Heart Screening Management System: Semester 1 Plan

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Motivation

- Sudden cardiac arrest (SCA) is the 2nd most common cause of death in youth and the leading cause of death for student athletes on school campuses.
- The common approach of a simple history and physical examination is not effective at detecting potentially fatal cardiac abnormalities in young adults
- Standard physical examination misses over 96% of those at risk for SCA.

Goal

- Increase the use of ECG screenings in American high schools to minimize preventable SCA deaths in student athletes.
- This will be done by replacing Who We Play For (WWPF)'s current heart screening program with a management system that provides event scheduling tools, ECG collection, and results delivery.
- The current system is centralized in Florida. We want the new system to be scalable for use across all of the United States.

Key Features

- On-site registration
  - QR code registration
- Scalable event scheduling and management
  - Directors can create and manage events
  - Participants/Volunteers can register for events online or in-person
- Automatic results delivery
  - Text message and email notifications

Novel Features

- Text notification system
  - Text notifications for reminders the day before and low-risk results delivery
  - Current system only allows manual sending of emails
- Volunteer sign-up system
  - The current system does not have a role for volunteers yet, making it difficult to manage them
  - Current roles include director, participants, accountants, and admins

Technical Challenges

- Unfamiliarity with JavaScript and relevant frameworks (NodeJS and VueJS)
- Limited knowledge of Amazon Web Services (AWS)
- Handling sensitive information and money properly
- Unfamiliarity with existing codebase for the project
- Getting familiar with specific testing tools and test driven development development (TDD)
  - Test-driver: Mocha
  - Assertion Library: Chai

Milestone 1

- Provide a demo using the selected AWS tools
- Provide demo for test tools, Mocha and Chai
- Resolve technical challenges
- Compare and select collaboration tools
  - Gitlab, Github, Slack, Discord, Google Drive
- Create a requirements and design document
- Create a plan for testing
- Create payment management system
  - Allow finance person to search payments by:
    - Participant
    - Event
    - Date
    - Date range
  - Ability to export payments to spreadsheet
- Implement appointment rescheduling functionality

Milestone 2

- Implement, test, and demo online private event functionality and onsite registration
- Implement, test, and demo secure participant retrieval of ECGs

Milestone 3

- Implement, test, and demo a volunteer role
  - User interface and backend
  - Make it easy for volunteers to sign up for events

Questions?