

# **Mass Academy Online Attendance Tool**

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01

# Goals, Objectives, and Requirements

# Description

**This project aimed to convert the current method of attendance at Mass Academy into an all-digital format. I developed a system to check whether a student was in the building and if so, securely sign them in.**

# Formal Requirements

The system should use a database to store a log of the times that each student signed in and signed out.

**01**

The system should determine whether the student is in the Mass Academy building.

**02**

The system should be able to convert attendance data into an excel/PDF format for record keeping.

**03**

02

# Project/Software Design

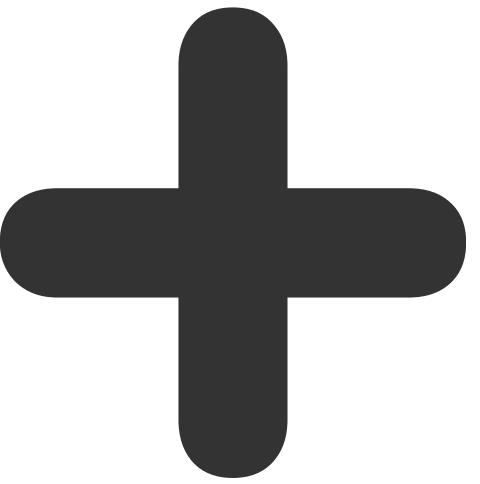
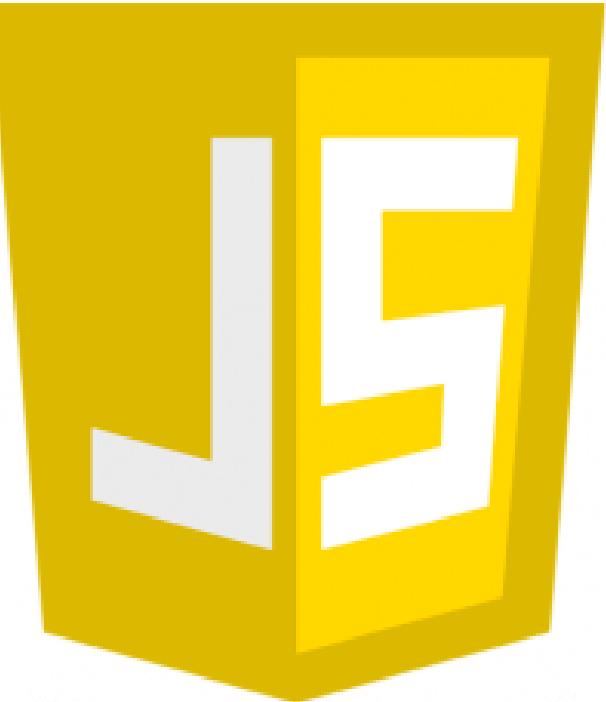


