CS-5551: Advance Software Engineering

Project plan (PG: 7)

11th Feb 2015

Introduction:

As per survey held by "Quazoo" website, which shows the crime affected states in United States of America and crime rate in different states of United States of America. Also there was a survey made that shows the types of crime happening within USA which we can see increasing continuously by the time.

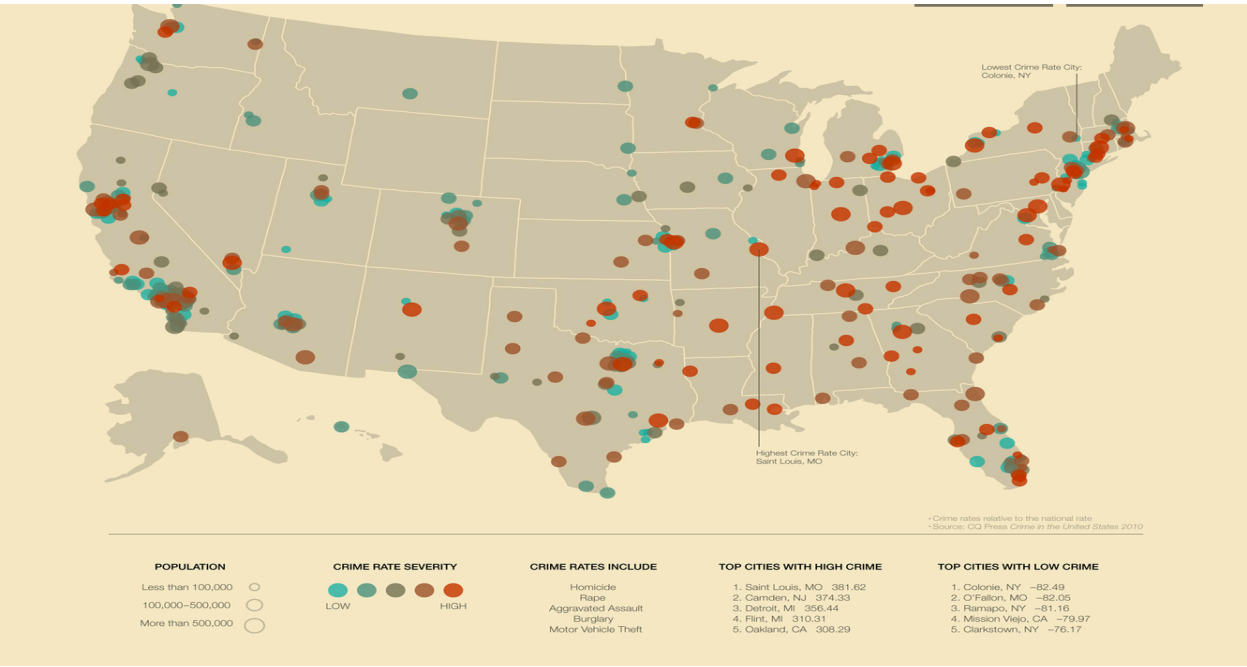


Figure: Crime affected states of USA

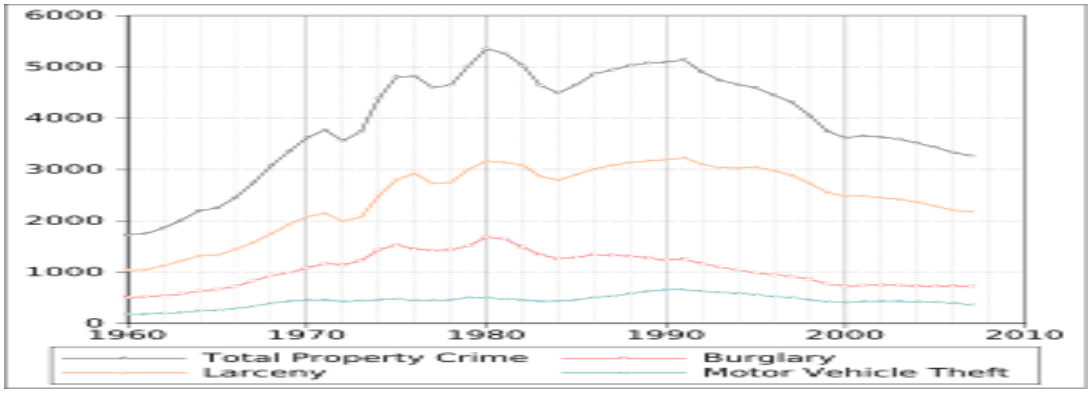


Figure: Different types of Crime

State	City	Population	Violent Crime
New Jersey	Camden	79,081	2,328.0
Delaware	Wilmington	73,270	1,909.4
Michigan	Pontiac	65,517	1,698.8
New Jersey	Trenton	83,552	1,433.8
California	Compton	93,916	1,413.0
Florida	Homestead	63,761	1,344.1
Massachusetts	New Bedford	89,613	1,294.5
Florida	Daytona Beach	63,736	1,272.4
Massachusetts	Fall River	89,741	1,211.3
Massachusetts	Brockton	92,383	1,175.5
Michigan	Battle Creek	60,386	1,162.5
New York	Schenectady	60,751	1,117.7
New York	Albany	92,713	1,058.1
Florida	Fort Myers	66,053	1,056.7
Iowa	Council Bluffs	61,181	1,039.5
Michigan	Kalamazoo	71,775	1,004.5
New York	Mount Vernon	68,081	995.9
Georgia	Albany	73,034	988.6
Florida	Miami Beach	87,990	981.9
Ohio	Youngstown	71,380	972.3
New Jersey	Passaic	67,356	942.8
Pennsylvania	Reading	81,370	942.6
Arkansas	North Little Rock	60,129	934.7
Florida	Kissimmee	64,122	934.2
California	Huntington Park	60,514	923.8

