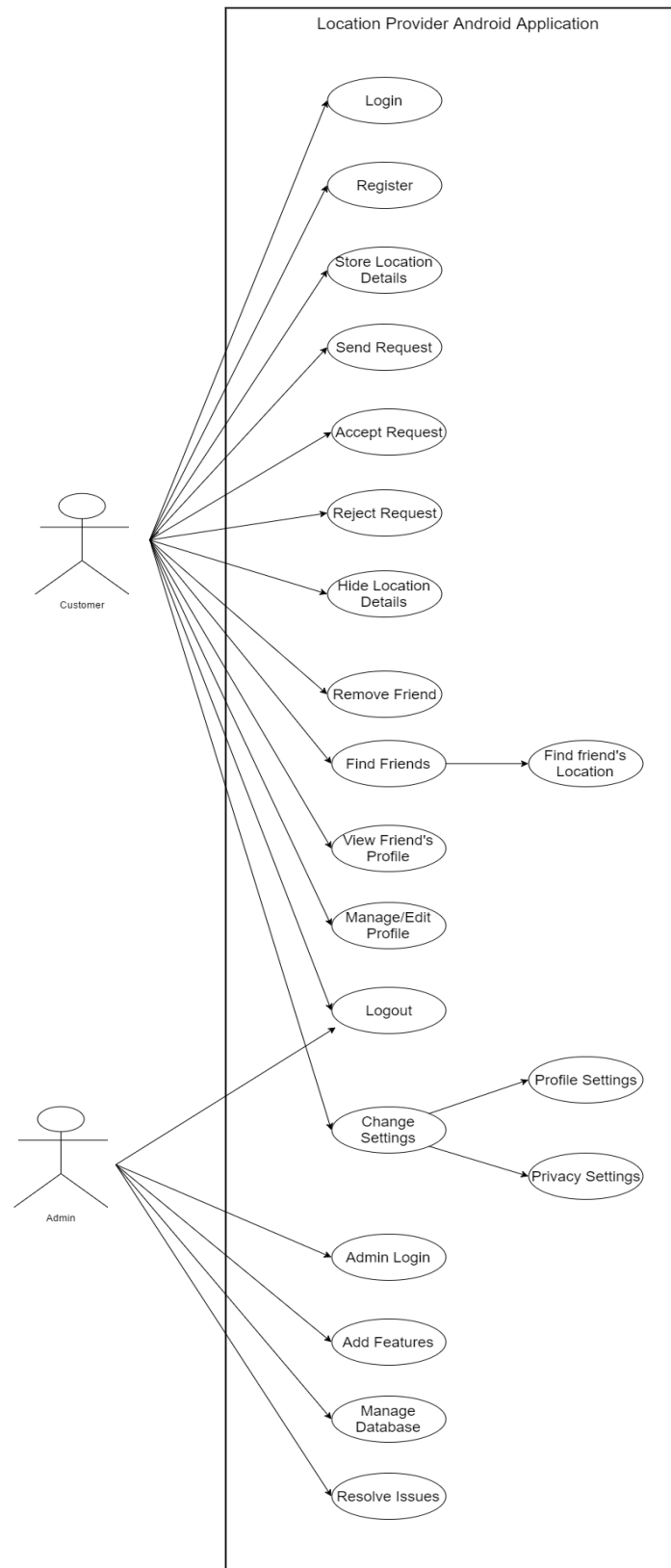
4. System Design

4.1 Data Dictionary for Classes

1. User

Attributes	Datatype	Function
User Id	Number	Login()
Name	Varchar(50)	Register()
Email id	Varchar(50)	
Username	Varchar(50)	
Password	Varchar(15)	
City	Text	
Phone Number	number	

2. Log_in

Attributes	Data type	Function
Email id	Varchar	
Password	Varchar	

3. Location Update

Attribute	Data type	Function
Coordinate x	longInt	
Coordinate y	longInt	

4. Friends List

Attribute	Datatype	Function
User1 id	Number	AddFriend()
User2 id	number	DeleteFriend()
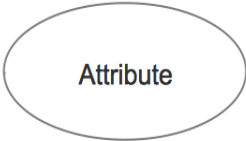
4.2 Entity-Relationship Diagram

An entity-relationship diagram (ERD) is a data modeling technique that graphically illustrates an information system's entities and the relationships between those entities. An ERD is a conceptual and representational model of data used to represent the entity framework infrastructure.

The elements of an E-R Diagram are:

- Entities
- Relationships
- Attributes
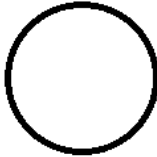
Entity :	Entity
Attribute :	Attribute
Relationship :	Relationship

4.3 Data Flow Diagram

A data flow diagram shows how data is processed within a system based on inputs and outputs. Visual symbols are used to represent the flow of information, data sources and destinations, and where data is stored. Data flow diagrams are often used as a first step toward redesigning a system. They provide a graphical representation of a system at any level of detail, creating an easy-to-understand picture of what the system does.

Elements of DFD:

Process:	○
External Entity:	▭
Data Store:	▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬ ▬
Data Flow:	⟶

