**Senior Project Proposal**

**Department of Computer Science**

**Calvin College**

Title: Calvin Scouting Report

Author: Ethan Clark and Mitch Stark

Date: September 26, 2017

Mentor: Professor Victor Norman

Honors Project: n/a

# Vision and General Overview of Proposal

## Background and Problem

The issue we are trying to address with this project is the lack of simple, convenient methods to produce a scouting report on athletic teams in the MIAA Conference.

## Brief Description of Solution Being Provided

The solution that we are going to provide is going to be a simple, convenient, time-saving application that produces scouting report like information about MIAA Athletic Teams. We want to include at least two sports in the application; more if time-permitting.

## Your Interest and Qualifications

Our main interest in this project is because Mitch is on the soccer team at Calvin and believes this tool could be useful for both coaches and players at Calvin College. Ethan is passionate about sports and wants to take a further dive into combining programming with athletics. Ethan and Mitch are both seniors at Calvin College with programming experience in front-end programming (for the user interface experience) and back-end programming (data analysis and databases).

# Mentor Selection, Expert User and Collaboration

The mentor for this project is Professor Norman. Professor Norman is Mitch’s academic advisor and he frequently attends sporting games at Calvin College. Since Mitch Stark is on the soccer team at Calvin, we are planning on collaborating with Coach Ryan Souders about specifically the user interface experience portion of our project and what data/information he thinks would be useful for a soccer scouting report. Based on the other sport(s) we want to incorporate, we may meet with other coaches at Calvin to discuss their ideas of useful data/information. Depending on time availability, we may meet with Calvin student athletes to discuss their ideas on user interface experience. The only dependency we have on outside sources would be finding meeting times to meet with these coaches.

# Development Approach

In regards to development of our solution, we think our development will combine a phased approach and an iterative approach. We know the back-end development will need to be the first phase as we scrape data from the MIAA team websites, analyze the data, and then store it in a database. Once we have a good handle on the foundation of the back-end, we will perform a more iterative approach where we produce results every certain time interval, receive feedback from advisor, users, etc., and then repeat the process. The iterative approach will include both front-end development and then modifying the back-end development as needed.

**Development Timeline:**

* October 6: Finalize Back-End & Front-End Development Plan
  + Web Scraping Language/Library
  + Database
  + Front-End Language/Library
* October 20: Working web scraper prototype
* November 3: Database Schema & Populating Database
* November 17: Finalize Front-End Layout & Begin API Development
* December 1: Finalize Front-End API Development
* December 15: Front-End CSS & Project Status Report
* January: Tentatively off (unless bored)
* February 9: Plan Data Analysis
* February 23: Continue Work on Data Analysis
* March 9: Finalize Analysis of Data
* March 23: User Testing
* April 6: Updates to App from User Testing
* April 20: Research into App Extendables
  + PDF
  + Other
* May 4: Finalize All Development & Prepare for Presentation
* May 18: Final Deliverables

# Quality Assurance

## Critical Delivery Dates

September 30: Submit Project Proposal

December 5: Senior Project Progress Report Presentation

December 15: Project Website Draft

Project Status Report

February: Second Status Report

May: Final Senior Project Presentation

May 15: Final Deliverables

## Reviews

We will do code reviews with each other (through either paired-programming and pull requests in GitHub) and potentially Professor Norman.

## Testing

Our approach to testing will be to do lots of internal testing for the back-end system and external testing for our front-end system(s). We will create a test plan for the back-end system(s) during this fall semester and a test plan for our front-end system(s) during the spring semester.

# Resources

|  |  |  |
| --- | --- | --- |
| **Resource** | **Source/Provider** | **Cash Cost** |
| n/a | n/a | n/a |
| n/a | n/a | n/a |
| n/a | n/a | n/a |
| **Total Cash Cost** | ------------------------------ | $$$$ |

# Risk Analysis

|  |  |  |
| --- | --- | --- |
| **Risk** | **Exposure Analysis** | **Mitigation Strategy** |
| Do you have a dependency on others completing work for your project to be a success? | No | N/A |
| Is there any doubt about the availability of financial resources? | No | N/A |
| Do you have a dependency on an expert user to provide advice and who may not always be available at critical times? | Yes, looking for usability advice from Coach Ryan Souders and maybe other coaches or student athletes. | Plan ahead accordingly. Schedule times well in advance to meet with coaches or student athletes. |
| If success depends on testing by an outside source, are there any barriers to completing testing? | N/A | N/A |
| Will this project involve new skills for you? | Yes, some sort of programming language/libraries for data analytics. | Dedicate time during fall semester to researching/learning the language that we decide. |
| Will there be anything preventing you from investing at least twenty hours a week on this at a minimum? | No | N/A |
| Is there any potential of physical resources you have listed of not being available? | Potentially: Hosting either Database or Web Scraper or Front-End | Depends on chosen languages/resources on where they may need to be hosted |
| Other |  |  |