CSC 450 : Software Engineering

Animal Adoption Compatibility App

(Still searching for a name)

Contributors:

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Michael Miranda

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1 Introduction

1.0 Project Statement and Objectives

According to the ASPCA, approximately 6.5 million companion animals enter US animal shelters each year. Around 1.5 million of those animals in the shelter are euthanized each year. Our general idea is to develop a potential solution to minimize this problem and save animals! We plan to create a mobile application that essentially matches animals who are up for adoption with people looking to adopt based on a series of personality questions and astrological signs. With the growing popularity of social media and dating apps, this will be a fun new way to entice people to want to adopt.

1.1 Major Functions

This application will have two interfaces. Potential adopters will be able to create an account with some information and take a personality test and input their astrological sign. Based on the results from their test and astrological sign, a matching algorithm will produce a collection of animals who have also taken the test and matched based on their compatibility. At this point, potential adopters will be able to swipe right/left (much like Tinder) to basically accept or reject this match. There will also be a section where you can browse all the available animals for adoption with various filtering capabilities. Rescue organizations will have an admin portal where they can add animals, create attractive profiles, and answer the personality questions based on how they have interacted with that animal. The rescues will also be able to keep track of which animals are more commonly accepted/rejected by a log kept when the potential adopters are swiping through their matches. This will allow rescues to know which animal profiles need a bit more information/attention on their part to get them matched!

1.2 Performance Issues

One of the major potential issues that can form when using an algorithm such as a recommender system is that there simply is not enough data and users. Depending on the type of recommender system we use, we will most likely need to have users perform initial tests on the algorithm to ensure that the algorithm is accurate. Another performance issue comes with the time it takes to train the system itself. We will train a neural network on images of dogs (to ensure that uploaded images are of dogs only) which may take a significant amount of time. These issues can be mitigated by using efficient code that utilizes a graphics card to perform efficient matrix calculations, reducing the run time to a negligible amount. We foresee many of the potentially performance issues involved with the project as minimal so long as we plan for all the circumstances.

2 Project Estimates

2.0 Project Estimation

Only two out of our 5 members have been involved with developing android applications before, but all five members have developed working java code, which is a huge advantage. The two members who have developed an android application before developed one (which has several similar features that will be present in this project) in roughly 72 man-hours (including meetings and such), with two people involved in the development. This project will require more hours due to the fact there will be more features and functionality than the previous app created, along with the fact that most of the group has not programmed an android application before. With these factors, we made a very rough and premature estimation of 130 man-hours to complete this project.