Level 0
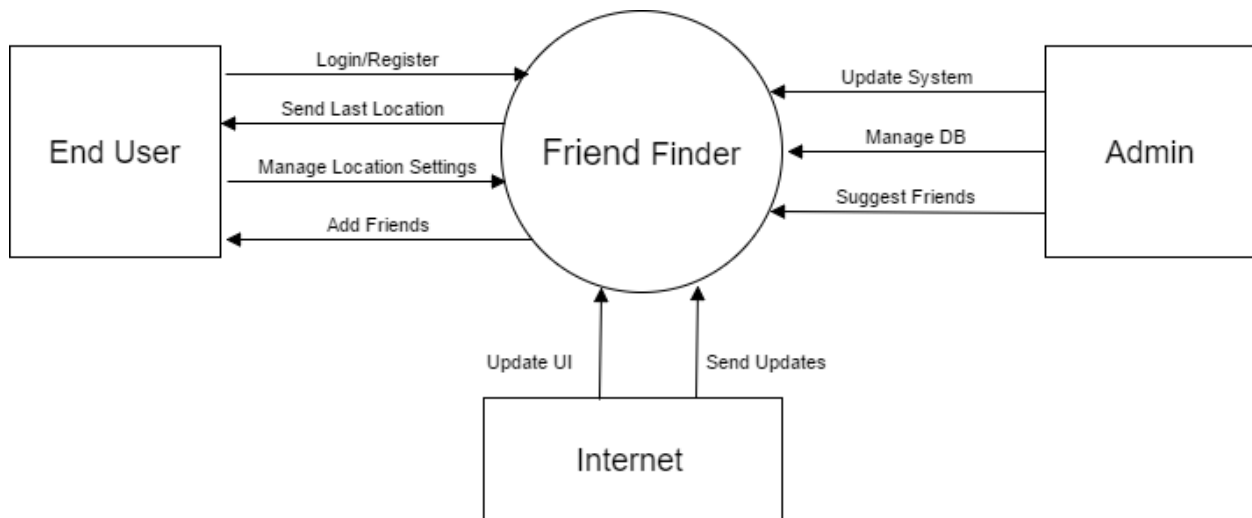
Level 1
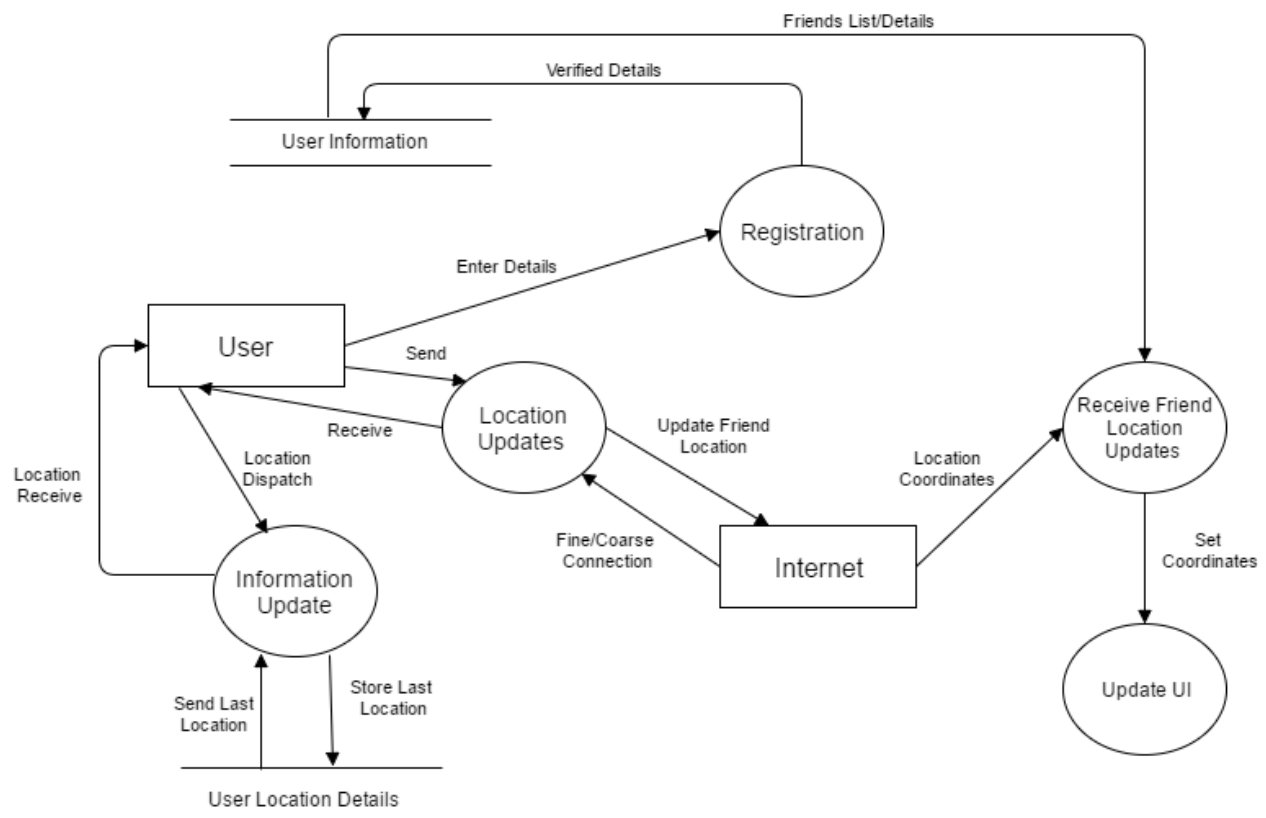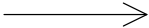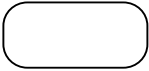
Level 2
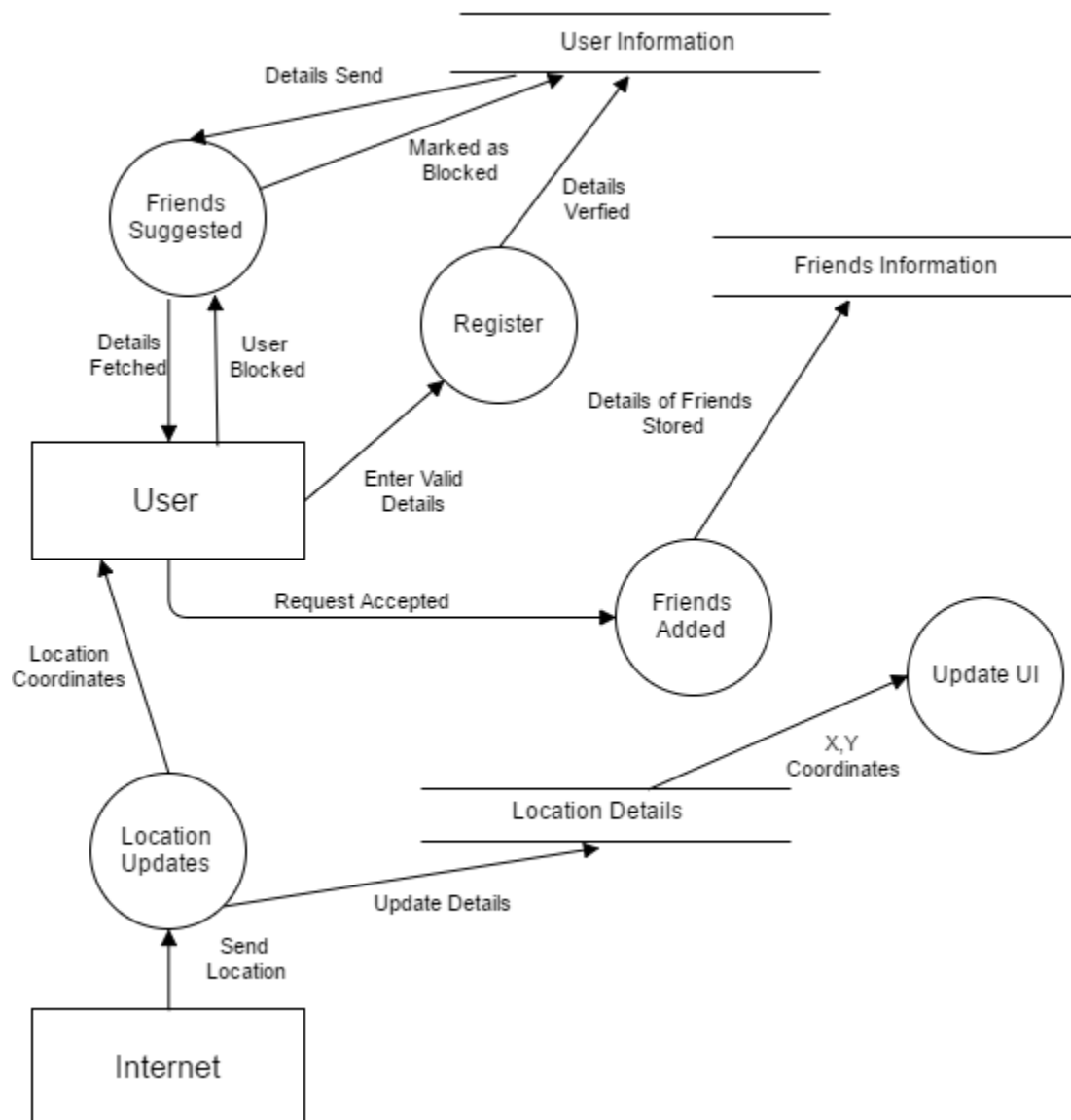
4.4 Activity Diagram

