ARCHIE - Essential Software Design

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Amanda Trinh

A. Architectural Design

Introduction

ARCHIE is an iOS/Android mobile application commissioned by UCI that includes a web-based portion to view data gathered from the app's users. The app is intended to improve and enhance the current Anteater Recreational Center (ARC) application by replacing it. UCI students will be able to use the old features of the current ARC app, mainly to schedule ARC classes, along with the addition of a food journal, planning ARC events, data analysis, and a built-in social networking feature. The purpose of ARCHIE is to help UCI students become healthier by promoting fitness, healthy eating, and participating in ARC events and courses, all of which they have the ability to manage under the new application.

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Overview / Executive Summary

The ARC is the recreational center located on the UC Irvine campus that holds the different ARC classes and events that students can schedule within the current ARC app. ARCHIE will expand on the current features with the intent of improving students' health at UCI as the new ARC application for iOS and Android devices, along with a web-based component to the current ARC website. The main features are ARC Class Scheduling, ARC Event Planning, Food Journaling, Fitness Tracking, Data Analysis, and a Social Network.

One of the app's architectural styles, for example, in regards to the Data Analysis feature, will be a client-server style between the ARCHIE app and current ARC website; The Data Analysis feature of ARCHIE is the anonymous data collected by the app's fitness step-tracker and food journal that will be aggregated and viewed separately on a new page that will be found on the current ARC website. Client-Server Style (using Data Analysis example):
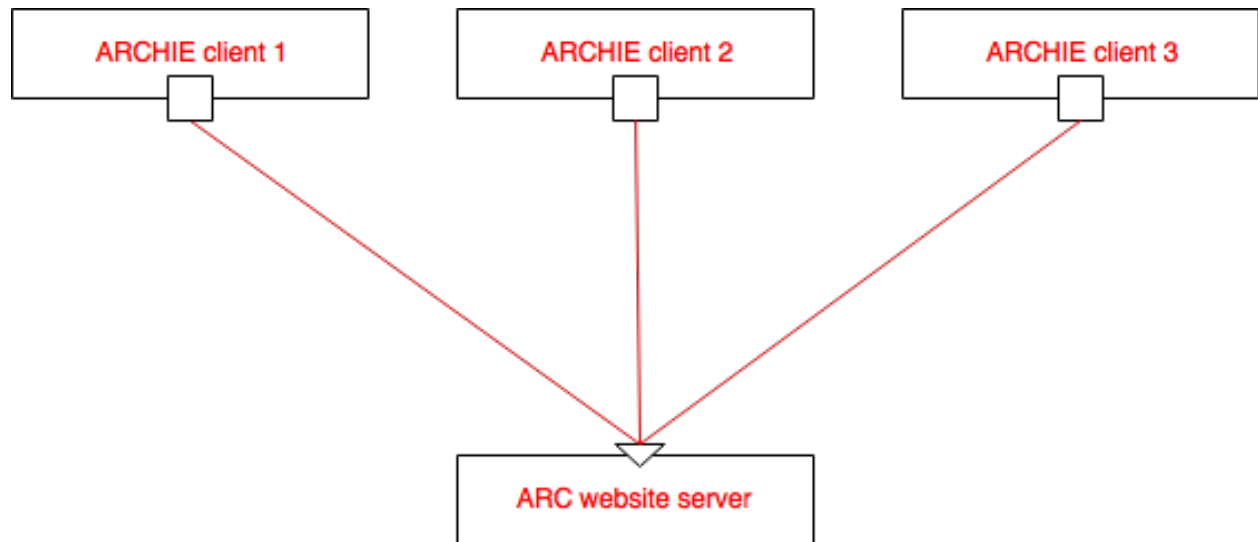
Client-Server Style (w/ procedure call connectors):
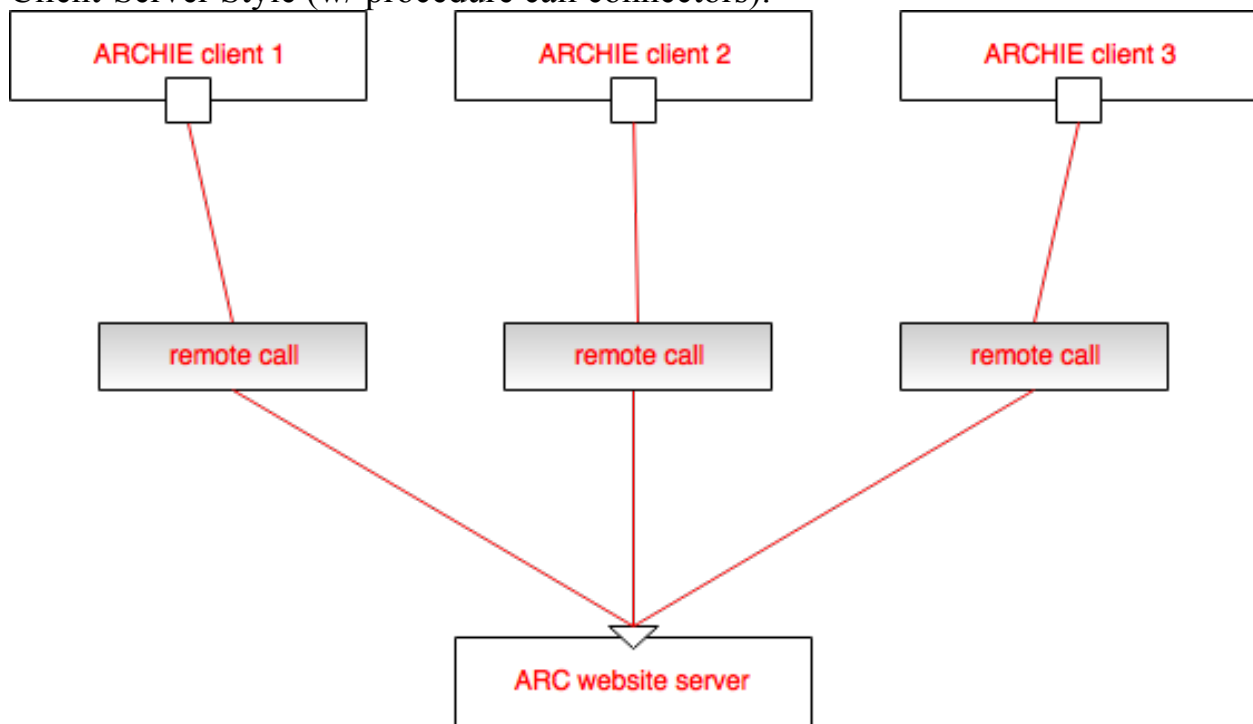
The software will take a three-tiered approach, where the process of accessing the app's different data and main features can be done either with or without an internet connection. This will also support the user-focused design for the user interface, where usability is a central part on the implementation and execution of the system.

