

FrogFit

Version 4.1



REQUIREMENTS DOCUMENT

Texas Christian University

May 5, 2015

Revision History

The following is a history of document revisions.

Version	Changes	Edited
Version 1.0	Initial Draft	October 31, 2014
Version 1.1	Formatting and content in each section	November 6, 2014
Version 1.2	Reworded introduction, Overall description.	December 7, 2014
Version 2.0	Changed Glossary, added Prototypes	January 31, 2015
Version 2.1	Prototypes put in order, Glossary Changes	February 18, 2015
Version 2.2	Fixed table of contents, updated system architecture diagram	March 17, 2015
Version 3.0	Fixed table of contents, added references, grammatical/spelling changes	April 26, 2015
Version 4.0	Fixed table of contents	May 4, 2015
Version 4.1	Remove .0, grammar fixes	May 5, 2015

Revision Sign Off

By signing the following, the team member asserts that he has read the entire document and has, to the best of knowledge, found the information contained herein to be accurate, relevant, and free of typographical errors.

Name	Signature	Date
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1 Introduction

1.1 Purpose

The purpose of this document is to provide the requirements for the FrogFit application, website, and database. This includes but is not limited to mobile and web prototypes, use case diagrams, and other descriptions required to provide a detailed description of the project requirements.

1.2 Intended Audience

This document is intended for the use by the FrogFit development team, TCU faculty supervising the project, Chalkbucket Labs management, and any other stakeholders with interest in the FrogFit application suite.

1.3 Scope

FrogFit is designed to help Crossfit athletes identify their fitness strengths and weaknesses. This will be done by generating an overall fitness score derived from individual benchmarks that are compared to the athlete's own workout records. These workouts are designed to create a better all-around athlete capable of completing exercises/events that cover multiple categories of athletic fitness. This score will help athletes improve their key training emphasis by identifying areas that need to be improved.

1.4 References

References used during the development and implementation of FrogFit can be found at the following links:

Android - www.developer.android.com

Asp MVC 5 - www.asp.net/mvc

Charts - www.chartsjs.org

Crossfit - www.crossfit.com

SQL Database Queries - msdn.microsoft.com

Web API - www.asp.net/web-api

1.5 Overview

Section 2 – Description – Lists the basic functions of the project along with user traits and constraints.

Section 3 – System Architecture – System Diagram explaining the basic structure of the FrogFit system.

Section 4 – External Interface Requirements – Describes external constraints on the system.

Section 5 – Functional Requirements – Describes all of the functions the system will perform.

Section 6 – Nonfunctional Requirements – Describes constraints on the system.

Section 7 – Glossary – Definitions of terms throughout the document.

2 Overall Description

2.1 Product Perspective

FrogFit is a system designed to provide Crossfit athletes with a categorical and overall fitness scores. These scores combined with their corresponding confidence scores allow athletes to identify their strengths and weaknesses in the eight measured fitness categories. Athletes and coaches will be able to view current and historical data, both numerically and graphically. This information will help athletes and coaches generate personalized workout plans.

2.2 Product Functions

FrogFit includes an Android app that accesses a Microsoft SQL database Server containing the athlete's individual data and profiles. In addition, an ASP.NET web interface provides coaches the ability to access each athlete's information that attends their gym. A RESTful Web API will be used for communication between the web and Android layers with the database.

2.3 User Characteristics

FrogFit will be designed for athletes who compete in Crossfit workout plans and are interested in actively tracking their workouts. These athletes need an Android device with internet connectivity. FrogFit is also designed for coaches who oversee Crossfit athletes and have a device that is internet capable with a web browser.

2.4 Constraints

- *Time Constraints:* End of school year limits development time.
- *Data, Storage, and Reporting Constraints:* Limited storage space and computing power of mobile devices.
- *Client Constraints:* Distance and availability of client.
- *Communication Limitations:* The app and website are required to have internet access for communication with the database in order to transfer data.
- *Hardware Limitations:* The app is only available for Android (API 15) and above.