Figure: Crime rate in different states of USA

Moreover, National surveys shows that thousands of crimes are not reported on time or they are never reported. So, in order to make a significant crime management system, reporting must be available 24X7. Online reporting system is the best and quickest process that makes reporting a crime from remote locations at any time. It also spreads awareness in people by allowing them to know crime rate of a particular area. Thus, it increases public safety. But safety-first lies in our hands first rather than others. So we need to be alert and aware to become and feel safe.

Project Goal:

The project goal is to develop a mobile application for getting immediate help when in danger and a crime management system for the users of this app. This system is intended to help people on time and providing them information about the high crime rate area. Moreover, it encourages people to fire a reporting of suspicious behavior or crime.

Objective:

We are going to create a mobile app that will do the following:

- Get help immediately when you feel threatened.
- Reporting the crime.

- View the crime rate in different areas.
- When you enter a high crime rate area, you will be notified by this app.

Significance:

"You don't carry weapons all the time but you do carry your smart phones". Getting immediate help with just a "button click". Helpful in reporting crime on time no matter where you are. Also getting informed about the high crime rate areas.

Proposed System:

1) Requirement Specification:

Functional Requirements:

- Allows user to register maximum 4 friends from his/her contact list.
- It registers 4 friends of your choice from your contact list, so that they are notified in case of danger to you.
- Help Button: Whenever you feel danger and press the help button, a notification is sent to either 4 of your registered friends or your friends and 911 both with your GPS location.
- If your phone is unable to send any notification then there is a "raise alarm" button with generated a high pitched alarm for notification.
- Report crime either through text or multimedia with the crime location. Also you can tweet it on twitter and face book.
- Allow users to attach a photo to the report.
- Allow users to send their current location via GPS along with the crime report.
- Secure registration for users through face book.
- Displaying the crime rate in the nearby areas based on your location on Google maps.
- You will get a pop-up notification when you are entering in a high crime rate area.

Non-Functional Requirements:

- Access of information, which is confidential.
- 24X7 services available.
- Better design to achieve higher performance during peak time.

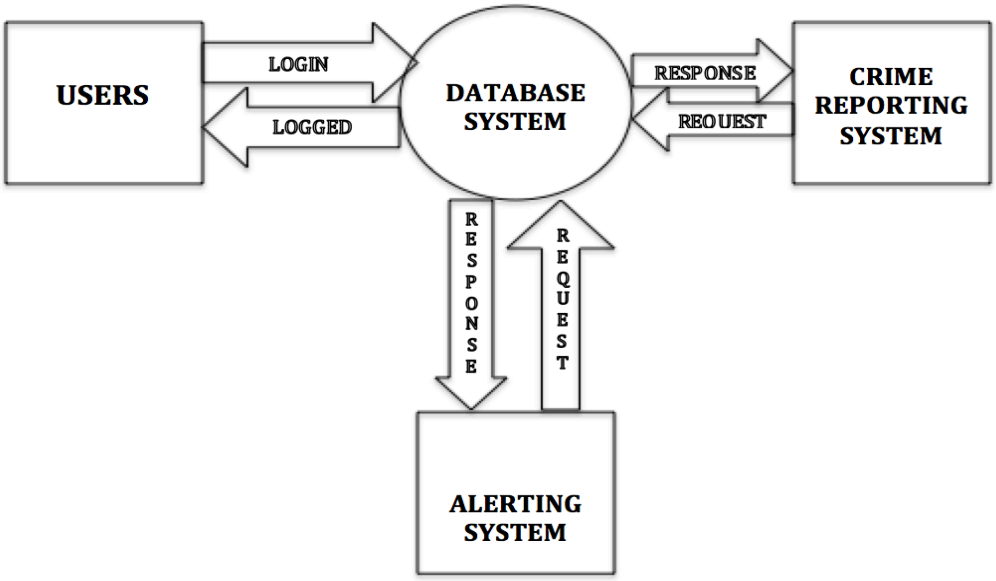
Business Requirements:

- User must have android smartphone.
- User must have valid Phone number and address.
- User must have good speed data plan.
- User must have valid twitter and face book account (Optional).