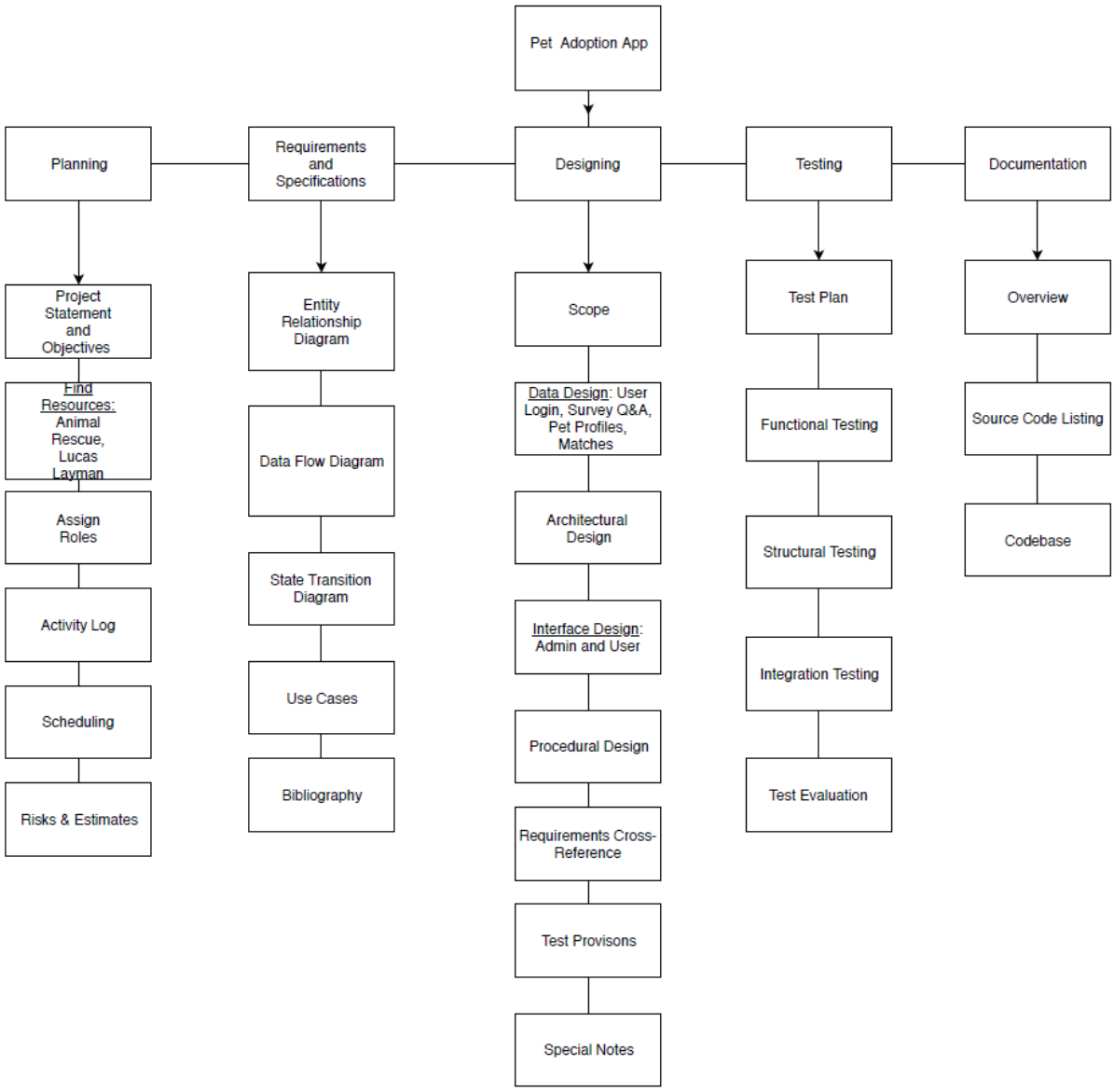
3 Project Risks

3.0 Risk Table

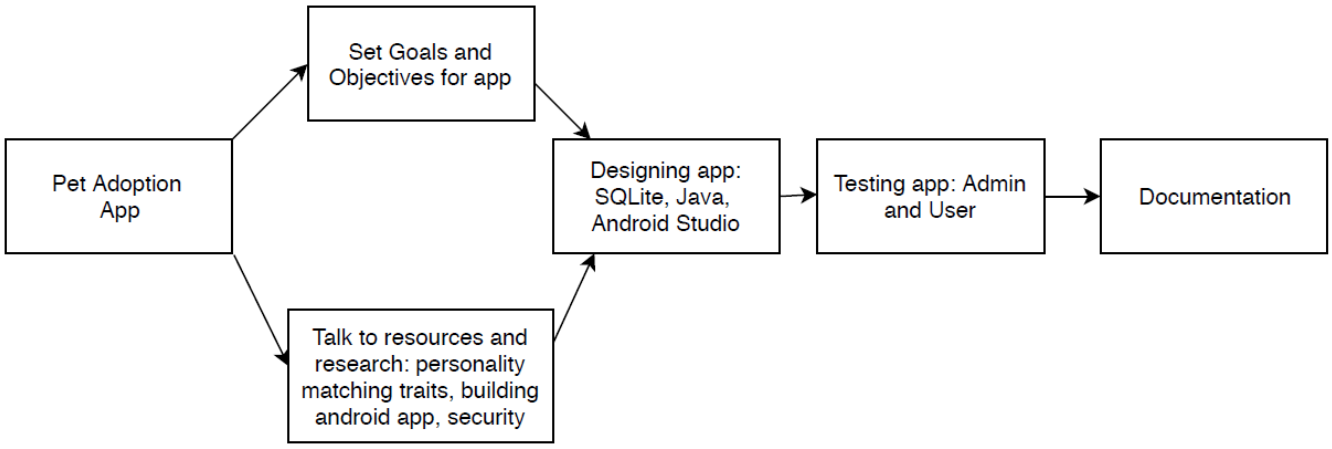
Risk	Severity	Probability of Occurring	Mitigation Plan
Hurricane Occurrence	4	10%	Plan more team meetings, Utilize time on weekends
Security of User Information	3	20%	Implement stronger levels of security and/or add more security checks
Time mismanagement	2	15%	Remove less important features, focus on completing the more important base features
Credibility of Pet Profiles or Sources (animal shelters)	2	30%	Add AI pet verification to verify pet pictures are in-fact a pet and remove false profiles.
Team member leaving	2	10%	Each remaining team member would complete a portion of the former member's tasks