# Backend - Firebase

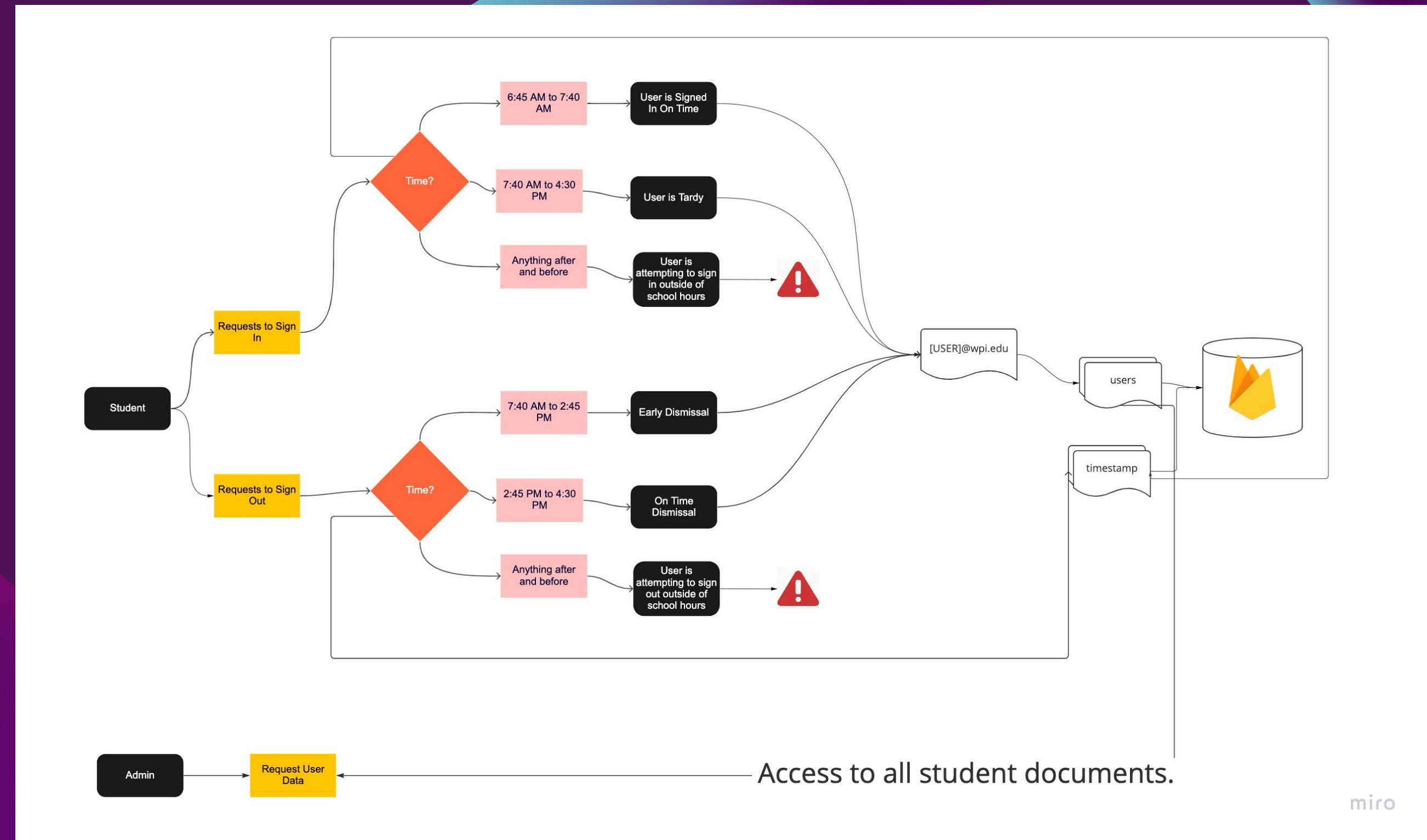
- Google-backed application development software
- Provides a NoSQL database for free
- Provides tools for tracking analytics, reporting and fixing app crashes, and creating marketing and product experiment.

# Frontend - JS + Bootstrap

- Front-end was a web application.
- Javascript is an interpreted, scripting language that is known for interoperability, extended functionality, and versatility.
- Bootstrap is a free and open-source CSS framework directed at responsive front-end web development.

