Proposal for Senior Capstone Project

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Abstract: For this project, I will complete an app for Cornell College Students that allows them to view Class Schedules, See the weather, see upcoming Cornell Events, View the HillTop Menu, View a Google Map of the college campus, and give quick links to Moodle, Self-Service and the library website. This project will allow me to refine my object-oriented programming skills, and work more with databases. At the end of the project, I will have a fully functional app that works on Android devices and can perform all the functions described above.

# Introduction And Definition

## Introduction

For the Senior Capstone Project, I am planning on creating a

Cornell College Android app that allows students to see local weather, the menu for Hilltop, and events for Cornell College students, including Cornell College events and local Mt. Vernon events. It will have quick links to Moodle, Self-Service, and the library website. I will also implement a Google Maps plugin into the app, that allows users to see an interactive map of Cornell College on the app.

## Project Tools

The project will be completed using Android Studio [1] and MSSQL[2]. The Android Studio app code will be written using the Kotlin Programming language [3], which has excellent support for Android Studio. The SQL server will be an online database that the app will connect directly to and read and write from.

## Deliverables

The final product will be a basic, yet fully functional app that works on at least Android Devices. As described above, it will allow students to see local weather, view the menu for Hilltop, see events for Cornell College and local Mt. Vernon events, and have quick links to Moodle, Self-Service, and the library website. It will also have a Google Maps Plugin. This product will be completed in Block 7 of 2025, and should take around 150 hours to complete, or less.

## Why Do This Project?

I want to create something that is useful and could have real-world applications if developed fully. I want the project to showcase skills I have learned in the past 4 years and skills I have learned on my own. But, most importantly, I want it to be a project I can be proud of and show to employers to showcase my skills. This is why I chose Kotlin instead of Java [4], which is a language I am more familiar with, as Kotlin is used much more frequently in actual software development as opposed to Java, due to huge security concerns and ease of exploitability with Java. I worked on a larger, yet similar project before but was only part of the back end and only created controllers for the front end to connect to the back end. I had no clue how the front end worked. Maybe if I create a full, workable version with actual student data it could be used by Cornell Students! An exciting prospect.

# Features

## Local Weather

Blah blah blah

## Hilltop Menu

Blah Blah Blah

## Events

Blah Blah Blah

## Quick Links

Blah Blah Blah

## Google Maps

Blah Blah Blah

# Exisitng/Related Work

## Iowa State University MyState App

During my time at Iowa State, I used an app developed by Iowa State Alumni called MyState[5]. It was an app designed specifically for Iowa State Students. It shows users the local weather, the bus routes for the city of Ames, dining center hours, the location, and menu of the day, and local events. It also has additional widgets that can be added which include a radio widget that connects to 88.5 KURE, a directory widget that allows users to look up Iowa State University faculty, a widget that connects to the Iowa State University library, and a news widget. It works on Android Devices and Apple Devices [6].

## Similarities and Differences

My app will be designed specifically for Cornell College students, as opposed to MyState, which is designed specifically for Iowa State students. Many features are similar, such as local weather information, dining center information, and local event information. Both apps will run on phones, and both apps were created with Android Studio. However, there are also some notable differences, such as a bus route information feature on the MyState app. The Cornell College app will not have this feature, as there is no bus in Mount Vernon. The radio feature on the MyState app will not be present in the Cornell College app, as I do not have the skills to create an app that can connect to radio frequencies. There will also not be a staff directory feature on my app, as there is considerably less staff at Cornell College compared to Iowa State University. Another difference is that the Cornell College app will link to Moodle, which is the online learning platform for Cornell College, while MyState does not link to Canvas [7].

# Risks and Timeline

## Risks

Blah Blah Blah

## Timeline

|  |  |
| --- | --- |
| Day | Objective |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |
| 11 |  |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 18 |  |

# What has been done?

## Installed needed Programs

Android Studio has been installed and Gradle has been installed, configured, and tested, as well as all needed Android phone emulators. I also connected my personal phone to be used with Android Studio, which will allow me to see how the touch controls work. SQL and SQL-Server have been installed and a server has been created and successfully connected to directly.

## Learned Android Studio

I have also been learning Android Studio[1], I am familiar with and almost proficient in Kotlin, the programming language used by Android Studio. I have been learning how to implement various GUI elements in Android Studio, such as buttons and displaying text and links, etc. I expect to be proficient enough in Kotlin to complete the project before Block 7.

# What More Needs To Be Learned?

I need to learn more about how I'm going to connect Android Studio to my SQL Server. I've watched some videos on how to do so, but I haven't actually tested it out yet. In a similar project two years ago, we used SpringBoot Java code to create controllers that allowed the front end to access the back end. I was in charge of writing the controllers for SpringBoot for the project, but I have forgotten how it was done and the source code has been lost. I may need to reach out to old teammates to see if they have the old code or remember more about the project. I need to learn if I should use Spring Boot for this project, or if there is something else that would be better to use to connect to the SQL server. Also if I do use SpringBoot, I would need to relearn it. As a summary… (This section will change during drafts as more is done).

* Test connecting Android Studio to SQL Server.
* Reach out to old teammates to acquire source code for previous projects for reference (if possible).
* Review SQL.
* Review Spring Boot (if going to use).

# Who Is This Project For?

The app is designed specifically for Cornell College students. Originally, I was planning on making it available to all Mt. Vernon Residents, but I struggled with finding possible functions for the app that would be applicable and useful for both Mt.Vernon residents and Cornell College Students. However, this project is mostly for myself, as I want to use it to showcase my skills.

# Summary and Conclusion

The final product is an Android Studio app created using Android Studio, Kotlin, and SQL. Programs needed to complete this project have been installed, and Android Studio skills are proficient or will be proficient before Block 7. I did this project because I want to create something that showcases my skills to employers. I need to work on testing a connection between Android Studio and an SQL Server and reach out to old teammates to see if I can acquire source code. I also need to review writing SQL queries and Spring Boot, if I plan to use it. More still needs to be learned before I can start the project, but I fully believe as long as I continue to learn more applicable skills and knowledge for this project in the coming months, I can complete this project during Block 7 next year. With this project, I can showcase skills learned during my time in college and skills learned on my own to supplement my college curriculum.