4 Schedule

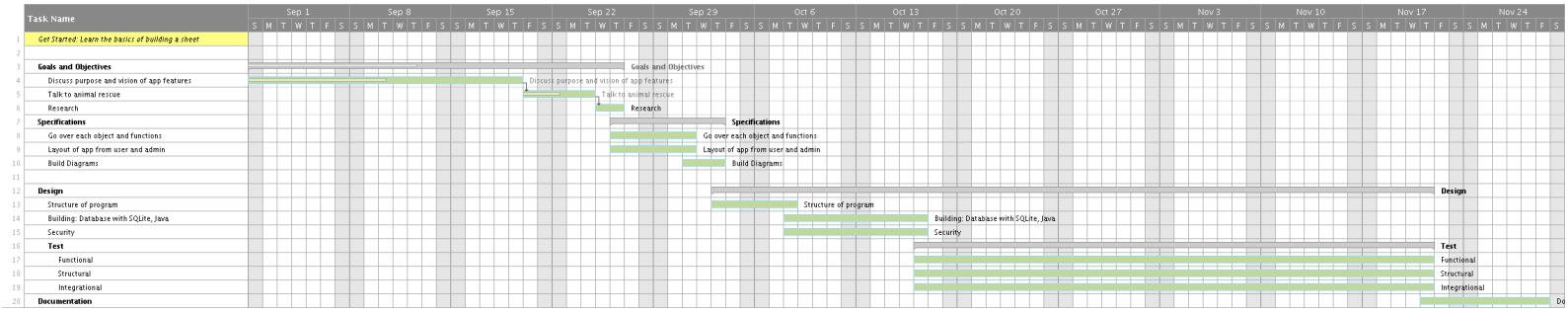
4.0 Project Work Breakdown Structure



4.1 Task Network



4.2 Time-line Chart



(Imported from SmartSheets… image quality not the best)

5 Project Resources

5.0 People

a. Dylan Woodworth
    i. Android Studio experience
    ii. Skilled in Java
    iii. Skilled in Python

b. Kristin Merritt
    i. Skilled in Java
    ii. Skilled in Python

c. Michael Miranda
    i. Skilled in Java
    ii. Skilled in Python
    iii. Database Experience

d. Kinsley Sigmund
    i. Android Studio experience
    ii. Skilled in Java
    iii. Skilled in Python
    iv. Passionate about animals and adoption

e. Garrett Neilson
    i. Experience with AI algorithms
    ii. Skilled in Java
    iii. Skilled in Python

5.1 Hardware

- Each person has their own personal laptop they will use to program and test this project
- We will use different Android phones to test the app that we develop

5.2 Software

1. Android Studio
    - Used to develop the mobile application
2. Slack
    - Used to communicate
3. Trello
    - Used to schedule and plan for deadlines