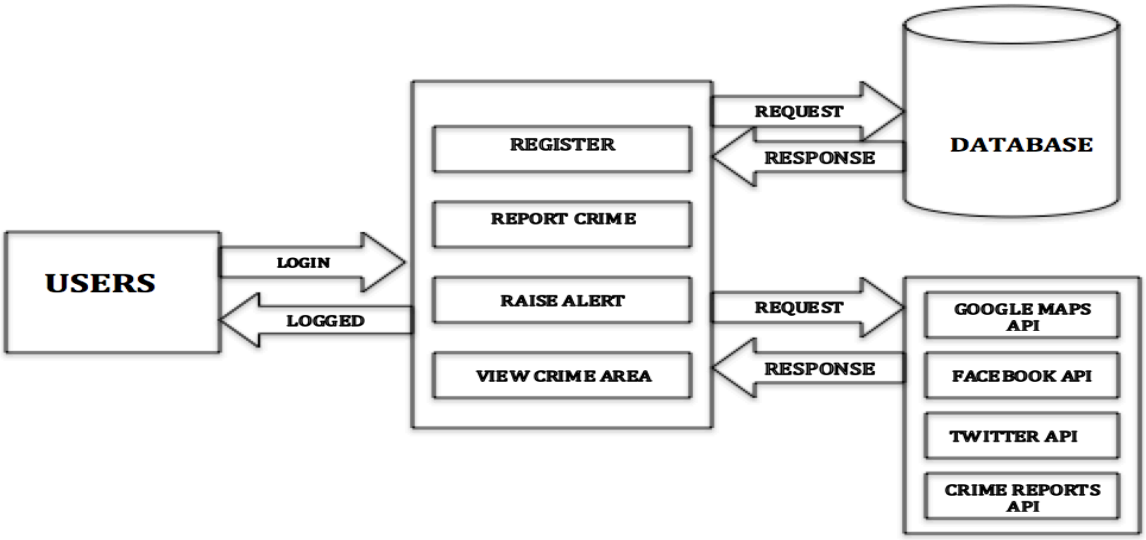
2) Technological and architectural Specification:

- Android Studio
- MySQL database
- Restful Web Service: visual studio

3) System Model:



4) System Architecture:



5) UML Class Diagram:

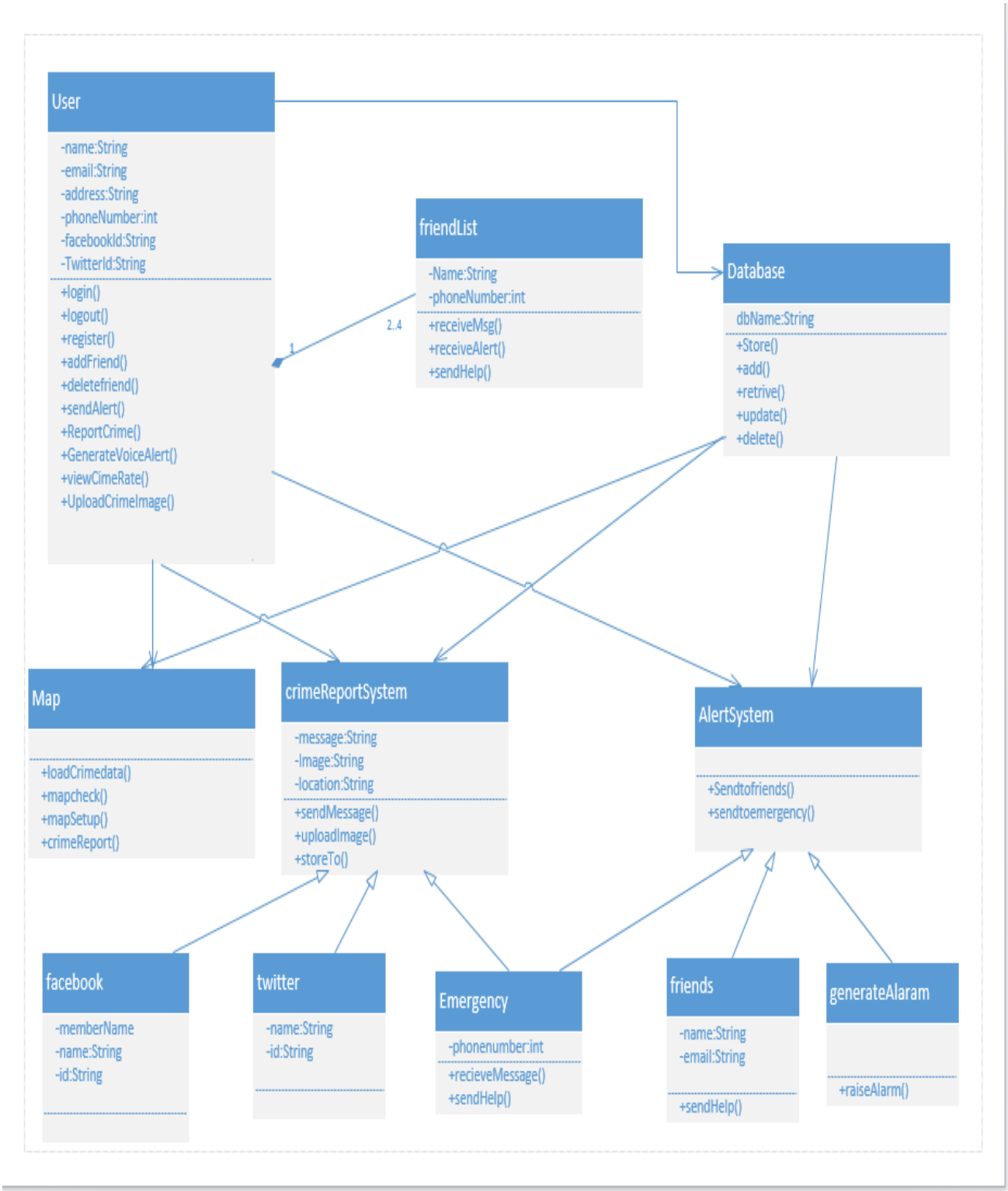


Figure: Class Diagram of entire system

6) UML Activity Diagram:

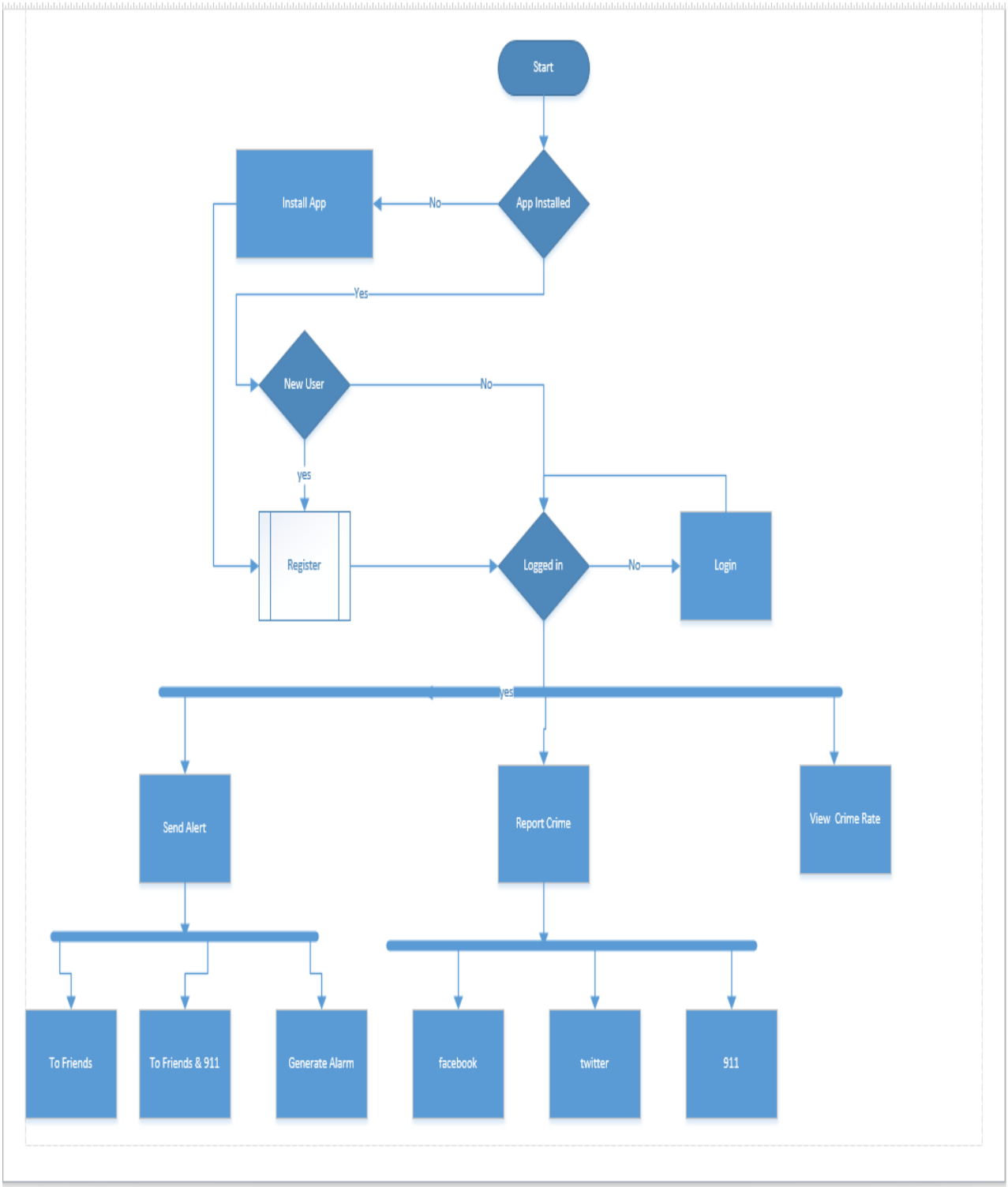


Figure: Activity diagram for the functionalities of the Application.

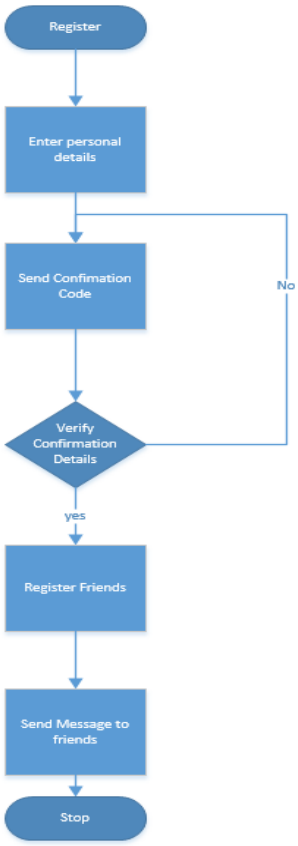


Figure: Activity diagram for the registration the process

7) System Specification:

Existing Services:

- **Geo Location Sharing**
  This API is used to share geolocation. This is also used to mark particular place based on latitude, longitude or name etc. This API is supported by most of the browsers and mobile devices.
  https://maps.googleapis.com/maps/api/js?v=3.exp&signed_in=true

- **KCMO Crime Data**
  With this API we can get crime related data like location, date of crime, type of crime etc. for Kansas City Missouri area.
  https://data.kcmo.org/resource/yu5f-iqbp.json