An activity diagrams essentially a flowchart showing flow of flow of control from activity to activity. We use activity diagram to model the diagram aspects of a system. For the most part this involves modelling the sequential (and possibly concurrent) steps in a computational process.

Elements of Activity Diagram:

Decision :	
Control Flow :	
Final State :	
Initial State :	
State :	
Action state :	
Fork line :	
Join line :	

Start

[Log In]

[Sign Up]

Enter Username and Password

Enter valid Details

[incorrect]

[verify]

[verify]

[incorrect]

verify

verify

[correct]

[correct]

Splash Activity

Enter a valid Password

[After 3 seconds]

[verify]

[incorrect]

Redirect to Main Map Acitivity

verify

[Get Friends list from DB]

[correct]

Choose Username

Show Last Location of user and his Friends

[verify]

[incorrect]

[Not Good]

[Internet Conn.]

verify

Internet

[correct]

[Good]

Add Friends by Contact List

Plot the Location coordinates on the Map

Send Install Requests to Contact List

Change Settings

Log Out

4.5 Sequence Diagram

Scenarios:-

Sequence diagram assist the detailing and specification of business use cases by emphasizing m.essages exchange. The various scenarios of a business use case can be dissipated in a sequence diagram. The representation is restricted to the message within each business use case. Generally, the level of these sequence diagram is higher than for sequence diagrams spanning use cases.

Login
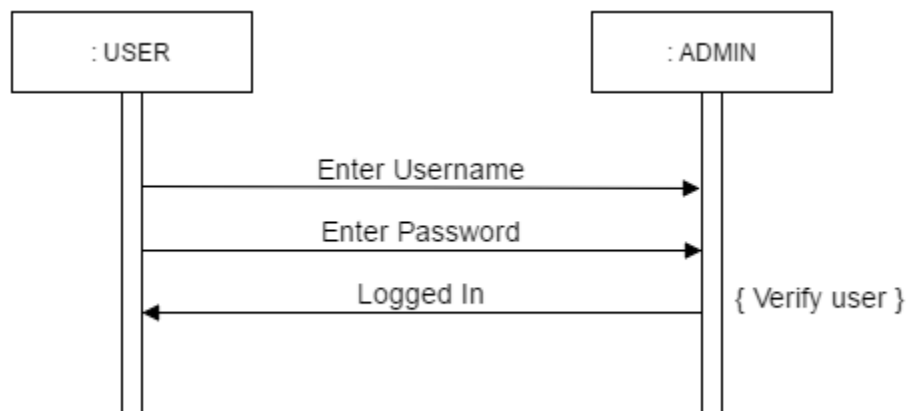
Sign Up
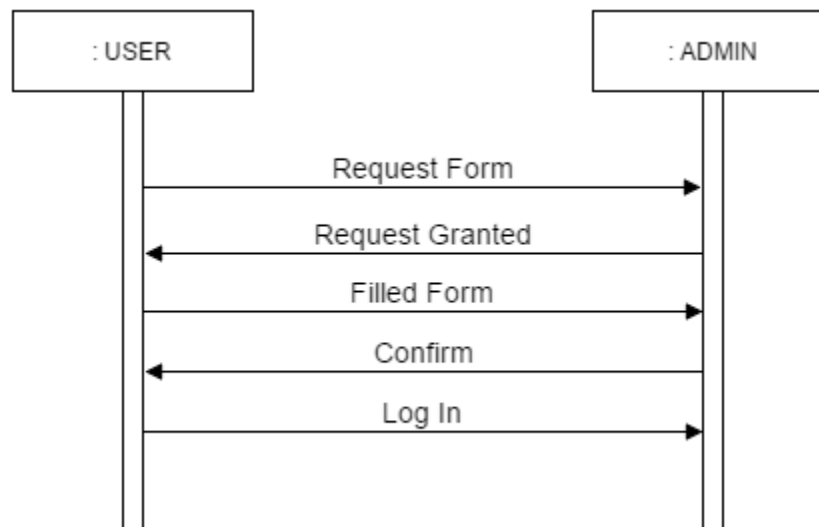
Friend Request

Location Display

Sequence diagram with lifelines: Member, Admin, Database, Internet Updates.

- Member → Admin: Login(Username, password)
- Admin → Database: RequestFriends()
- Database ⇠ Admin: ListofFriends()
- Admin → Member: DisplayFriends()
- Member → Internet Updates: RequestCurrentLocation()
- Internet Updates → Member: GetCurrentLocation()
- Member → Database: UpdatePersonalLocation(Coordinates x,y)
- Member → Database: RequestFriendsLocation()
- Database ⇠ Member: SendFriendsLocation()

4.6 State Diagram

Elements of State Diagram:

State :		
Final State :		
Initial State :		
Transition :		

- Valuable technique for modelling behaviours that can be described in terms of:
- States
- Events
- Transition