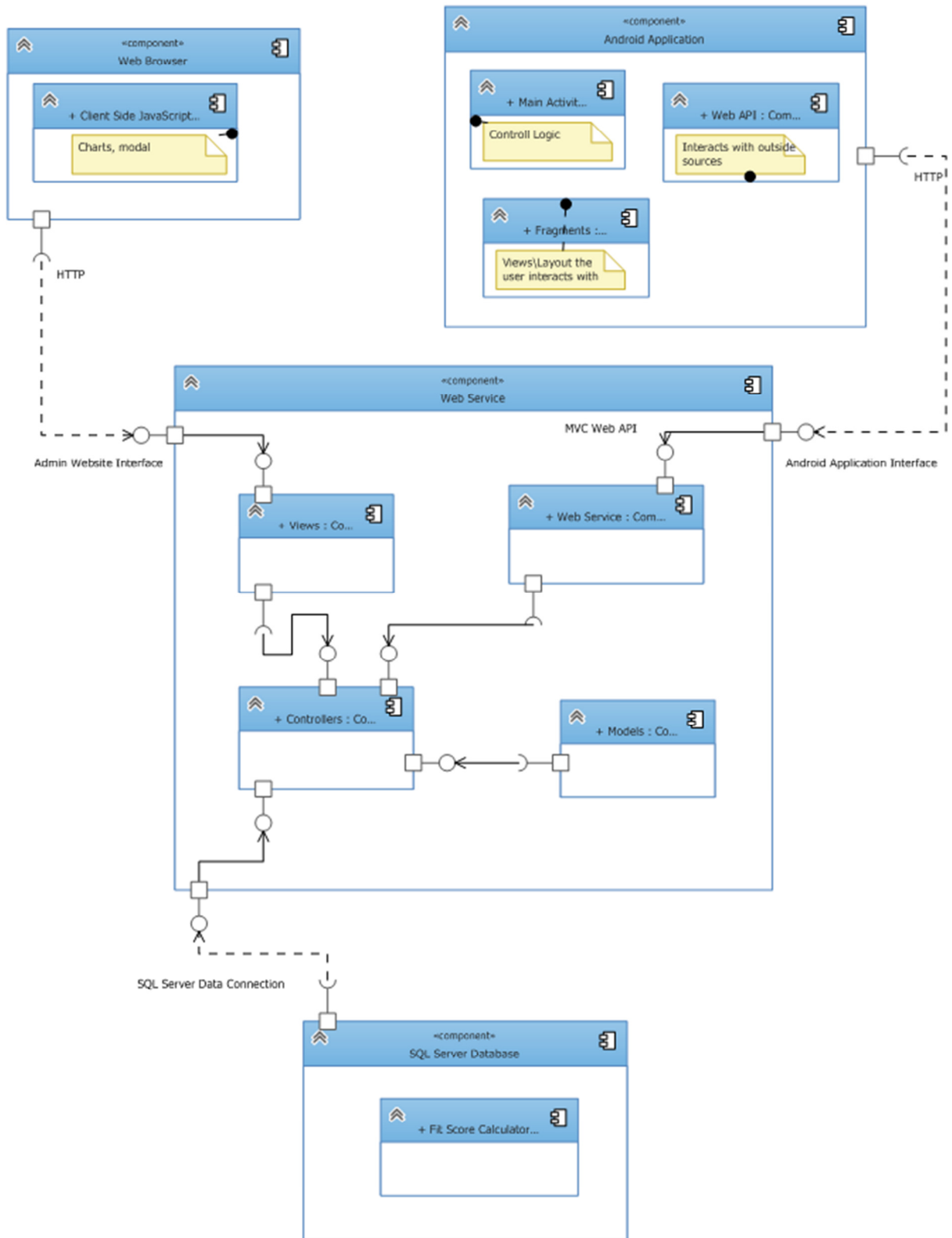
2.5 Operating Environment

FrogFit includes a website and mobile app that allows users to save and obtain fitness related data from the FrogFit database. Both client portals, the mobile app and website, must have Internet connectivity in order to communicate with the system.