Three-tiered Pattern:
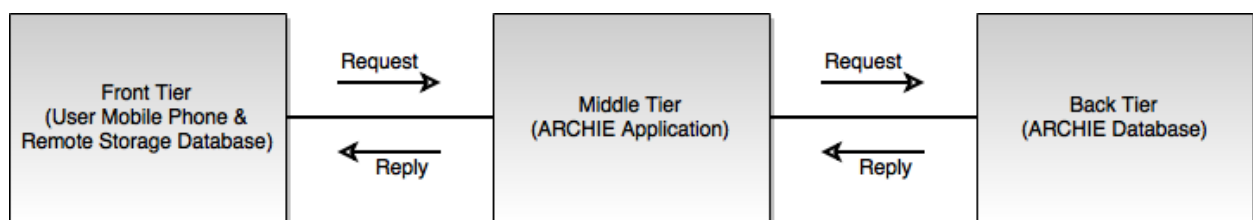
The three-tiered pattern shows how the application can remotely run its main features and store user data between the mobile device and ARCHIE app when it is not connected to the Internet, but it can also upload data and retrieve other user data, ARC courses, etc. by accessing the "back tier" when connected to the Internet for full functionality access.

User-focused Design (or User-Centered Design):

Purpose

Interview clients and gather requirements in order to understand user interaction with the system, in order to create a user-friendly interface.

Research Requirements

Understanding Users and Interaction

Use Cases

Prototype UI

Designing User Interface

Evaluate UI

Validate

User Centered Design
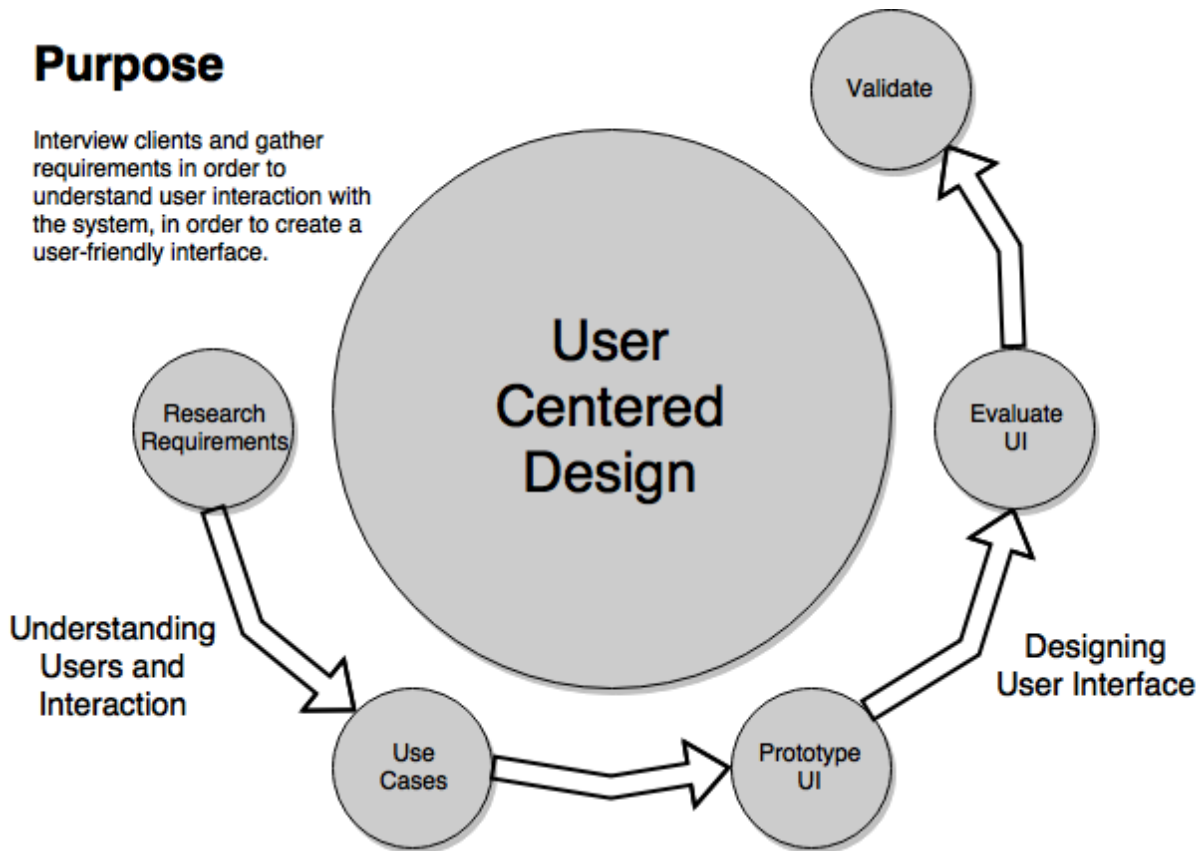
B. Use-case Scenarios

