CMU Athletics: PlaidFit

Executive Summary

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Background

The organization that we are working with during the semester is CMU Athletics. This organization is based right here at Carnegie Mellon University in Pittsburgh, PA, and provides many student-athletes the opportunity to participate in their sports at a collegiate NCAA Division III level. The Carnegie Mellon Athletics training staff is in charge of the overall well-being of the varsity athletes on campus, while optimizing their players for peak athletic performance. Each varsity sports team has an athletic trainer that maintains the physical health of the players. These trainers offer medical assistance to all players throughout the year.

Recently, the CMU Athletics training staff, led by Adam May, has been moving towards a more data-driven approach. A research study conducted by Dr. Francois Gazzano articulates the relationship between the physical and daily stress loads on athletes. CMU Athletics is trying to move towards maintaining the health of their athletes using this research, as practice load, stress, and wellness are significant influencing factors on the performance of their athletes.

CMU Athletics aims to ingrain positive values into the lives of the student-athletes, such as integrity, wellness, competitiveness, leadership, and community. Many steps are taken to train each student-athlete to live out and demonstrate those values in whatever they do. One of those key steps is an application that monitors student-athlete wellness and fitness statistics before and after each practice. With an upgrade to their application, the athletic training and coaching staff could then apply automated analytics and more effective training for the student-athletes to keep them performing at their greatest potential.

Project Description

Project Opportunity

The problem facing CMU Athletics is the quality of their process and current health application. Their current way of gathering data from athletes is clunky and poorly designed for the user base. They are unable to get any true data analysis from this application due to lack of use and user centered development, and in order to make any progress with the analysis, a new, re-designed, responsive application needs to be developed. We hope to develop a much more user-friendly and interactive application so that the athletes are more willing to open up the app to take surveys. We also plan to develop a desktop dashboard for coaches and trainers to see data and analytics, and then come up with their own conclusions with the data. With all these newly developed features, athletes

will have a much more streamlined product to use and the athletic training staff can have a more efficient way to analyze the data.

Project Vision

Our vision is to set up a user-friendly series of applications that replace the current health application used by the CMU Athletic department and its athletes. These applications aim to solve a few key issues present in the existing app: incentive for athletes to use it, data analytics provided to coaches and trainers, as well as improved user interface for all users. Essentially, this app would track numerous different variables (sleep, fatigue, hydration, etc.) and will monitor the health/performance of athletes. The data analytics done by the application will be based off of research in the Sports-Medicine industry in order to provide optimal metrics for the department.

Project Outcomes

Our project outcomes include the backend Rails API, the desktop dashboard portals for coaches and trainers using Vue.js, and the mobile applications for athletes on both iOS and Android platforms. We conducted many user tests with athletes and have gotten feedback that has been very helpful to our development. We also have had a presentation to the CMU athletic training staff as well as the coaching staff. During this presentation, we talked about the progress we made, our solution to their problem, and demoed the desktop dashboard that they would see.

Project Deliverables

Our deliverables include an API built with Ruby on Rails, a desktop dashboard portal for both coaches and trainers, and a mobile iOS application for athletes. Our data and database structure is all stored in the back-end API. The desktop and mobile applications will both fetch data from the API and present it to the user as well as add to the database whenever necessary.

Recommendations

In order for the CMU Athletic department to be successful in using our solution, they need to make sure that they use it every day in their system. While each athlete's sport season is in session, they should complete the Daily Wellness survey each day as well as the Post-Practice survey after each practice they have. This will give their coaches and trainers accurate and complete data and will allow those coaches and trainers to make the proper decisions to ensure that all athletes are healthy and are performing at their greatest potential.

Student Development Team

Winston Chu served as quality assurance manager and led frontend development. He is a third-year student majoring in Information Systems and plans to graduate in May of 2019. He is interning at Salesforce this summer and hopes for a career in software engineering and application development.

Alec Lam served as project manager, and led database, design, and backend development. He is a third-year Information Systems and Computer Science student expected to graduate in May of 2019. He will be with Apple's CoreOS team this summer and looks to pursue software engineering.

Aathreya Thuppul served as the client relationship manager and led the iOS development. He is a third-year Information Systems and Business student aiming to graduate in December of 2018. He will be interning at JPMorgan Chase & Co. this summer and aspires to be an investment banker.