CPSC 290 Proposal:

Mobile App to Improve Spring Fling

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1 Overview

Each spring Yale students look forward to the infamous Spring Fling weekend. Famous artists, food trucks, and a variety of festivities all come together on old campus in late April. With thousands of students getting excited for the concert, it can be a confusing time for folks if they are trying to ask a questions about the event, access resources such as calling for help, find a lost item, research who and when artists are performing, and maybe even purchase memorabilia.

Currently, a website for Spring Fling exists; however, it is not appealing on a mobile device and on the day of the event most folks will be using mobile rather than a web browser. There is also a Facebook page dedicated for the event, but it is hard to navigate the posts to find specific information. So, we are looking to create a mobile application which students can use that has the same features, and a few additional ones, as the current website.

I am hoping to collaborate on this project with Alexis Dornan. We have divvied up the tasks and features, so as to help build it faster and to distinguish our work (which will help for the purposes of writing reports for CPSC 290).
will discuss the features I will be working on in this proposal.

2 Project Description

For the project Alexis and I are hoping to create an app which will help organize information related the event and add features to improve the experience of students attending Spring Fling.

The features I will focus on are:

- Yale CAS Authentication
  - Legitimizes the application as being for a Yale-endorsed event

- Admin Authentication
  - Spring Fling committee members can login and have write access to database
  - Will enable administrators to post announcements, add questions to FAQ, change details related to the lineup, etc.

- FAQ Tab
  - Will have clickable questions where answers will drop down

- Resources Tab
  - Will contain buttons to call certain numbers (Yale Police, 911), links to other pages (e.g. spring fling website or facebook page), and possibly a map and other images

- Notifications
  - The notifications will be for large events prior to the day of event and for the day of the concert to remind people when a new act is starting.
Leading up to the event notifications will be for deadline to vote for artists, when the lineup is revealed, reminder for getting wristband, etc.

Alexis will be building separate features on the app. She will be responsible for the home page, lineup schedule with details about artists, and a merchandise shop. I set up a Git repository so we can share our source code and have the project under one roof. Each tab (home, lineup, announcements, FAQ, resources, shop) will have its own folder that we can combine together when needed.

We will collaborate on the learning aspect of this project. Before we start writing serious code will work together to learn how to design an app efficiently. We will also work together on sharing ideas about the things to include on our respective tabs, but we will build them separately.

3 Deliverables

1. Project Report
2. Full project source code on GitHub
3. Screen capture of using the app
4. Description about the process of learning to build an application

4 Implementation and Goals

The reason I started thinking about this project in the first place is because the Spring Fling committee requested a volunteer to help build an app for them. After speaking with a couple friends involved with the committee I realized that I’d definitely be interested working on it. But, I currently don’t have a lot of app development skills and experience. Hence, I thought enrolling in CPSC 290 with this project idea would be a great way to combine building something that
could be of use to the Yale community, in addition to learning a new, valuable skill.

To implement this idea we will first develop an iOS application using swift, and if time permits an equivalent app for Androids using Java.

I will be spending a significant amount of time learning about the app development process. There are many great resources online for this; some of the resources I will use are:

- **Basic iOS Development (Swift):**
  - Apple Documentation:
  - Stanford CS193P (Developing Apps for iOS):
    * https://www.youtube.com/watch?v=71pyOB4TPRE
  - Let’s Build That App YouTube Channel:
    * https://www.youtube.com/channel/UCuP2vJ6kRutQBfRmdcI92mA

- **Database (Firebase):**
  - Firebase Documentation from Google:
    * https://firebase.google.com/docs/ios/setup
  - Tutorial on Firebase from Ray Wenderlich:
    * https://www.raywenderlich.com/3-firebase-tutorial-getting-started

- **Basic Android Development (Java):**
  - Android Documentation from Google:
    * https://developer.android.com/training/basics/firstapp
Utilizing these technologies we should be able to create a working app with a backend to store variable information. The plan is to use the Firebase Database to store all information which has the potential to be changed. This will including storing announcements (long text strings), resource information (names, images, links, phone numbers), artist information (name, image, bio, related links, etc.), schedule info (what times certain artists are preforming), and push notification plans.

With all of this information being stored in the cloud, we can load the app by fetching this data. Thus, it should be simple for the administrators (both me and the Spring Fling Committee) to add details to the app, just by adding to the database. There will be a special Admin Login which will allow certain users to write to the database.

We will create models for the various tabs and build Swift classes which reflect the layout of the database (or vice versa). Our views will be created from a combination of playing around with the XCode storyboard GUI and building them programmatically. Lastly, for each View we will create a ViewController to work as an intermediary between the user, the view, and the model.