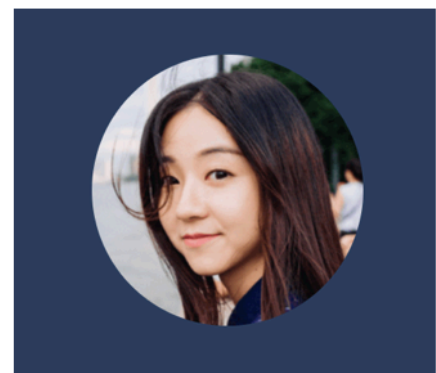1) UCI Students: <u>Add Friend</u>
Example: Persona

Jasmine Lee

Age: 20
Residence: Costa Mesa, CA
Major: Neurobiology
Occupation: Full-Time, Undergraduate Student

- She's been in a soccer club since middle school and now plays weekly in her area
- Lives at-home but often goes out to meet up with friends from her soccer team, most of whom also currently attend UCI
- Previously did not use the ARC app but is excited about the potential social aspect of ARCHIE
- Prefers to keep her workout and soccer life in tandem so she can't wait to see how the new system will allow her to connect with her teammates
- Very sociable and loves working on projects or having fun in groups
- Passionate about working out, almost as much as science

Example: Scenario
- Jasmine has just finished practice with her soccer team and is in a rush to change and go home to finish up a project due that night
- She remembers that she still has to do some muscle and agility training with some of her teammates at the ARC
- She pulls out her phone and asks her friends if anyone is interested in working out at the school gym this week
- They say yes and she quickly tells them to check ARCHIE later to schedule everything
- She realizes they aren't friends on the new app yet, but she loves how she can quickly add them all later that night
- She was able to add her friends quickly and was also able to schedule everything from the place to time all within the app
- She loves how the app also allows her to keep her fitness life separate from her other, more personal social life.
- She finds the ability to add new teammates and workout buddies, along with scheduling events, much easier through the app since she never has to leave it to text or message her friends through multiple means.

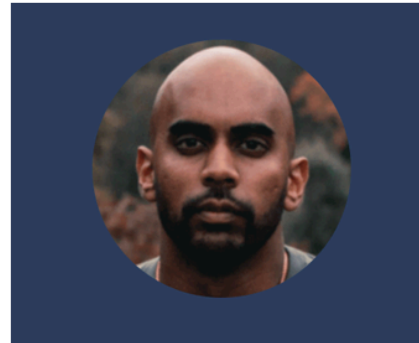2) UCI Students: <u>Export Event to Facebook</u>
Example: Persona