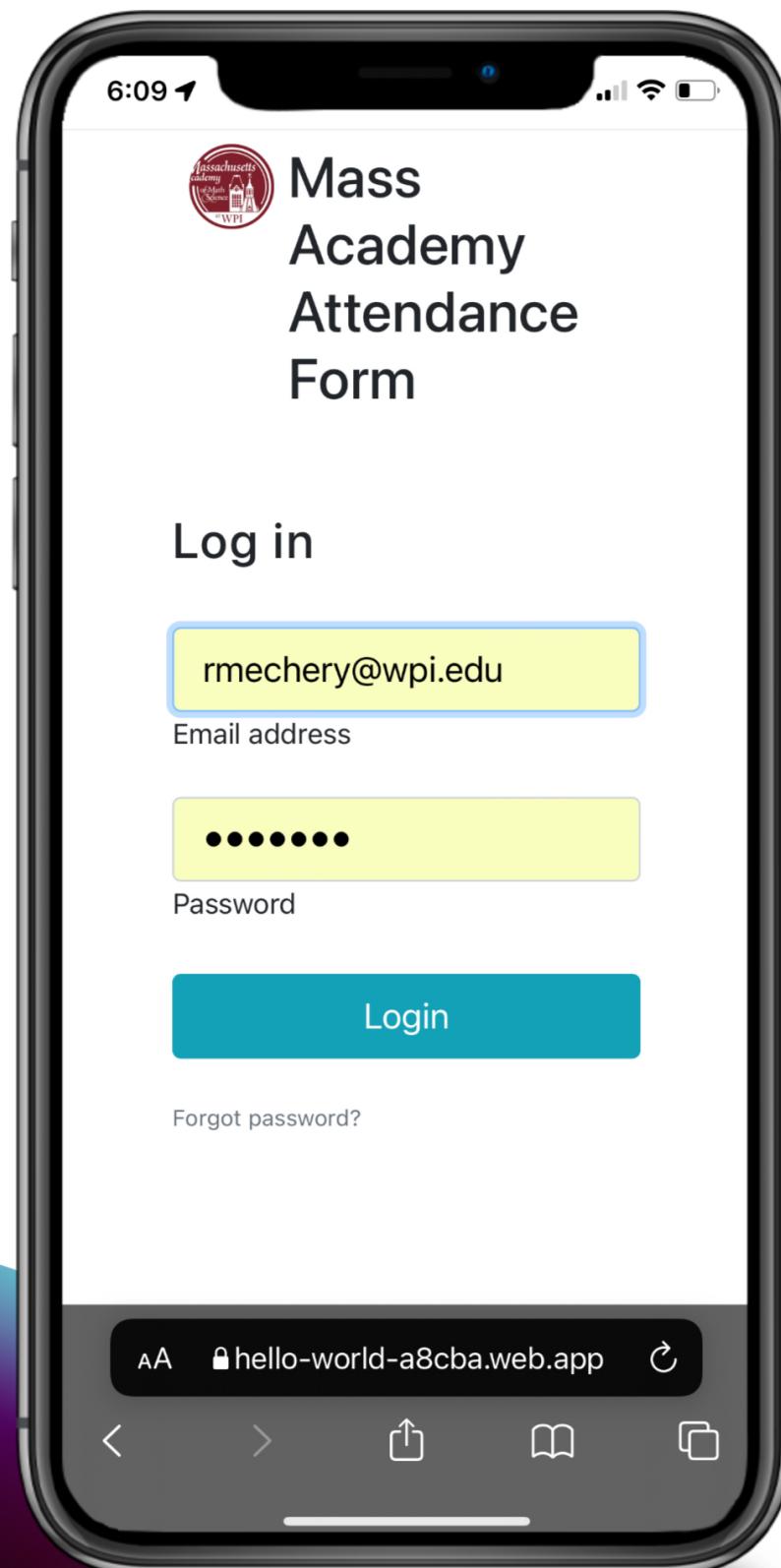


# Data Flowchart

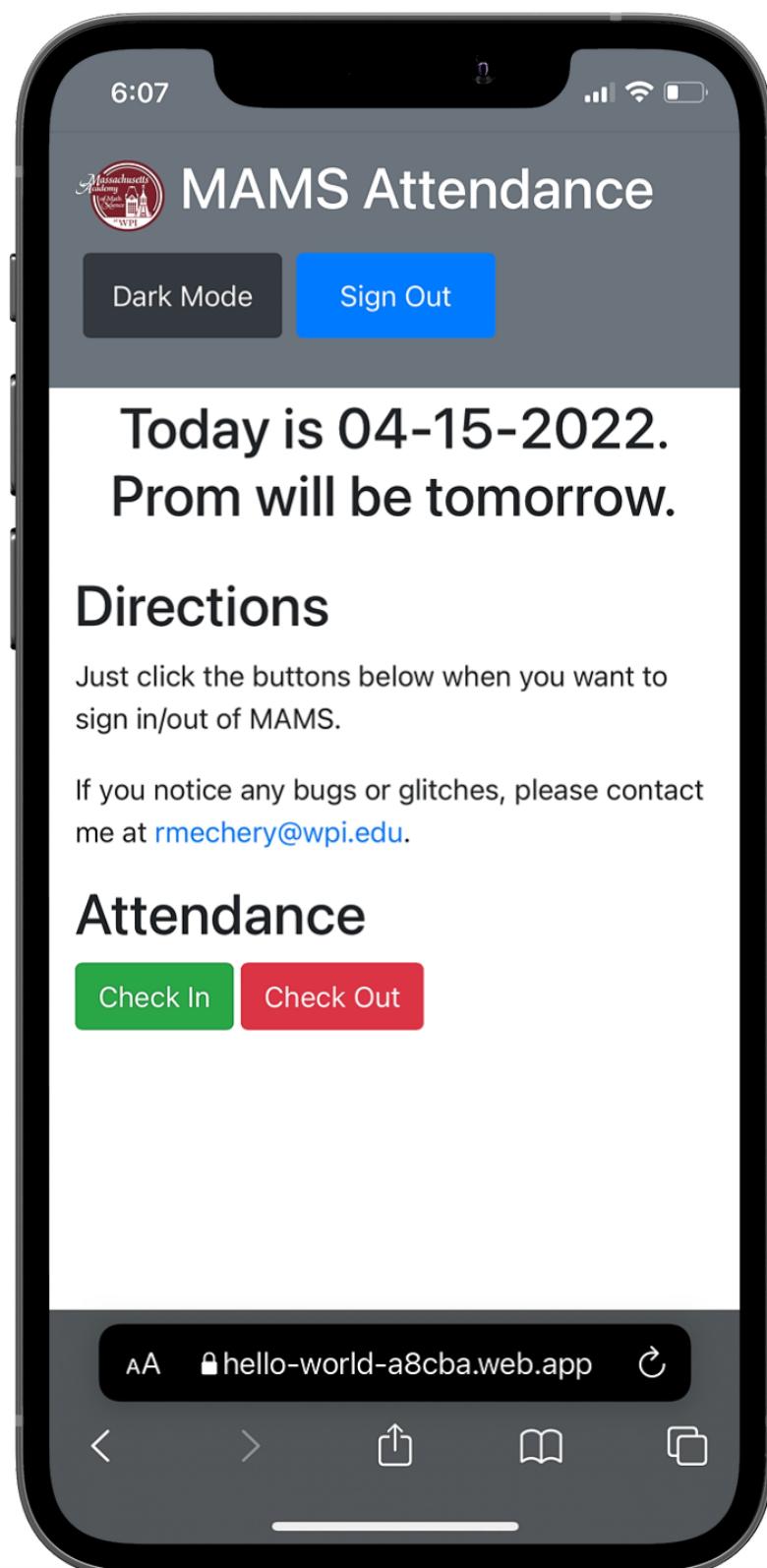


# User Interface

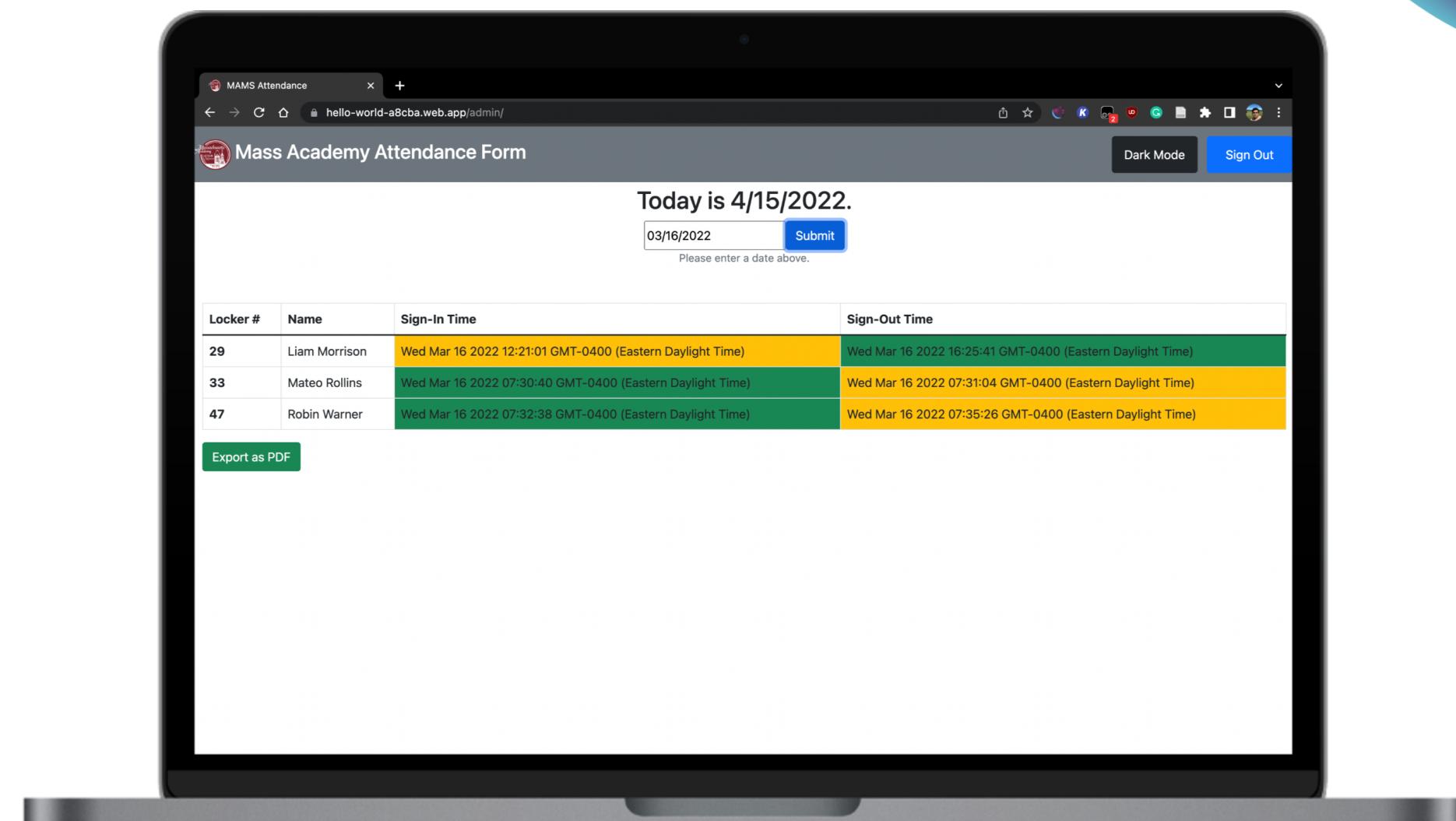
Login Page



Student View



Admin View



03

# Testing

# Location Detection

## Trial 1: Geolocation

- The original method of detection was to analyze geocoordinates to determine the location of the user.
- After experimenting with the testing group, this method was found to be unusable.
  - The website would've required browser permission for tracking the user.
  - The location accuracy was far too low meaning that the user would've been able to sign in 3 blocks away.

## Trial 2: Network Detection

- This method tries to detect the network the user is on rather than their location.
  - If the user is logged onto WPI-Wireless, they should be within the same location.
- After experimenting with the testing group, this method worked consistently.
- The only drawback is that the wifi changes their public IP address every couple of months.

Live Demo

# Thanks for listening!

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## Any Questions?