Login
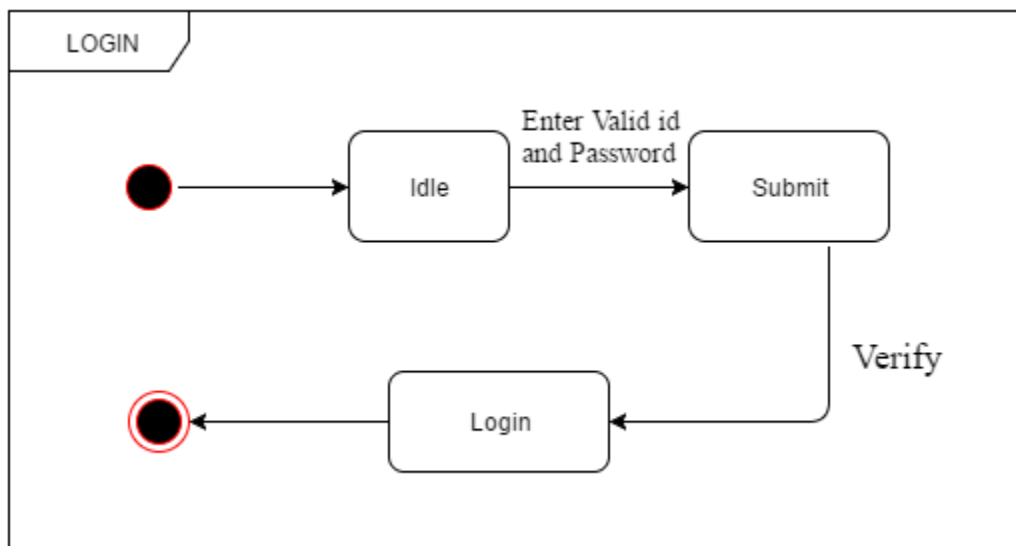
Sign Up
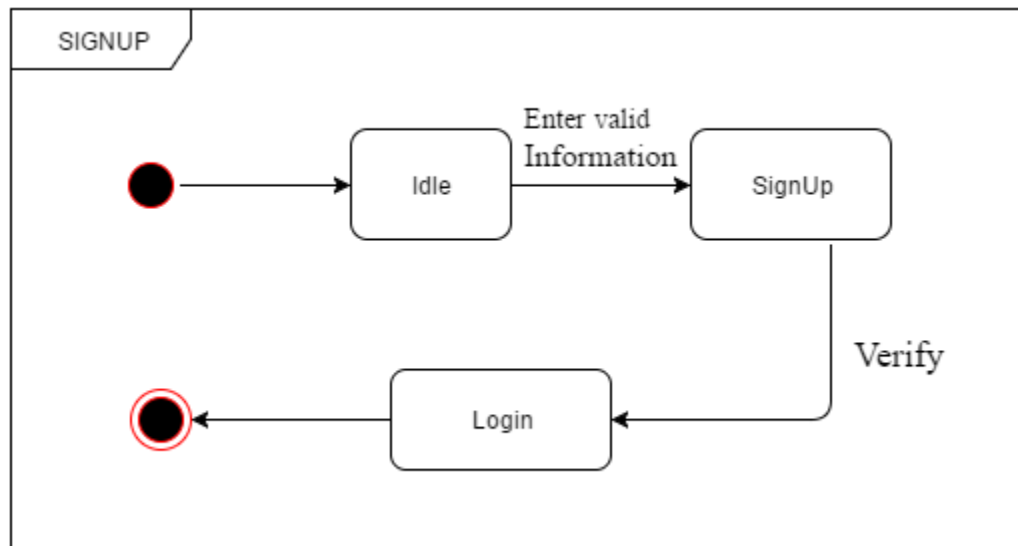
Show Locations
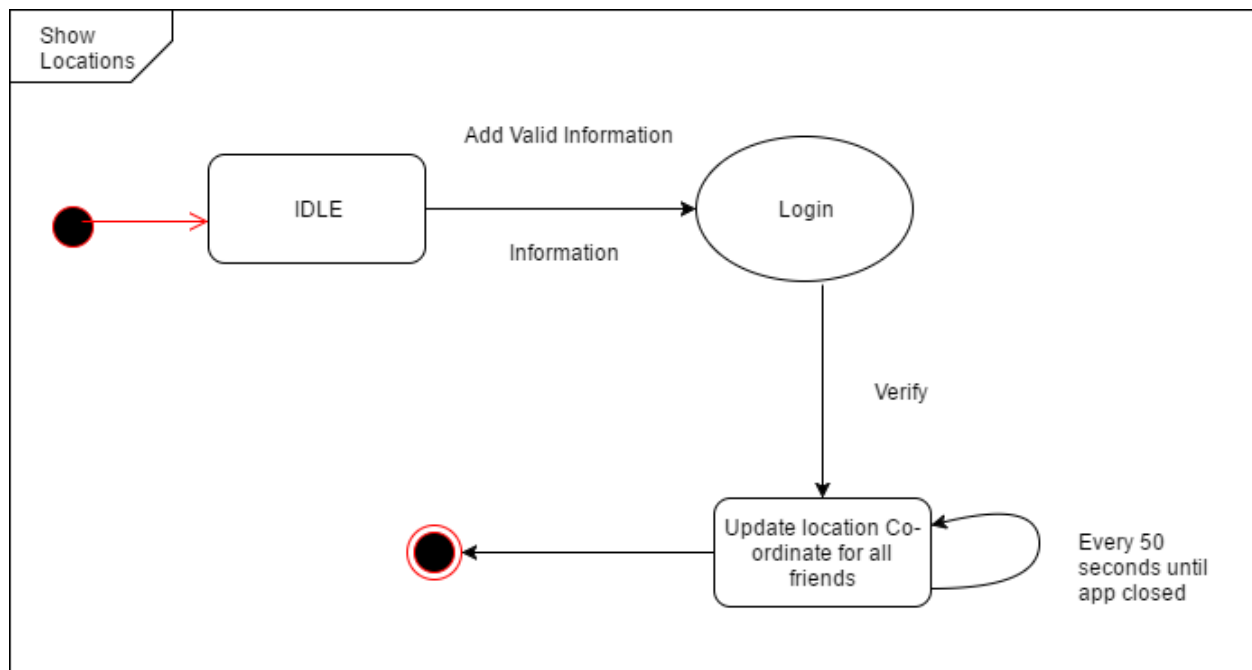