Anthony K. Allen

Age: 22
Residence: Irvine, CA
Major: Sociology
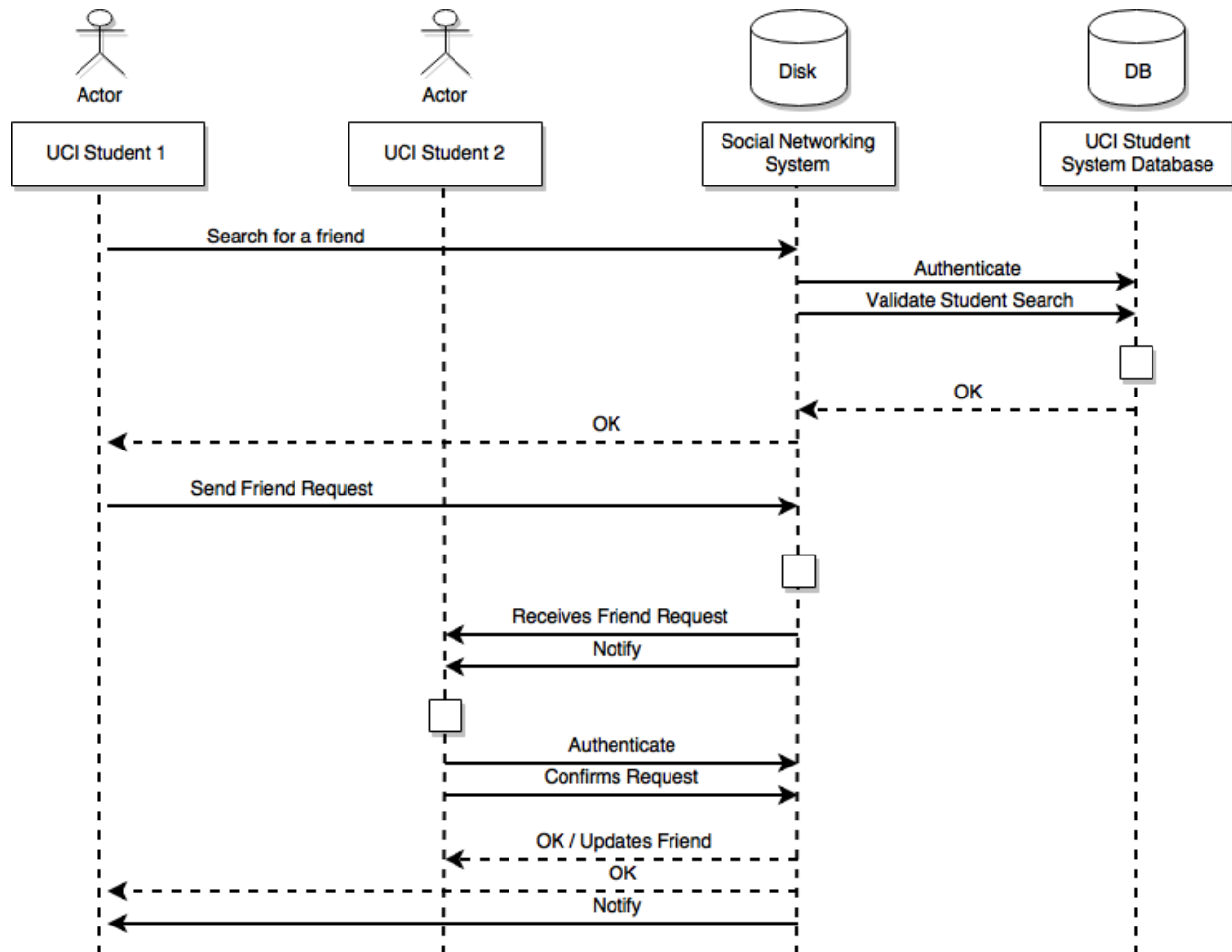Occupation: Full-Time, Graduate Student

