COMP 3059 – Capstone Project I

Software Requirements Analysis and Design Assignment

This assignment is an overview to gather the software needs with requirements analysis and help to proceed with the design.

The requirements analysis helps to break down functional and nonfunctional requirements to a basic design view to provide a clear system development process framework. It involves various entities, including business, stakeholders and technology requirements.

The design is the activity following requirements specification and before programming. Software design usually involves problem solving and planning a software solution.

To work on this assignment you could use the references and a sample template given below. The sample template can be customised to suit the nature of your project.

Reference Readings/Example:
http://www.uacg.bg/filebank/acadstaff/userfiles/publ_bg_397_SDP_activities_and_steps.pdf

www.cse.msu.edu/~chengb/RE-491/Papers/SRSExample-webapp.doc

https://nces.ed.gov/pubs2005/tech_suite/part_2.asp

Reference template:
www.tricity.wsu.edu/~mckinnon/cpts322/cpts322-srs-v1.doc

1.0 Introduction

1.1 Purpose

The purpose of this document is to provide a detailed description of the Stray No More mobile application. It will describe the features of the application as well as show the constraints and how the application will run. The app will be run on an android device using device location and mobile data to send and receive data remotely.

Individual users will make use of the map and feed system for posting locations and descriptions of the animals/pets. Users can also use the chat system to communicate with other users.

Animal shelters will use the location and feed features to notify users of any pets found or in need of homes.

Animal control will make use of read-only feed to search for stray animals and lost pets.

All pet owners/individual users will be able to use the notifications and notification manager.

1.2 Scope

This document applies to The Stray No More (SNM) mobile application developed by George Brown Coding Team. The GBCT will produce an application designed to assist the general public in ensuring the safety of wild or missing animals. This app will further assist animal shelters by providing real-time updates of animal sightings. It will also educate users on the proper measures needed in regard to interacting with wild and potentially dangerous animals. The application will promote communication between the unique parties that either are missing animals or are helping them.

2.0 System Overview

2.1 Project Perspective

The project will be a new self-contained system. It will be an independent application that will be available to download and install on android mobile devices. It will contain unique application features built solely within the app. It is a client-server system with a centralized database. All clients/users must be connected via the internet. Clients/users will also be able to communicate with each other. There is also two way communication between the server and the clients to allow for information extraction.

2.2 System Context

The application's main focus is to develop and build an expanding network of individuals and organizations in an effort to rescue lost pets, assist the wellbeing of stray animals and maintain public safety in regards to potential animal threats. Rather than having multiple pockets of communities, the application will place many communities and individuals into one location for ease of access and dedicated environment. This will allow efficient and effective use of the community resources.

2.3 General Constraints

- User profiles to have individual logins and password
- Timeline feed of lost pets in an area
- Database containing pet information
- Notifications and updates are set to a specified distance
- Group and private messaging
- Users must accept new messages
- Users must allow access to camera and location

2.4 Assumptions and Dependencies

Assumptions:

- Clients will create a profile
- Users will allow location to be shared
- Users will allow notifications
- Users will communicate using the built in chat system

Dependencies:

- If guests wish to use the chat system they must register as a pet owner/individual user
- In order to post on the feed of an animal sighting location must be added