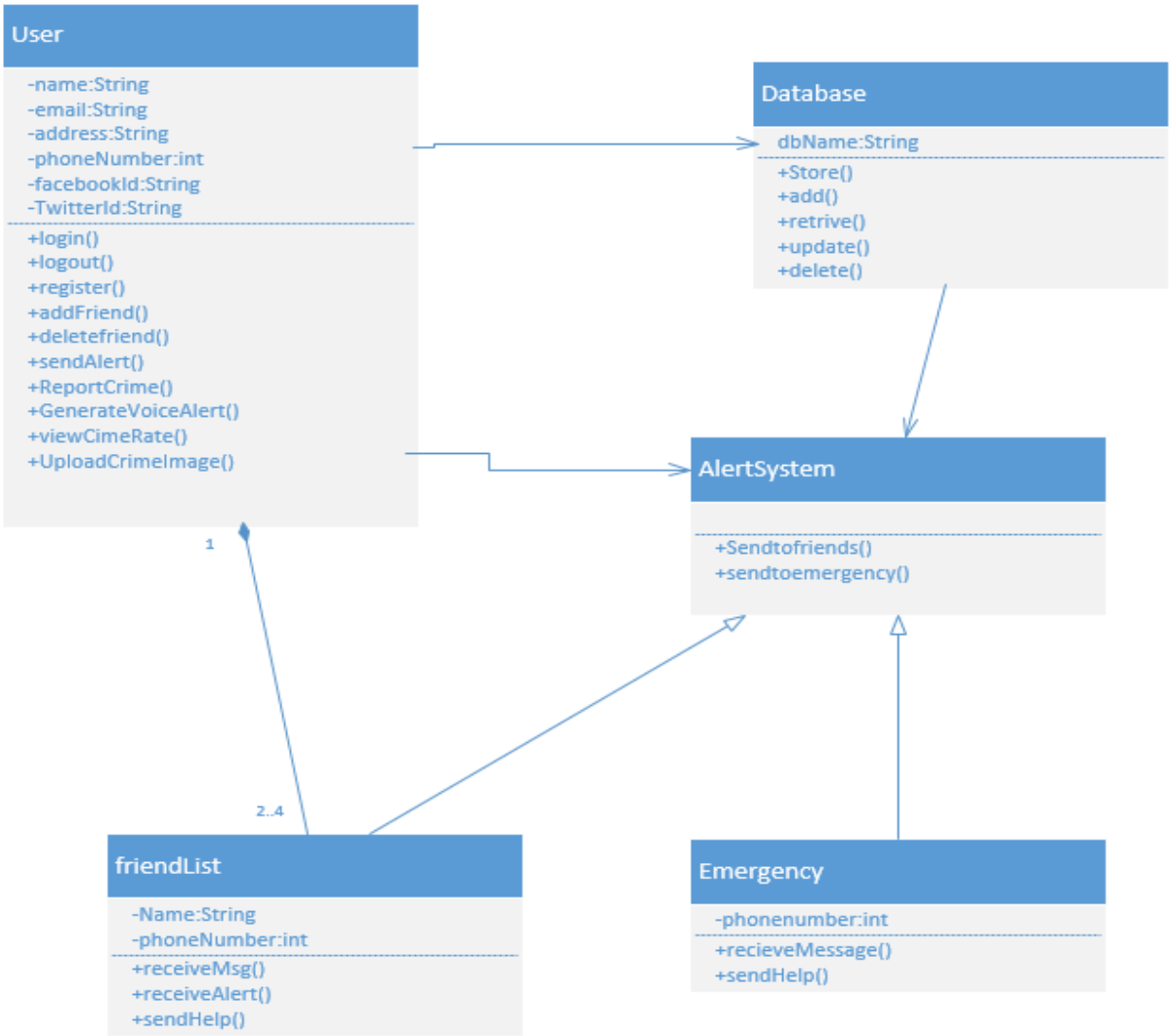
- **Twitter API**
  This API is used to share content in twitter .
  https://twitter.com/intent/tweet?screen_name=twitterapi

New Services to build:

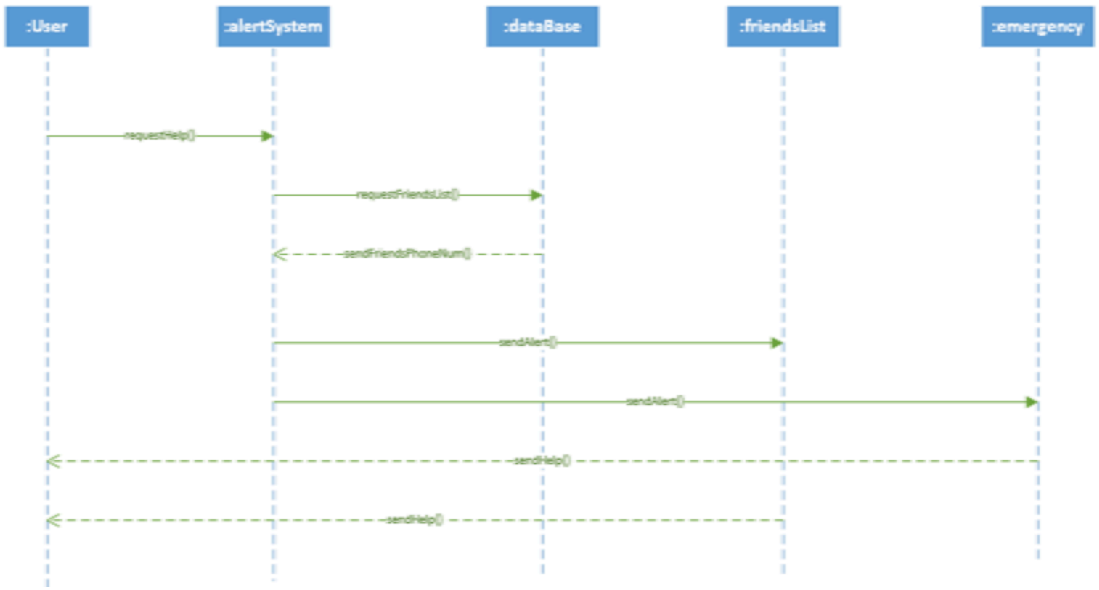
Service to send SMS to registered friends on alert call

- **Operational Description:**
  On clicking alert button SMS is to be sent to registered friends and 911 emergency. Default message and numbers list is sent to the service.
- **Input/output for service**
  Input: Phone numbers of friends, Message content to be sent
  Output: SMS delivery response.
- **Constraints/exceptions**
  Service should always be running.