Add Friend
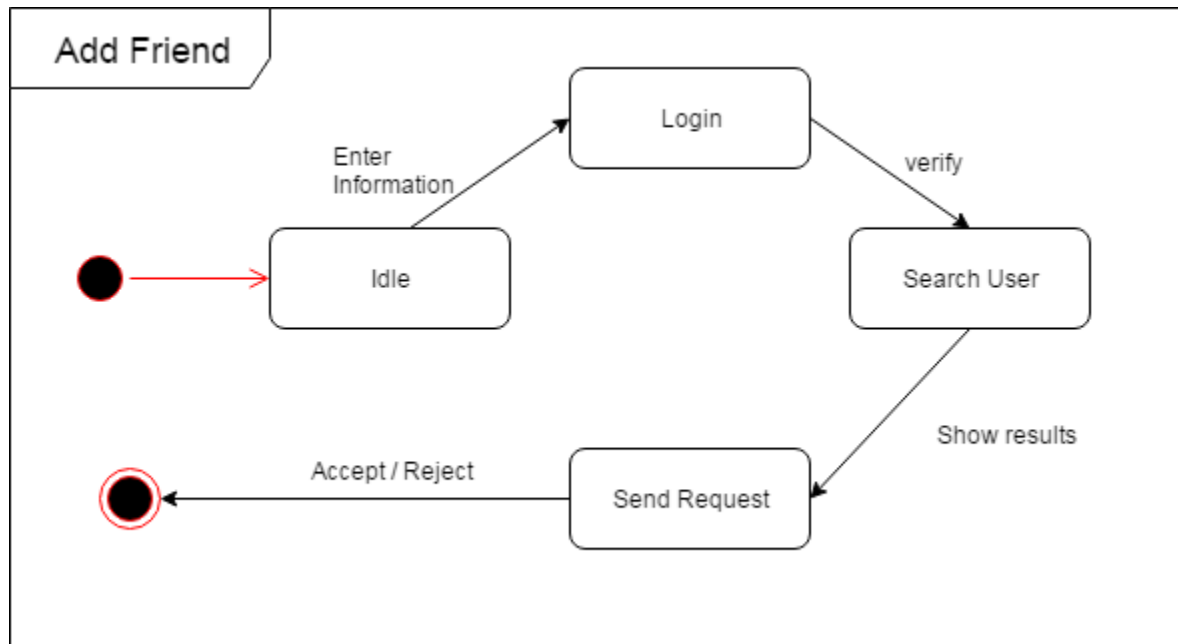
Remove Friend
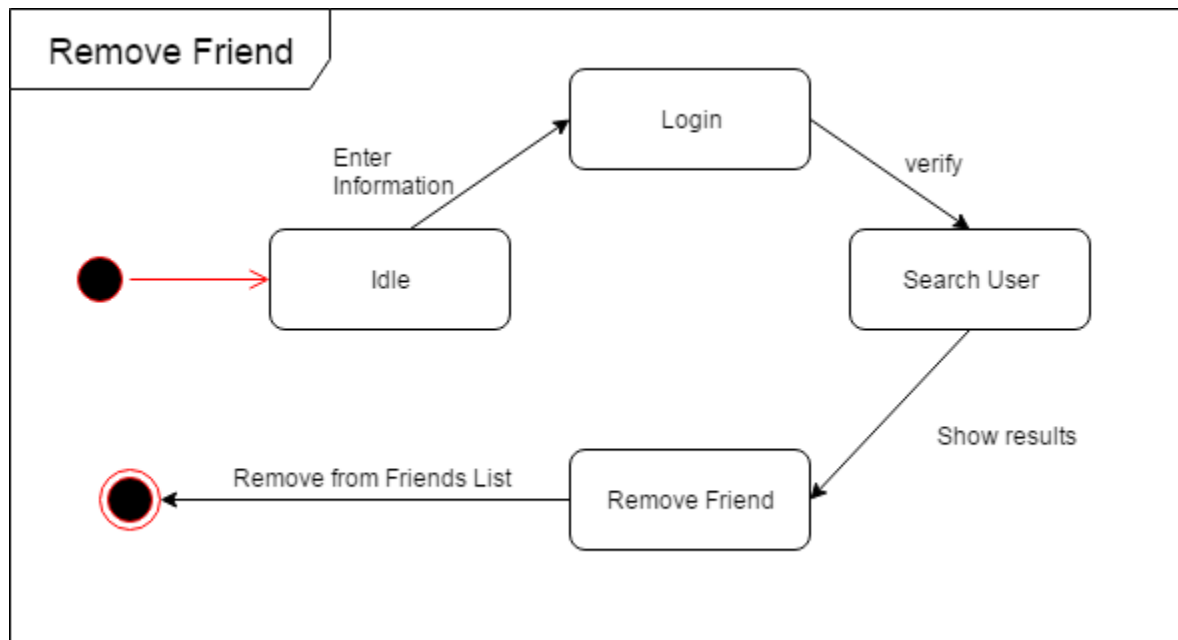
4.7 Collaboration Diagram