3.0 Functional Requirements

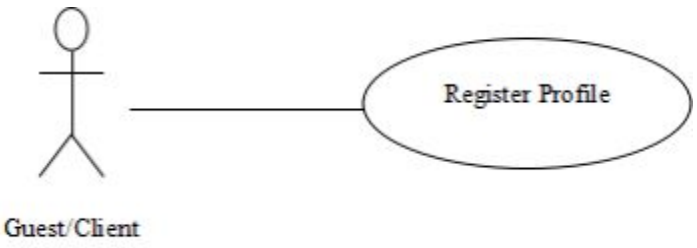
3.1 Features

Feature	Introduction	Inputs	Processing	Outputs
Chat system	This feature will allow users to interact with each other to obtain relevant information needed	Inputs will consist of user message, and intended receiver (group or individual)	Device will connect to the network and database to search for the receiver and send the message	Receiver will be notified of incoming message
Location Services	This feature will obtain user location and display relevant details. Location Services will also be used when animals are spotted.	Input consists of user submitting their location using a predetermined button	Map location will be determined by device location services	A pin on a map will be displayed along with the post for other users to see the exact location
Notifications	This feature will allow users to receive notifications based on animal sightings. Notifications will also be used in the chat system.	input consists of user spotting an animal and is created. Input may also be a	Notification settings will be used to determine which notification will be processed.	Users will receive a notification displaying information relevant to the spotting. Users can also receive

		chat message which creates a notification		notifications from chat messages.
Camera	The camera feature will allow user to attach a picture along with the post to provide accurate detail of a pet or stray animal	The input consists of a user attaching a picture or using the mapped camera button	The picture will be scaled and rendered accordingly to fit the layout of the feed or chat environment	The picture will be attached along side a post in the predetermined format to flow with the description of the post

3.2 Use Cases

Use case: Register
Diagram:



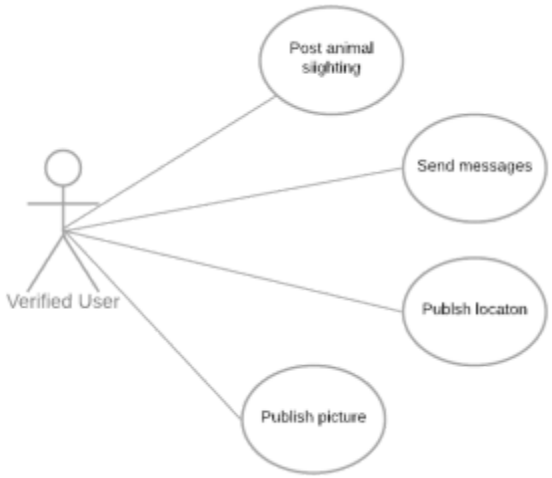
Brief Description
The guest/client will create a profile to become a verified user.

Initial Step-By-Step Description
Prior to being able to register a profile, the guest/client must have the application opened and be connected to the internet.

1. Client clicks the register button
2. System shows a form in which user must input information
3. Client fills out relevant information
4. System generates a profile and creates a verified user

Use case: Verified User

Diagram:

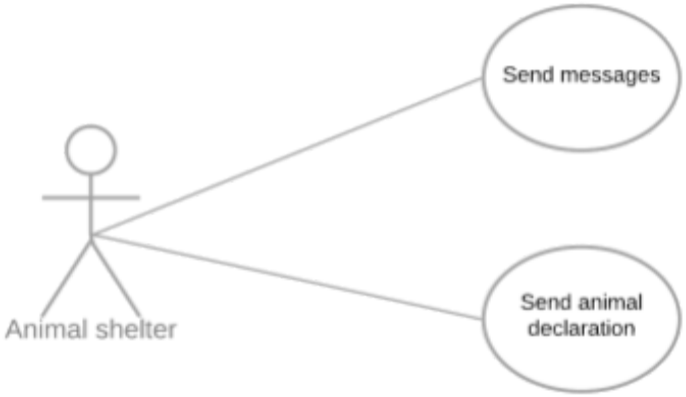


Brief Description

The verified user will be able to post animal sightings, send messages through chat system, publish their location and post the picture that they had taken.

Use case: Animal Shelter

Diagram:



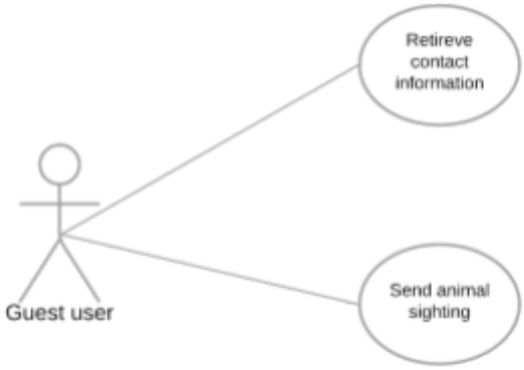
Brief Description

The animal shelter user will be able to send messages via the application. They will also be able to send an animal declaration.