- Coordinator/leader of he and his friends' workout gang
- Lives on campus in the graduate housing dorms
- Always on-time and schedules everything; super organized
- Extremely active on social media
- He often hangs out with his buddies at the ARC when he isn't working on his research projects
- Used the previous ARC app often, but also uses many third-party apps in correlation to keep track of his health/body
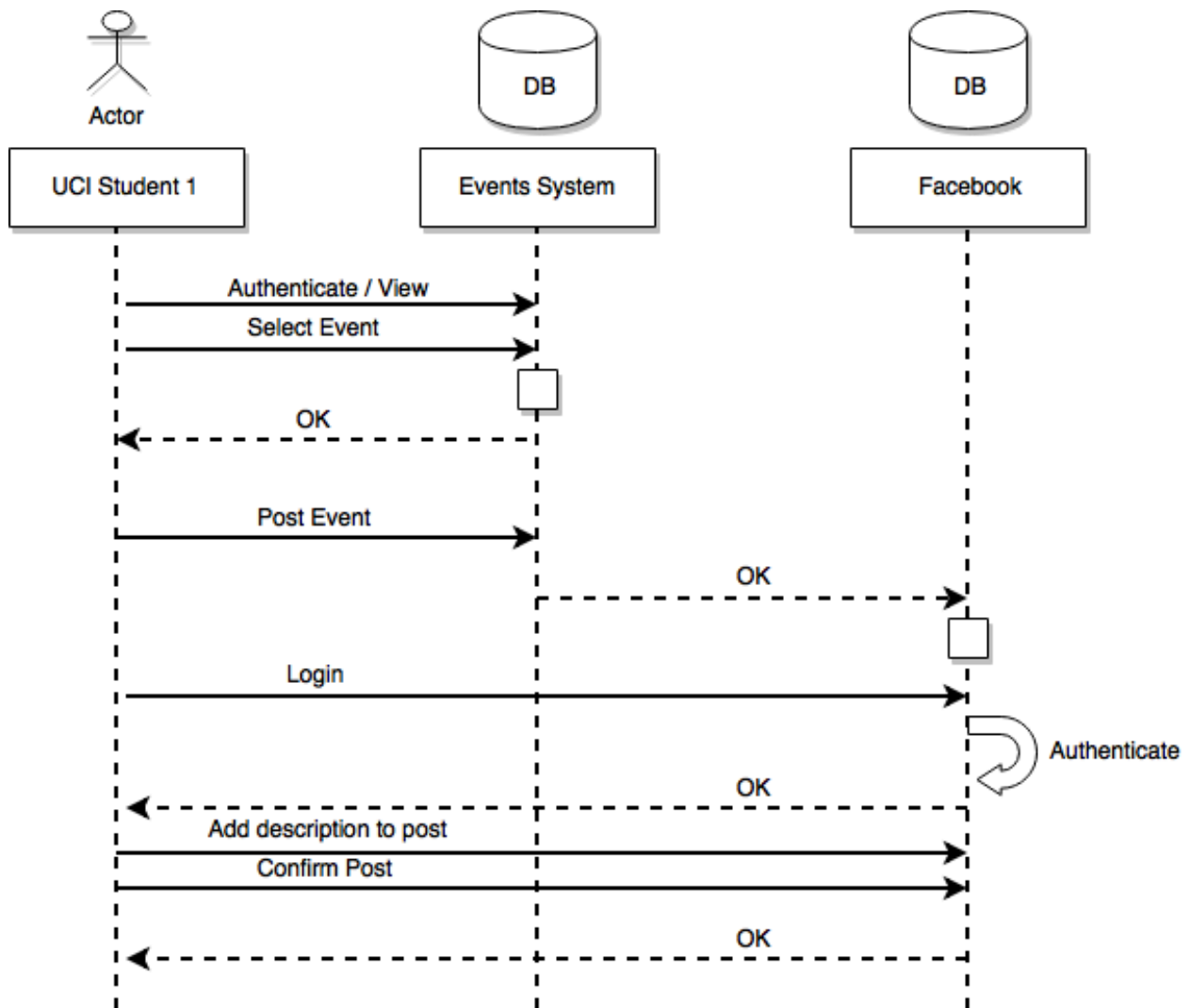
Example: Scenario
- Anthony just got home from a dinner out with his friends from the University Town Center
- He remembers his best bud asking him when the next group workout is at the ARC
- Anthony, excited to hang out with his best bud soon, grabs his phone and opens the ARCHIE app
- He remembers seeing a cool, free workout session that was going to be taught in a few days and decides to send it to all his friends
- He posts the event to his Facebook group that he made with his workout buddies to notify them if anyone is interested
- The ability to discover events and share them straight to his friends' Facebook group makes Anthony's life much easier as he doesn't have to remember the full details of the events whenever he tells friends