- **Class Diagram**



- **Sequence Diagram**



- **Priorities**
  Degree of importance: High priority

9) Stories: Sprint Planning & Use case specification template:

Use Case Name	Register to the app
Primary Actor	User
Preconditions	User must have downloaded app
Guarantee (Post Conditions)	It allows user to register in to the app successfully
Main Success Scenario	1. Enter user details like name, phone number, id, twitter, face book and password 2. System sends confirmation message 3. User enters confirmation number 4. User registers maximum 4 friends and minimum 1 5. System sends notification to friends 6. Registration completes
Extensions	1. If any of the inputs given by user is invalid, system asks user to re-enter. 2. If user didn't get confirmation, user can ask the system again 3. If the user enters wrong confirmation number then system asks him to re-enter

Table1: Use case template 1

Use Case Name	Sending Alert
Primary Actor	Alert system
Preconditions	User must be valid registered user to the app
Guarantee (Post Conditions)	Sends alert message to friends and emergency successfully
Main Success Scenario	1. User decides which alert he wants to send 2. User can choose either Red, blue and green buttons 3. When user chooses red button, system sends alert message to friends and emergency 4. When user selects green button, then system sends alert message to registered friends 5. When user selects blue button, then system raises an alarm
Extensions	None
Special Requirements	None

Table2: Use case template 2

Use Case Name	Reporting a Crime
Primary Actor	User
Preconditions	User must be valid registered user to the app
Guarantee (Post Conditions)	User reports crime to the system successfully
Main Success Scenario	1. User decides how he needs to report a crime 2. User uploads image to face book, twitter or emergency
Extensions	None
Special Requirements	None

Table3: Use case template 3

Use Case Name	View crime area on Google maps
Primary Actor	User
Preconditions	User must be valid registered user to the app
Guarantee (Post Conditions)	User is allowed to view crime rate
Main Success Scenario	1. User can view crime rate and area in Google maps
Extensions	None
Special Requirements	None

