# **List of Non-Functional Requirements**

## Interoperability Requirements

Browser Compatibility – The system will be a we-based web app that operates on major browsers, including Google Chrome, Mozilla Firefox, Safari, Opera, Brave, and Internet Explorer.

Operating System Compatibility – The system will operate on multiple operating systems, including Windows, Linux, and OS X.

Mobile Operating Sytem Compatibility – The system will operate on all major mobile operating systems, including iOS and Android.

## Storage Requirements:

Back-End Maximum Database Load:

* *Storage Capacity* – 1 GiB
* *Document Reads* – 50,000 per day
* *Document Writes* – 20,000 per day
* *Document Deletes* – 20,000 per day
* *Network Egress* – 10 GiB per month

Back-End Usage Load for Authentication and Authorization:

* *Daily Active Users* – 3000 per day
* *SMS Sent* – 10 per day per user
* *Multi-Factor Authentications* – 10 per day per user

## Security Requirements

Our user authentication/authorization system will maintain the private integrity of site users’ academic information and preferences on an individual basis. When a user creates an account or changes their password.

Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app. It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more. The Firebase Authentication software development kit (SDK) provides methods to create and manage users that use their email addresses and passwords to sign in. Firebase Authentication also handles sending password reset emails.

Firebase Security Rules leverage extensible, flexible configuration languages to define what data your users can access for Realtime Database, Cloud Firestore, and Cloud Storage. Firebase Realtime Database Rules leverage JSON in rule definitions, while Cloud Firestore Security Rules and Firebase Security Rules for Cloud Storage leverage a unique language built to accommodate more complex rules-specific structures. Firebase provides a rule-based access control system that allows developers to enforce fine-grained access control to data stored in Firebase services. Use these rules to restrict access to sensitive data and ensure that only authorized users can access.

## Supportability Requirements

Coding Standards – Our system will be coded in a range of 75-80% of coding standards for HTML 5 and CSS3. The code will be routinely reviewed, tested, and validated via third-party compliance software.

Naming Conventions – HTML classes and id tags will be coded in lowercase except in naming situations involving multiple words, for which the camelCase convention will be applied. Firebase collections, documents, and fields will also adhere to this convention.

## Availability Requirements

Accessible Times – Our system should be available for use 24 hours per day, 7 days per week, unless catastrophic unforeseen circumstances arise due to our application being hosted upon GitHub.

Downtime Impact – General downtime will be largely non-existent, save for brief events in which our team updates the software, which should only result in about 5 to 10 minutes of unavailability.

Support – There will be a support feature accessible via the navigation bar which will pull up a template that allows the user to express concerns/report bugs which will automatically be routed to the team’s email account.

# **High-Level System Architecture**

## Visual Studio (IDE)

* Hyper Text Mark-up Language (HTML) – will be the language that will allow the browser display the website
* Cascading Style Sheets (CSS) – will be the language used to decor the web pages
* JavaScript – language used for client side funcitonality that will be handled for User Interface (UI) needs to make the user experience enjoyable
* jQuery – a fast, small, and feature-rich JavaScript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers.
* Bootstrap – a front-end framework that is used to create responsive, flexible, and mobile-first websites, which means that web pages created with Bootstrap will automatically adjust their layout and content to fit different screen sizes and resolutions.. It provides a set of pre-designed HTML, CSS, and JavaScript components, such as buttons, forms, menus, and modals, that can be easily customized and integrated into web pages.
* chart.js - provides a set of frequently used chart types, plugins, and customization options. In addition to a reasonable set of built-in chart types, you can use additional community-maintained chart types . On top of that, it’s possible to combine several chart types into a mixed chart (essentially, blending multiple chart types into one on the same canvas).
* FullCalendar – a JavaScript library that provides a full-featured calendar solution for web applications. It allows developers to easily create and customize interactive calendars, with support for events, scheduling, and more.

## GitHub/Git

A web-based platform for version control and collaboration that is widely used by software developers to manage and share their code. It provides a centralized location where developers can store their code, track changes, and collaborate with others on projects. At its core, GitHub is based on the Git version control system, which allows developers to create and manage multiple versions of their code. Developers can use Git to create "branches" of their code, which allow them to work on different features or aspects of a project independently. They can also use Git to "merge" changes from different branches back into the main codebase.

## Firebase

Backend framework developed by Google which allows for automated authentication, authorization, and database functionality using NoSQL.

## Jira

Software application that allows teams to track issues, manage projects, and delegate tasks.

## Discord

Primary internal communication application between team members.

## Canvas

Primary external communication application between team and instructor for upcoming Milestone assignments and deliverable requirements.