5.3 Data

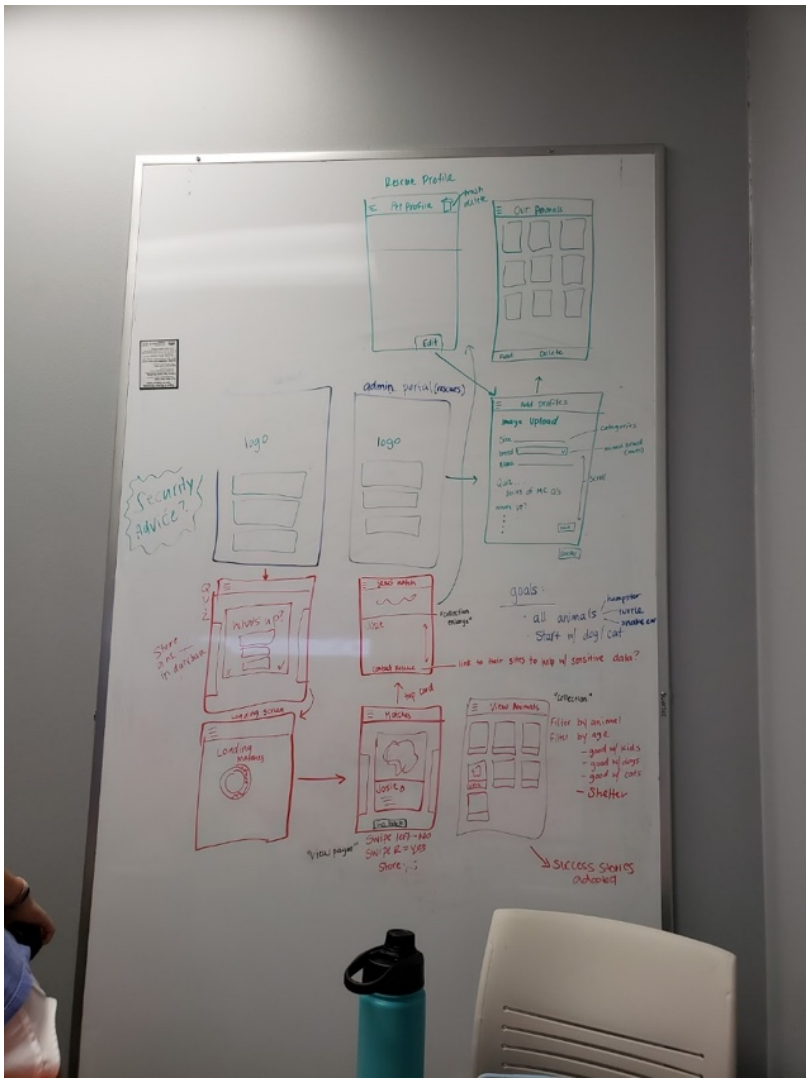
We will use a large dataset of dog and other pet images to train a recommender system.

5.4 Beta testers

The issue with recommender systems is that they need to be used or “primed” before they can be used to their full potential. We need to run through multiple use cases to ensure that the algorithm is working effectively and efficiently.

6 Activity Log

6.0 Meeting Log



- 9/13/2019, 12:30 - 1:45
    i. Defined project will be developed in Android Studio
    ii. Storyboard basic layout
    iii. Assigned portions of Project Plan:
        a. Intro - Kinsley
        b. Estimates - Dylan
        c. Risks - Michael
        d. Schedule - Kristen
        e. Gather class schedules
        f. Resources - Garrett
        g. Activity Log - Dylan/Kinsley

    Questions?
    i. How will we validate admin access?
    ii. How to ensure the security of user information?
    iii. How to implement user logins?

- 9/17/2019, 10:00 - 10:30
    i. Went over team member roles for first deliverable
    ii. Assigned Kinsley/Dylan to put document together to turn in on Thursday
    iii. Have work completed by class time on Thursday so Kinsley/Dylan can put everything together