Table4: Use case template 4

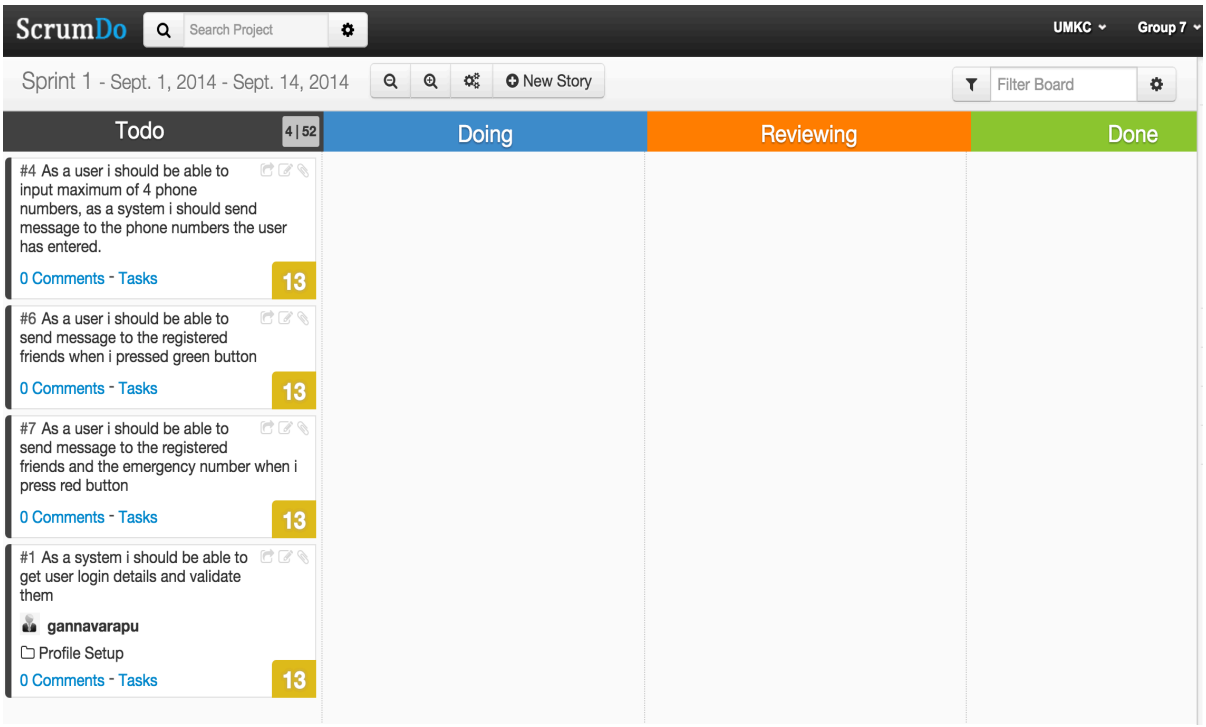


Figure: Sprint 1 Planning

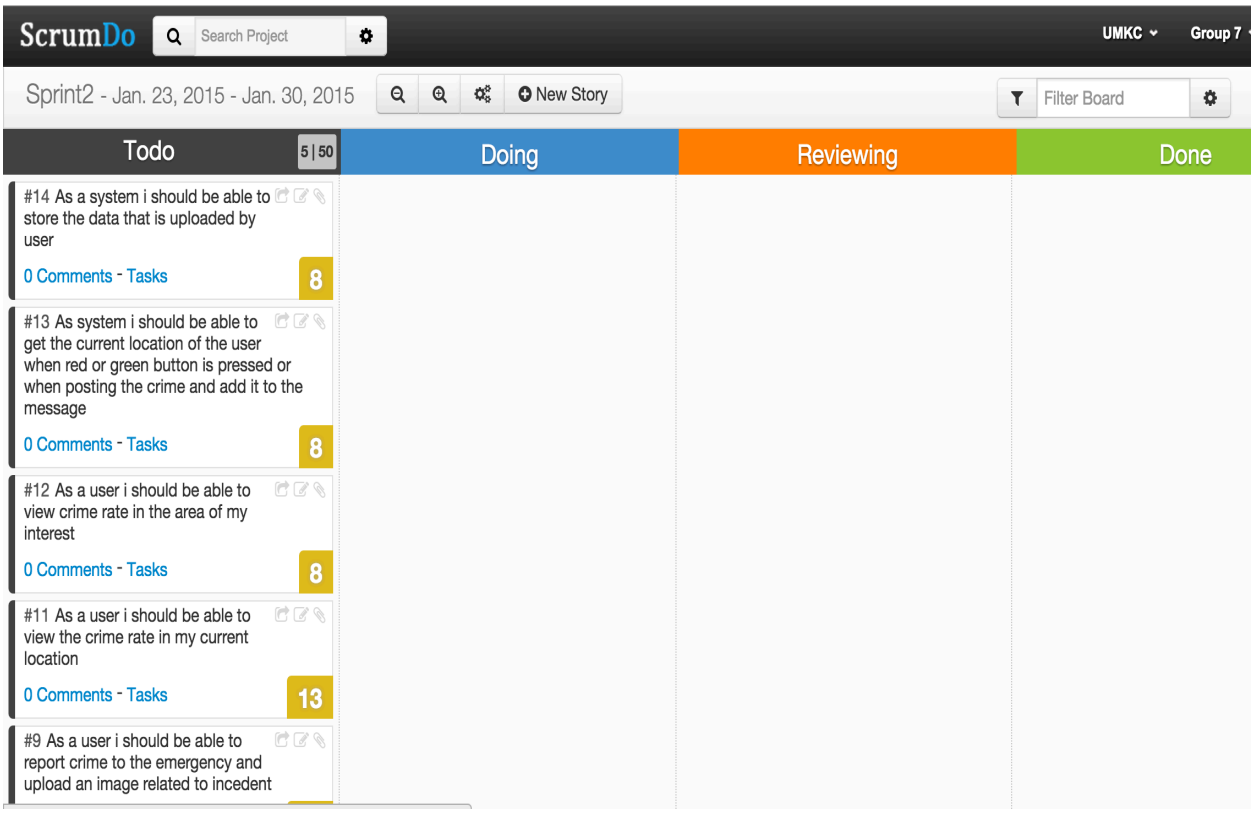


Figure: Sprint 2 Planning

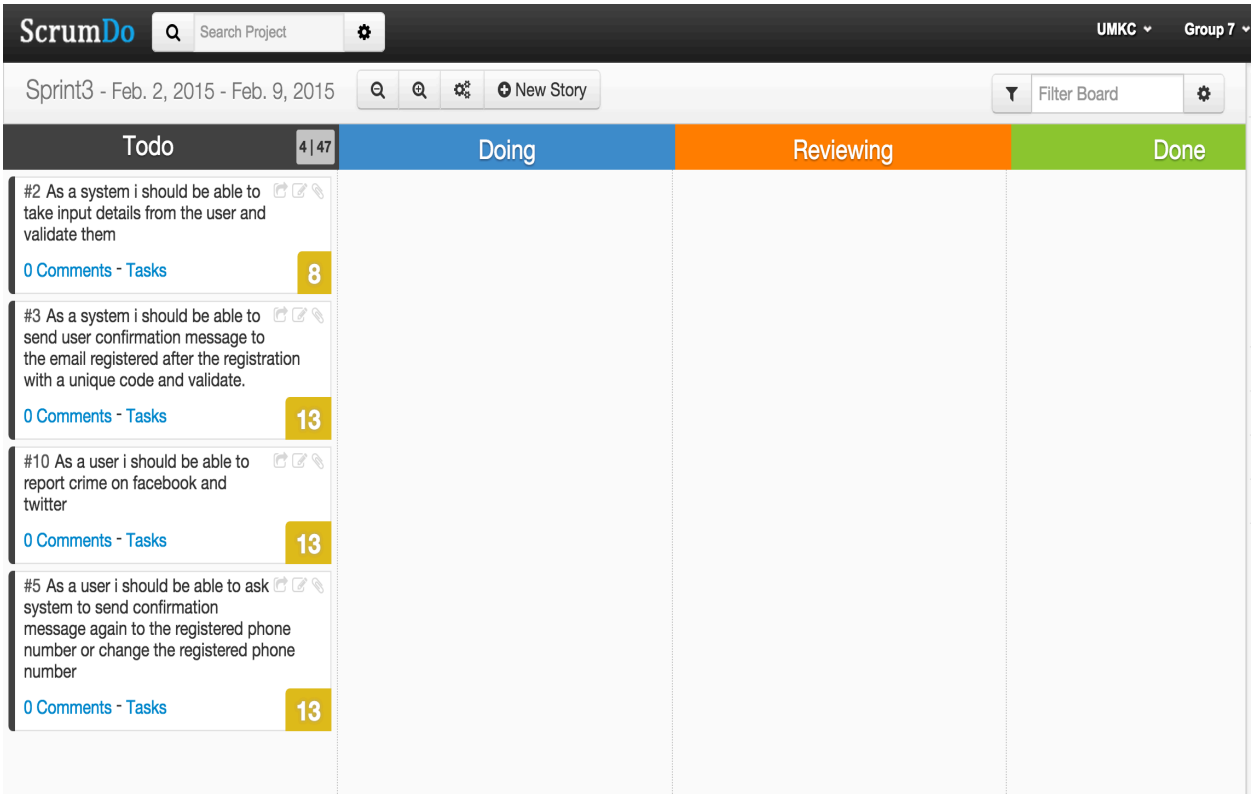


Figure: Sprint 3 Planning

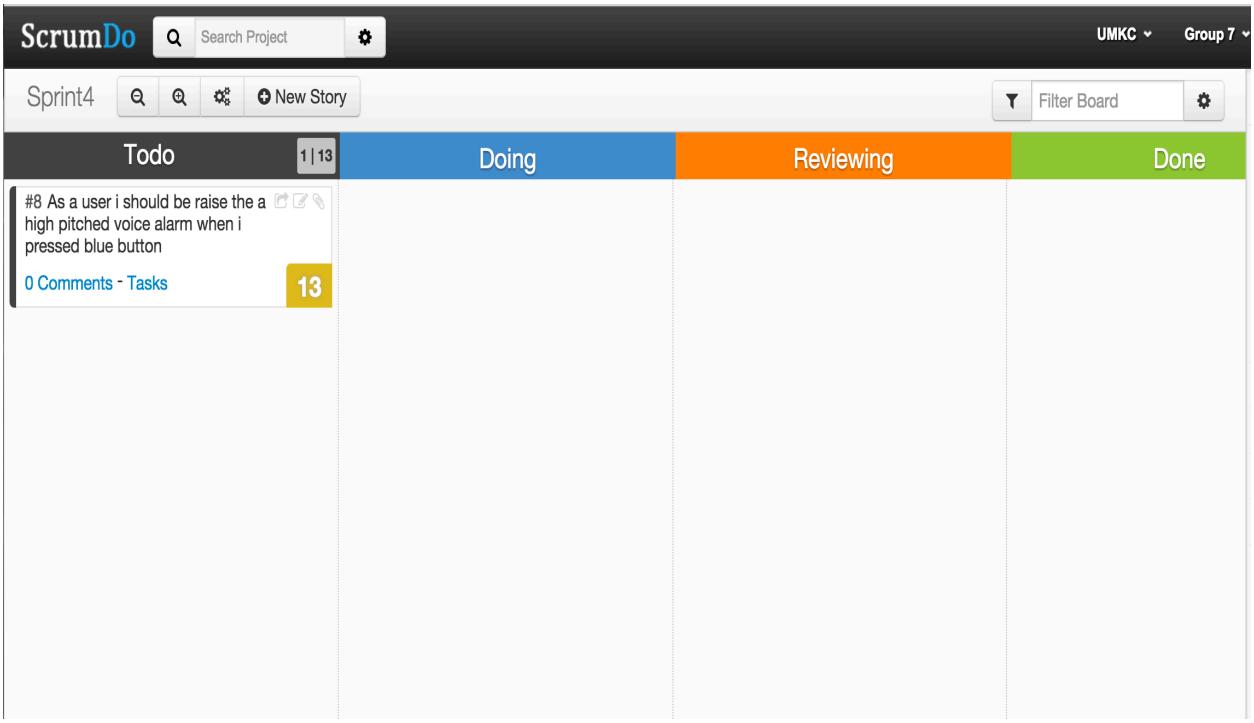


Figure: Sprint 4 Planning

10) Risk Management:

Technological and architectural requirements:

- The user should be having a smart phone.
- The GPS should be turned ON to get real time data and to send the current location in case of any emergency.
- It is compatible with Android phones and should be extended to be compatible with windows and IOS as well.

11) Bibliography:

- https://www.crimereports.com/
- http://www.slideshare.net/shinyvaibhav/online-crime-management-system-34994738
- http://spotcrime.com/mo/kansas+city
- http://www.fcc.gov/text-to-911
- http://www.phonearena.com/news/Android-How-to-share-your-location-and-GPS-coordinates_id36706
- http://www.pocketmeta.com/share-gps-coordinates-iphone-android-4240/
- http://www.way2know.com/projects/e-crime-file-management-system
- https://data.kcmo.org/311/KCMOPS311-Data/7at3-sxhp
- https://play.google.com/store/apps/details?id=com.CrimeStoppersHouston.android
- https://itunes.apple.com/us/app/crimereports/id343636598?mt=8
- http://www.sungardps.com/solutions/onesolution/public-safety-justice/rms/