Location Services User

1. Log In
2. Register
3. Send Request
4. Accept Request
5. Reject Request
6. Change Settings
7. Find Friends
8. View Profile
9. Show Locations
10. Hide Location
11. LogOut

Admin

1. Login
2. Add Features
3. Manage Database
4. Remove Issues
5. Logout

End User

1. Sign Up
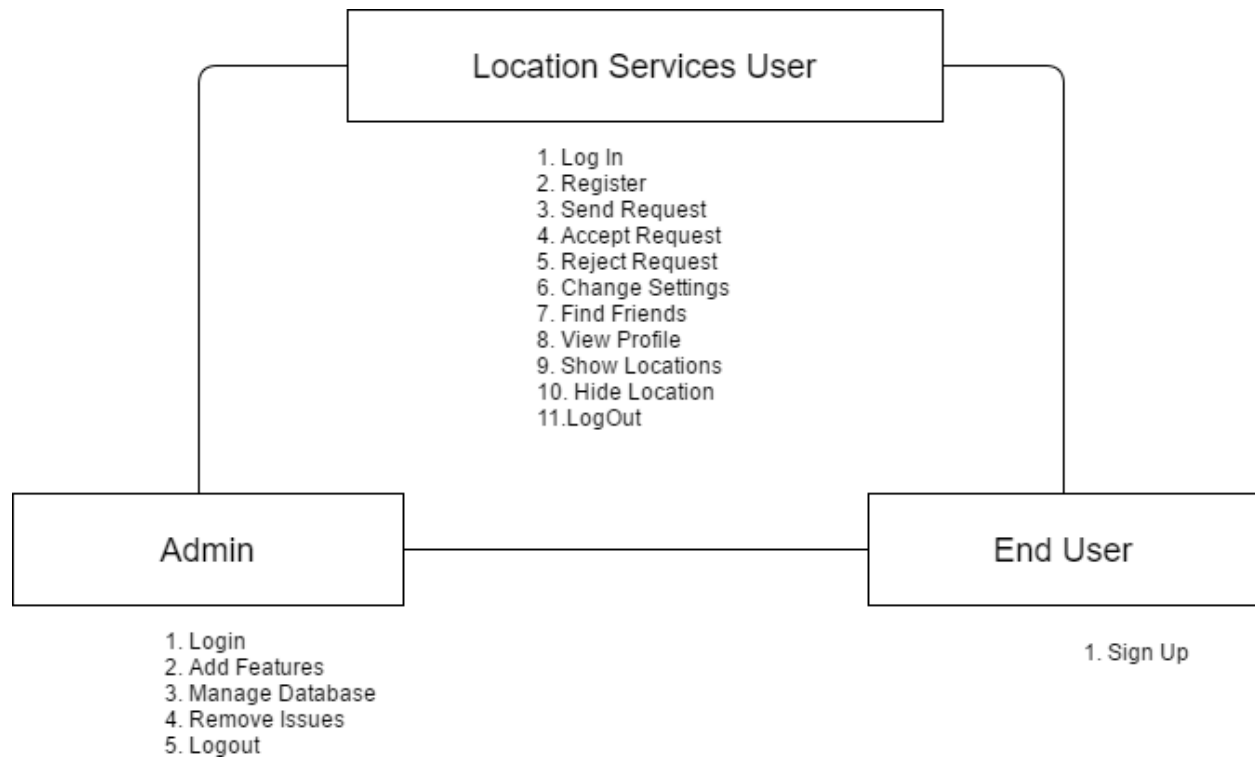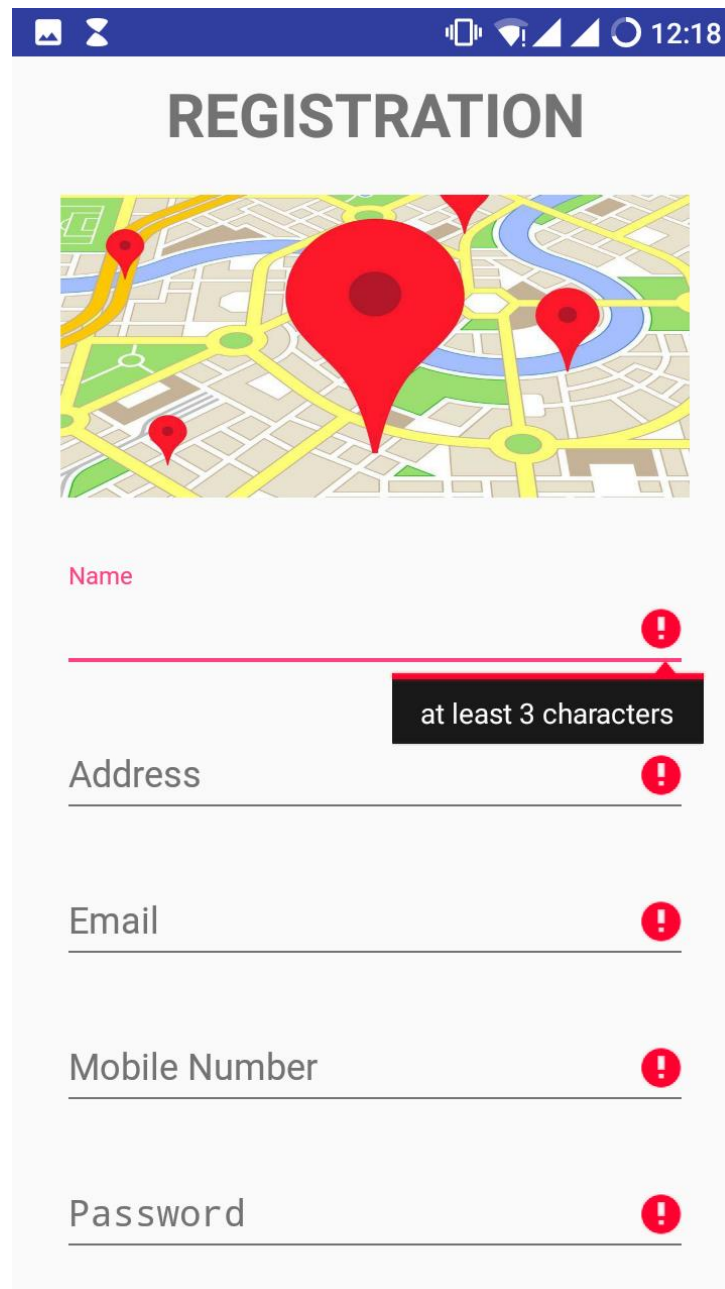
4.8 Deployment diagram

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed. So deployment diagrams are used to describe the static deployment view of a system. Deployment diagrams consist of nodes and their relationships.

The purpose of deployment diagrams can be described as:

- Visualize hardware topology of a system.

- Describe the hardware components used to deploy software components.

- Describe runtime processing nodes.
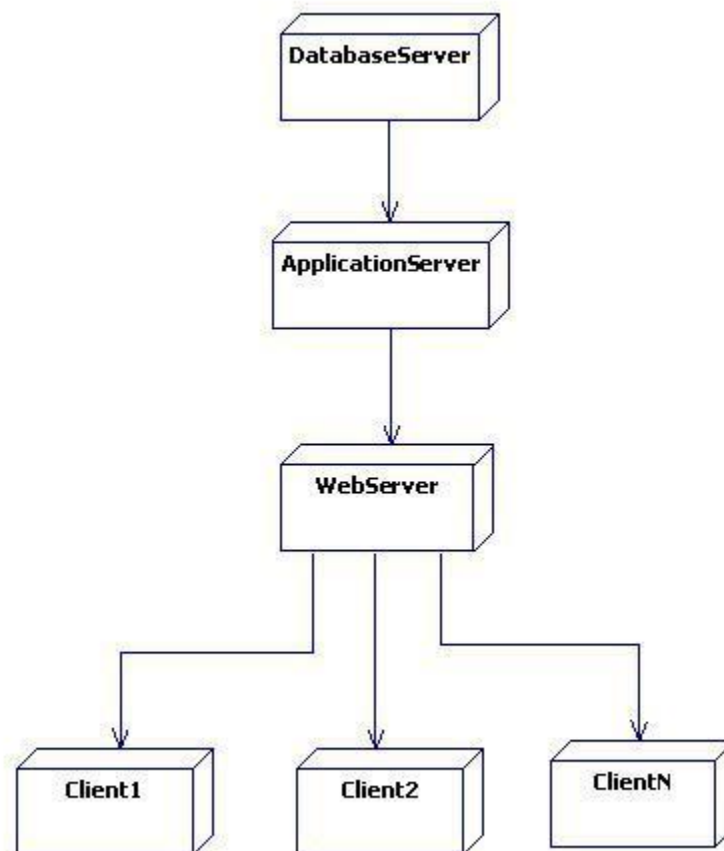
Screenshot of Application:

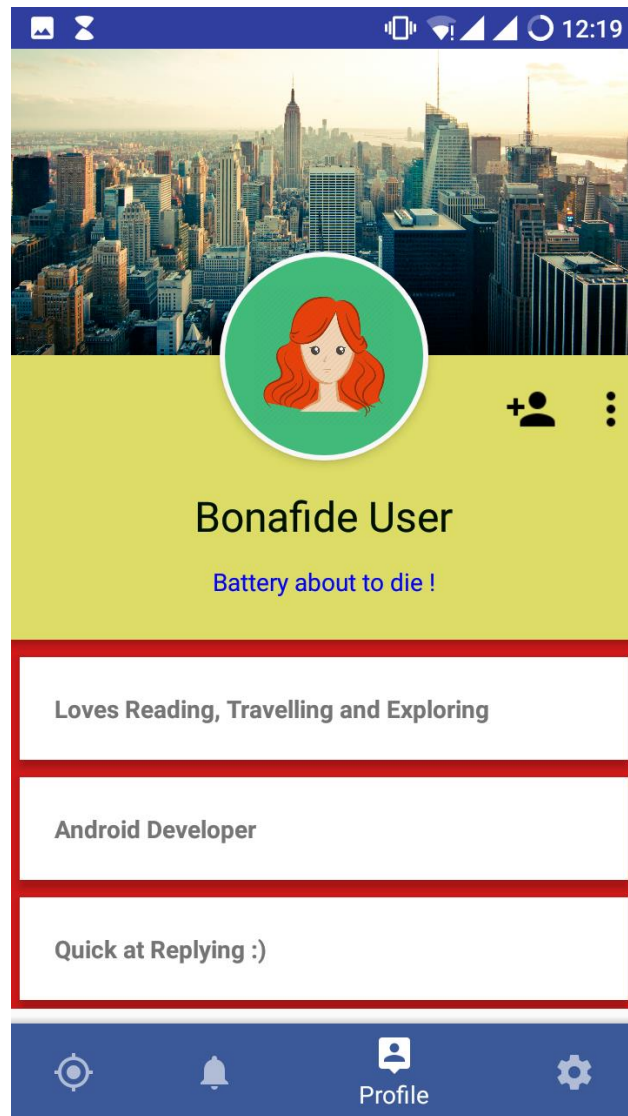You are at

23.2349942 / 72.6394671

GET COORDINATES

START LOCATION UPDATES
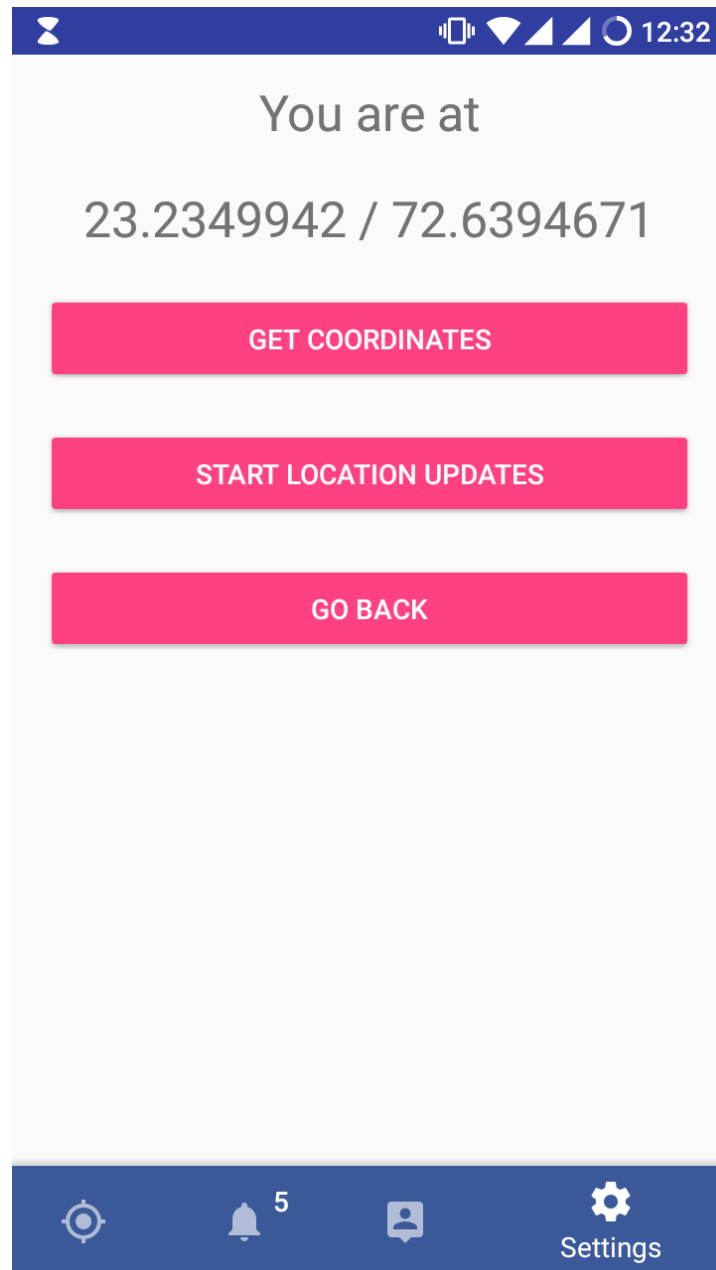
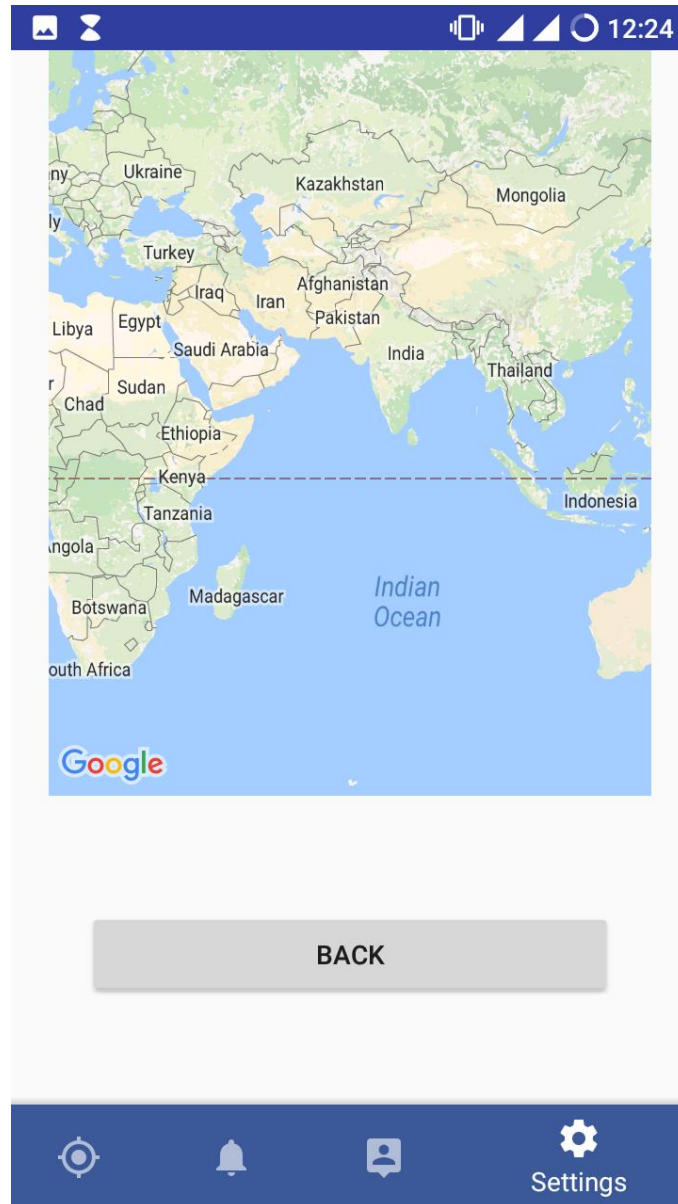GO BACK