Use case: Animal Control
Diagram:

Brief Description
The animal control will send the animal handling procedures with regards to which animal is spotted.

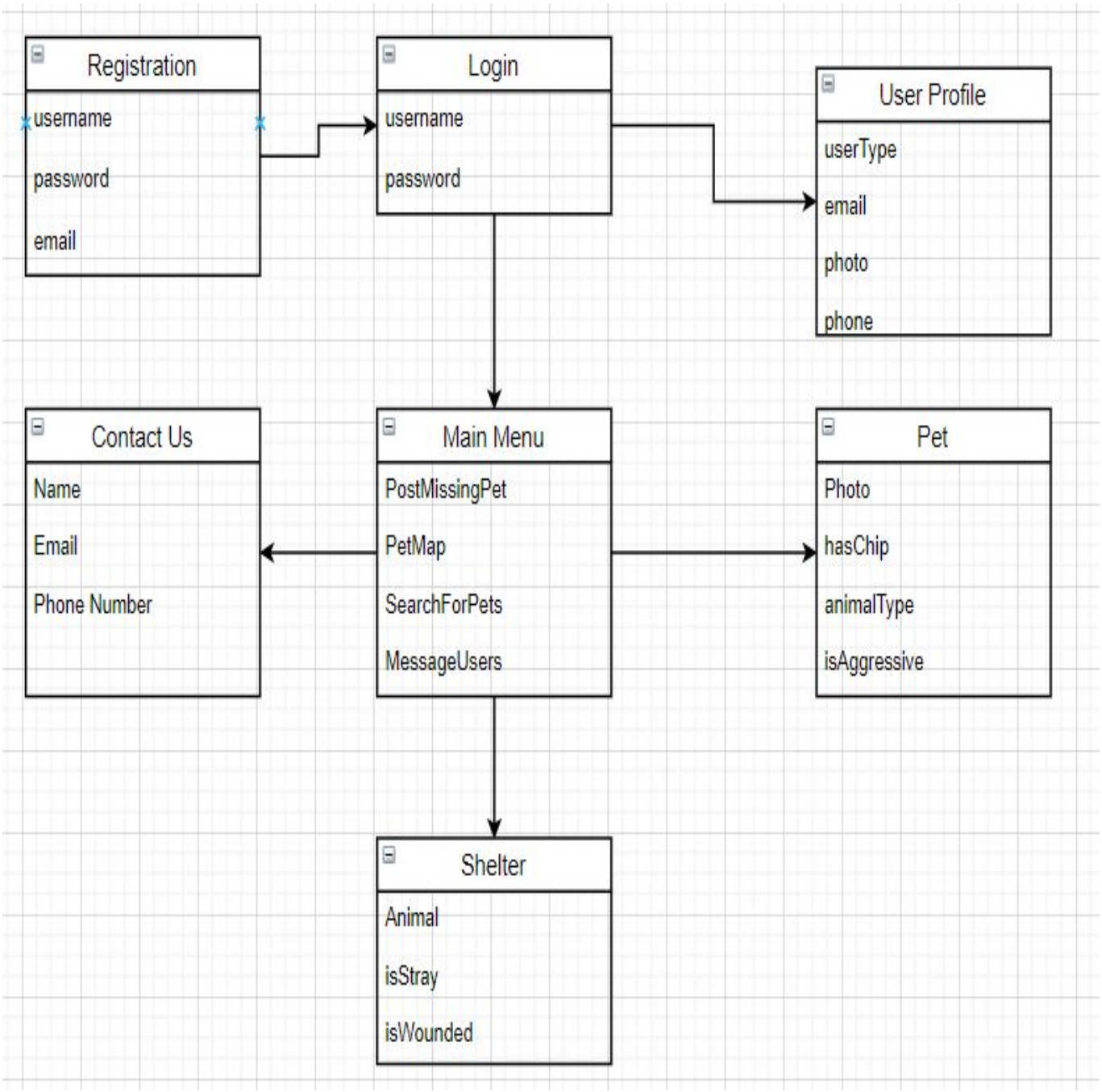
Use case: Guest User
Diagram:



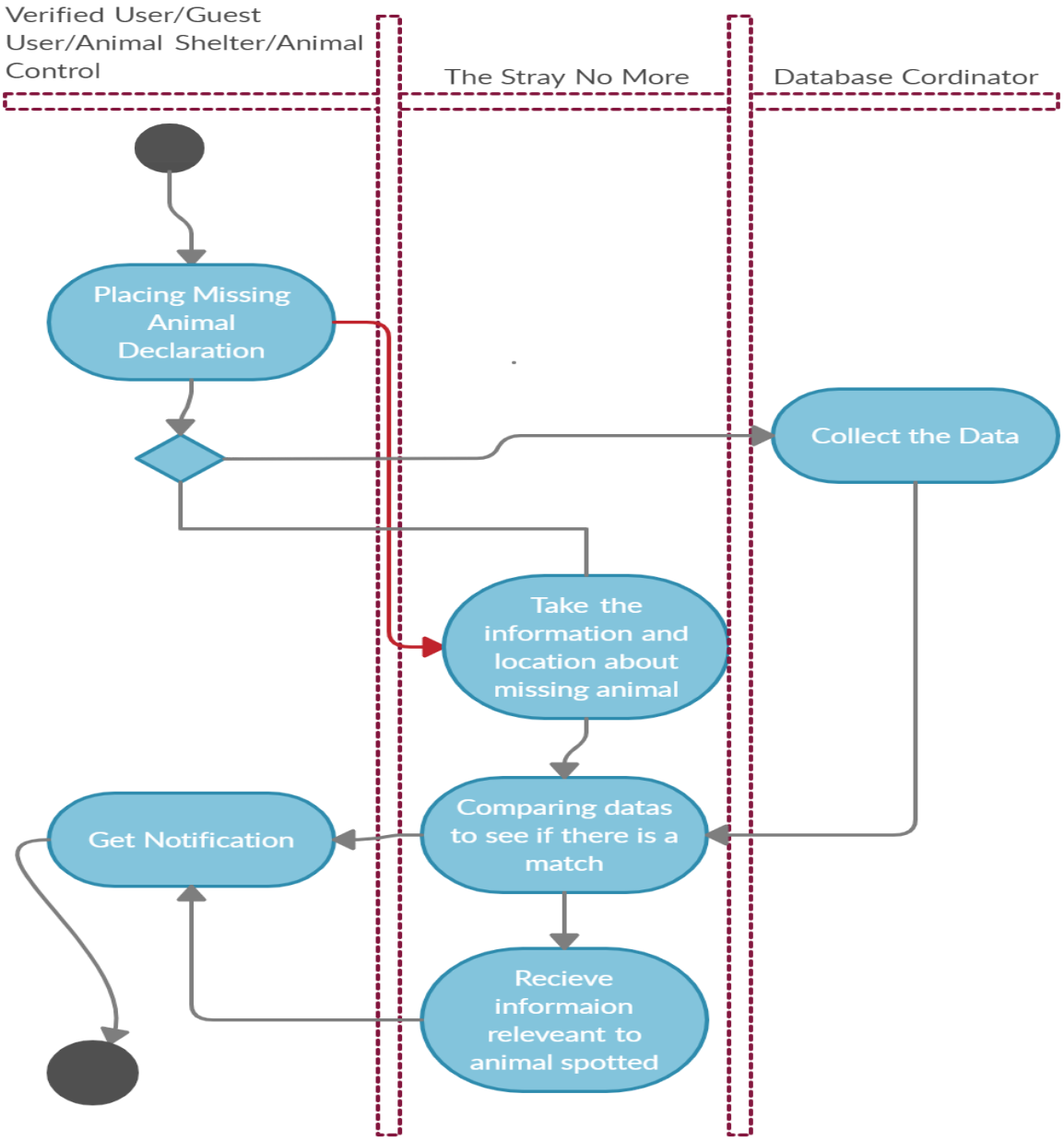
Brief Description
The Guest user will be able to retrieve contact information if needed and send animal sightings if required.