- He also loves the ease of being able to integrate Facebook with the ARC events since it makes it easier to schedule workouts
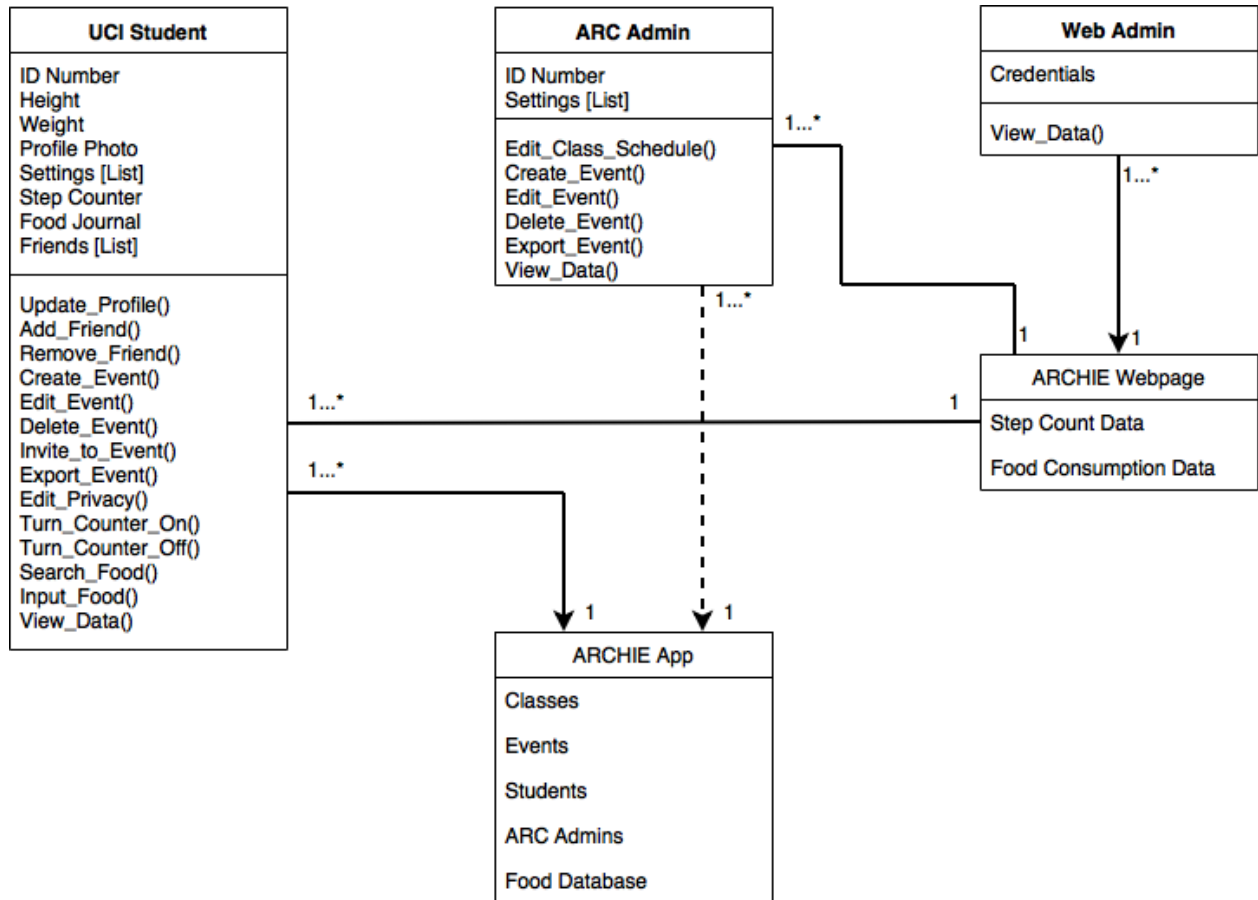
C. Sequence Diagrams

1) UCI Students: Add Friend

2) UCI Students: Export Event to Facebook

D. Class Diagram

UCI Student

ID Number
Height
Weight
Profile Photo
Settings [List]
Step Counter
Food Journal
Friends [List]

Update_Profile()
Add_Friend()
Remove_Friend()
Create_Event()
Edit_Event()
Delete_Event()
Invite_to_Event()
Export_Event()
Edit_Privacy()
Turn_Counter_On()
Turn_Counter_Off()
Search_Food()
Input_Food()
View_Data()

ARC Admin

ID Number
Settings [List]

Edit_Class_Schedule()
Create_Event()
Edit_Event()
Delete_Event()
Export_Event()
View_Data()

Web Admin

Credentials

View_Data()

ARCHIE Webpage

Step Count Data

Food Consumption Data

ARCHIE App

Classes

Events

Students

ARC Admins

Food Database

1...*   1   1...*   1   1   1...*   1...*   1   1...*   1   1

H. User-Interface Design

H1. Wireframes

H2. Mockups

Smartphone ARCHIE Application