5

Settings
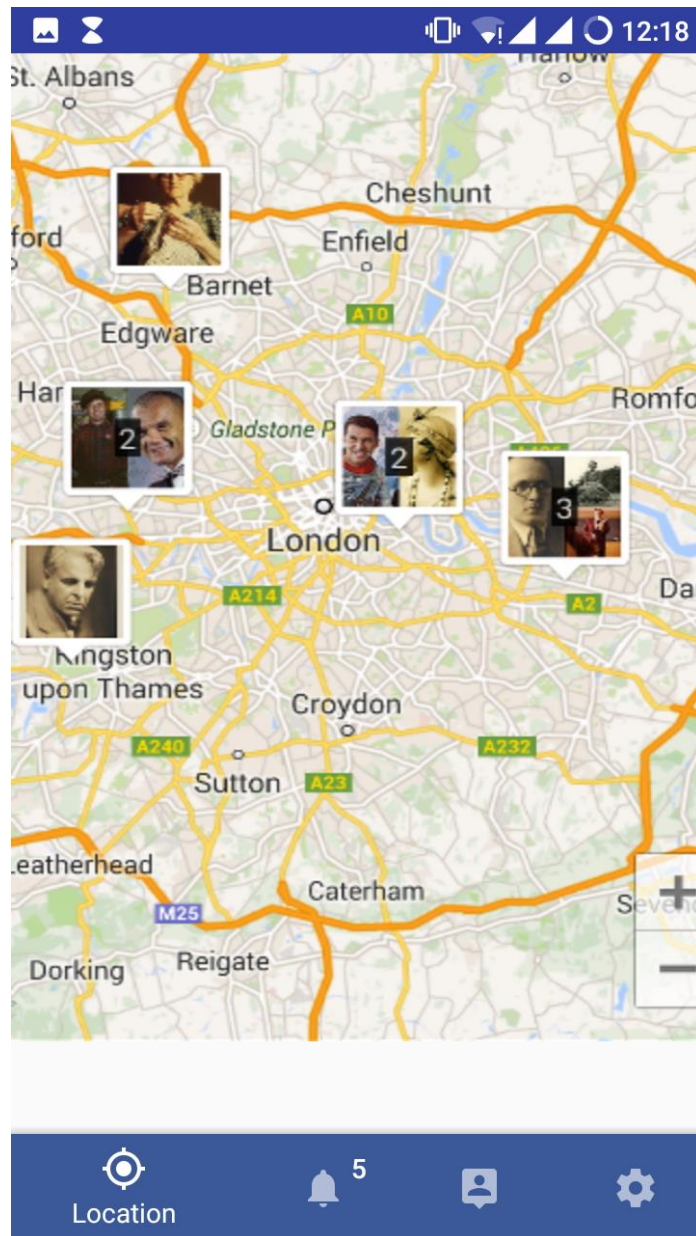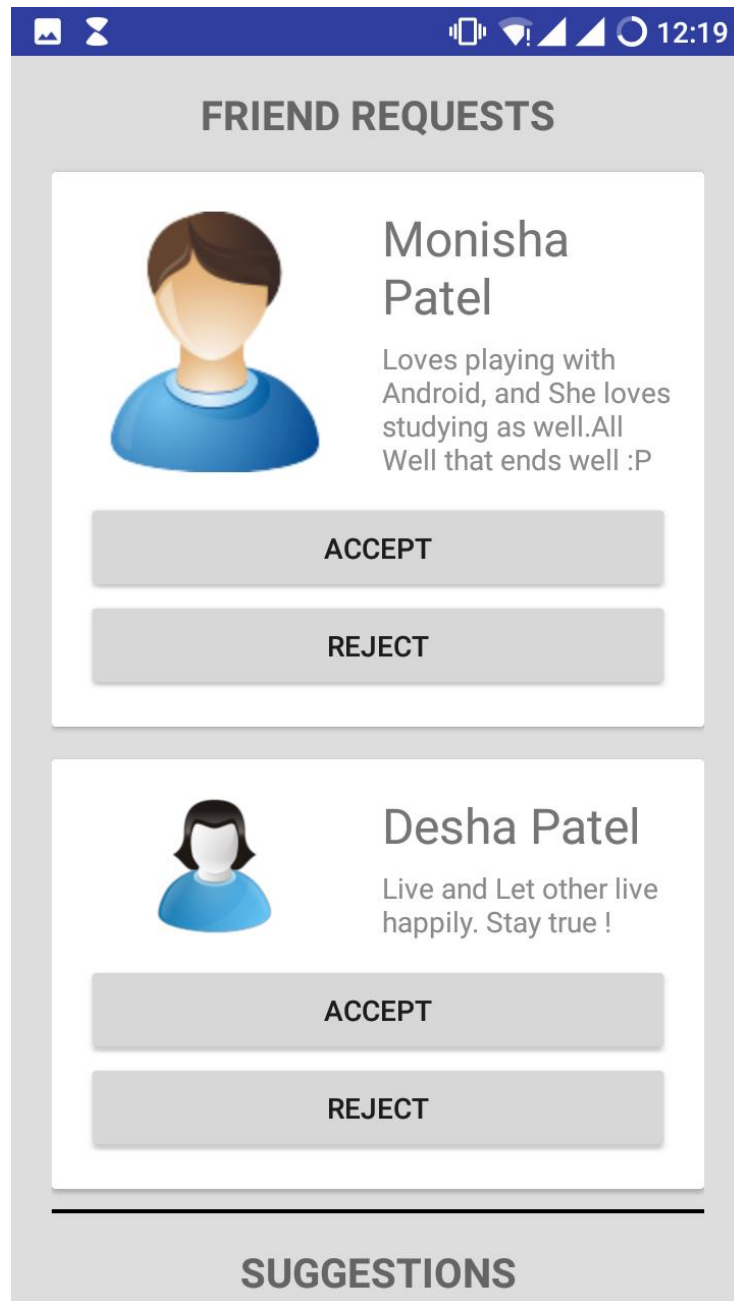
5. Experience, Limitations and Future Enhancement

5.1 Experience during project development

In the development phase, we experienced the importance of UML diagrams. In the testing phase, we came to know about the interrupts that are caused due to external entities. In deployment phase, we faced various problem in the proper implementation of the project.

5.2 Limitation

Friends Locator is an app with high end features. One possible limitation it has is privacy concerns as the location of the people will be known to your family and friends. To solve this issue new feature is going to be added soon with which you can share your location only to the limited amount of people of your choice. Also display of the knowledge of your location can be limited from high accuracy to city or area level only.

5.3 Future Enhancement

Another great update that will arrive is the ability where the users will be able to locate all the restaurants, gas stations, shopping malls with offers and various other things which will help them to get knowledge of not only their friends and family but also of the surroundings. Various other possibilities are possible which will be added soon as this is just the beginning

5.4 Conclusion

During the period of project I came to know the practical aspects of Android development that sound our knowledge in Java and Advance Java Topics, XML Location Services, JSON, Data Base Connectivity and Object Oriented Concepts are brand new technology and I will improve my skill in these fields.

Bibliography

Books:

1. Black Book for Advance Java

Websites:

1. www.androiddevelopers.com
2. www.stackoverflow.com