3.3 Data Modelling and Analysis

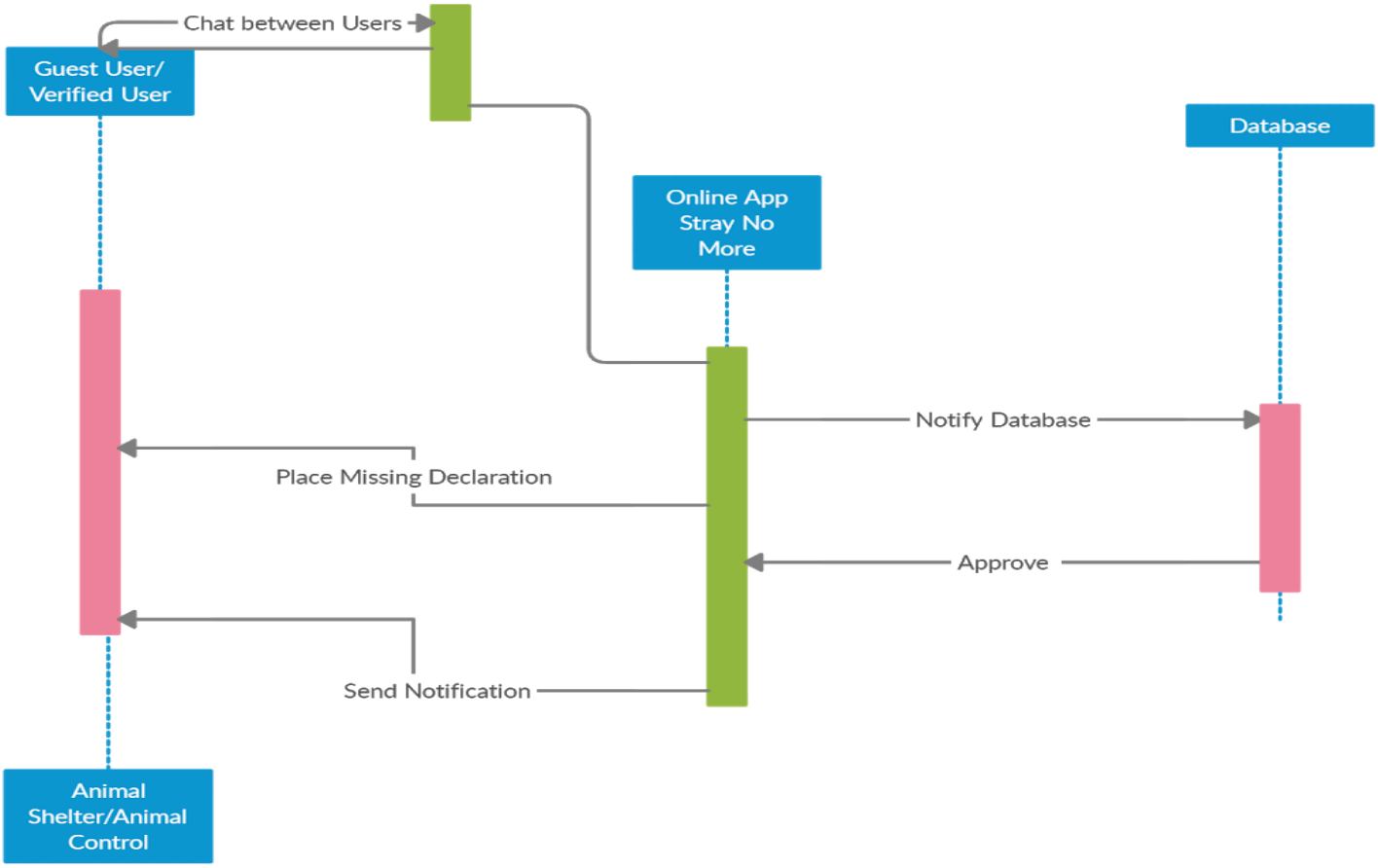
Normalized Data Model Diagram



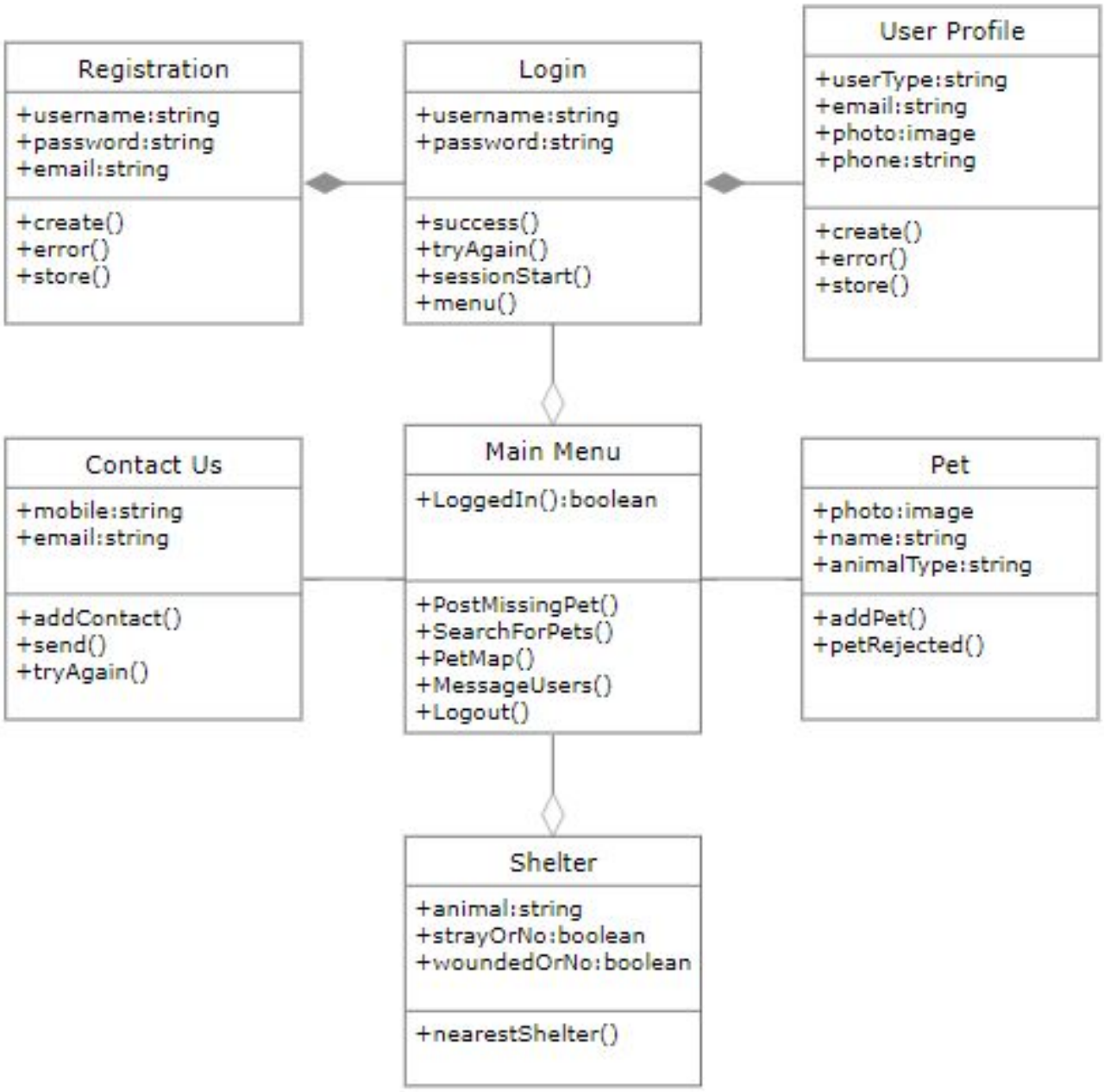
Activity Diagram



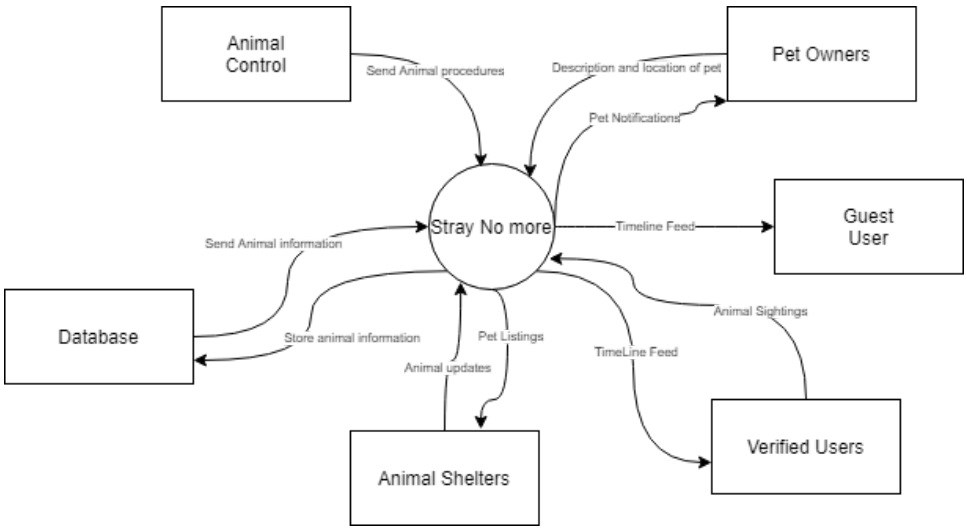
Sequence Diagram



UML Class Diagram



3.4 Process Modelling
Data Flow Diagram



4.0 Non-Functional Requirements

- Application must be compatible with wifi and 3G/4G LTE/5G
- Applications should be able to run on different versions of operating systems.
- Maximum of 5 seconds for the application to load to the home screen
- No more than 3 taps to get to the home page or user profile.
- Database should be scalable in order to manage increase in user registrations
- Application should show reliability to users when uploading photos and creating profiles
- Sensitive data such as user information should be encrypted
- Terms of Service must be displayed to users prior to completing registration and the user must agree to finish registration.
- Down time will occur once a week for no more than 1 hour to release large updates if necessary.

5.0 Logical Database Requirements

MongoDB will be used as the database to store user profiles and animal/pet data. The database will JSON documents with a schema. Clients will be broken into different user types, guest users, pet owners/individual users, animal control and animal shelters. For users, full name, address, email, phone number, username and password will be stored. Guest users will only have email, username and password stored. Animal shelters will have the animal shelter name, location, unified email address and unique user name.

6.0 Approval

The signatures below indicate their approval of the contents of this document.

Project Role	Name	Signature	Date
Database Coordinator	Edward Philip	EP	Nov 14, 2020
Project Manager	Abdirahman Ali	AA	Nov 14, 2020
Front-end Developer	Emin Yimaz	EY	Nov 14, 2020
Product Tester	Faheem Ahmed	FA	Nov 14, 2020