2.6 Assumptions and Dependencies

FrogFit assumes the user has an Android device and the gym administrator has access to a web capable device. It also assumes that appropriate data will be created and inputted on a regular basis.

3 System Architecture



4 External Interface Requirements

4.1 User Interfaces

Mobile - The application will be available to Android mobile devices. See mockups in Appendix C.

Web - The gym administrators will be able to access the user interface through devices with Internet access and a web browser installed. See mockups in Appendix D.

4.2 Hardware Interfaces

The website is accessible on devices that are web capable. The mobile application is accessible from Android devices. The database must be hosted on a Windows SQL Server.

4.3 Software Interfaces

4.3.1 Web Browser

The web interface will be modeled after the Chalkbucket Labs site styling. The web interface will allow gym administrators to view, insert, edit, and delete workouts, workout data, athlete profiles, and gym information. The gym administrators will also be able to perform any tasks through the website that may be performed through the mobile application.

4.3.2 Android Application

The mobile application will allow athletes to view, insert, and edit personal workout data and information. The app will also allow athletes to delete their own workout information.

4.4 Communication Interfaces

The system's Web API will be the main interface of communication between the mobile applicaiton and database as well as the website and database.

5 Functional Requirements

5.1 General Requirements

5.2 Website Interface Requirements

- Coaches are required to login for each session.
- Coaches are able to create profiles for new athletes.
- Coaches are able to view, insert, edit, and delete athlete's gym profiles.
- Coaches are able to designate WODs.
- Coaches are able to view, insert, edit, and delete athlete's logged workouts.
- Coaches are able to view athletes' categorical scores of each workout.
- Coaches are able to view gym leaderboards.
- Coaches are able to edit benchmark data.
- Coaches are able to print gym and athlete reports.

5.3 App Requirements

- Athletes are required to login for first use.
- Athletes are able to edit profile data.
- Athletes are able to view, insert, edit, and delete workouts.
- Athletes are able to compare fitness against gym median fitness.
- Athletes are able to view their overall fit score and confidence score.
- Athletes are able to search for specific workouts.
- Athletes are able to view gym leaderboards.

5.4 Database Requirements

- Database access is handled through Web API.
- The application can query the database for individual athlete results.
- The application can query the database for entire gym statistics.
- The database stores workout data for both individual athletes and the gym as a whole.
- Coach can query and edit data for each member.

5.5 Profile Requirements

- The user profile includes: name, age, gender, and class.

6 Non-Functional Requirements

6.1 Product Requirements

- The database is Microsoft SQL Server based and will be the central data holder for both the web application and Android application.
- Reliable communication between the database, web application, and Android application is needed for data transfer.
- Speed of the Android application and web interface helps with ease of use and efficiency of data entry.

6.2 External Requirements

- Internet connectivity.
- Data plan when applicable.

7 Definition of Terms

Administrative Web Portal - Internet web page that gym owners\managers use to update the content on their FrogFit site.

Android - An open-source operating system used on mobile devices.

ASP.NET MVC – Open source web application framework used to create applications.

Benchmark Workout – Workout designed to measure an athlete’s performance and improvements through repeated and irregular appearances in a workout of the day. Benchmark workouts can be in one of the categories; Girls, Heroes, Notables.

Categories – There are eight fitness categories that are considered when creating an overall fitness score.

- Body Weight
- Endurance
- Heavy Weight
- Light Weight
- Long
- Olympic Lift
- Power Lift
- Speed

Class – Classification system for athletes. The classifications include Beginner, Intermediate, Advanced, and Master.

CoRD – A remote desktop application used on Macs.

Crossfit - Strength and conditioning program that is by design broad, general, and inclusive.

Microsoft SQL Server - A relational database system designed for business or enterprise environments.

Remote Desktop Connection – One of the components of Microsoft Windows that allows users to take control of a remote computer or virtual device over a network connection.

REST – (REpresentational State Transfer) is an architectural style that is used in the development of light-weight Web services.

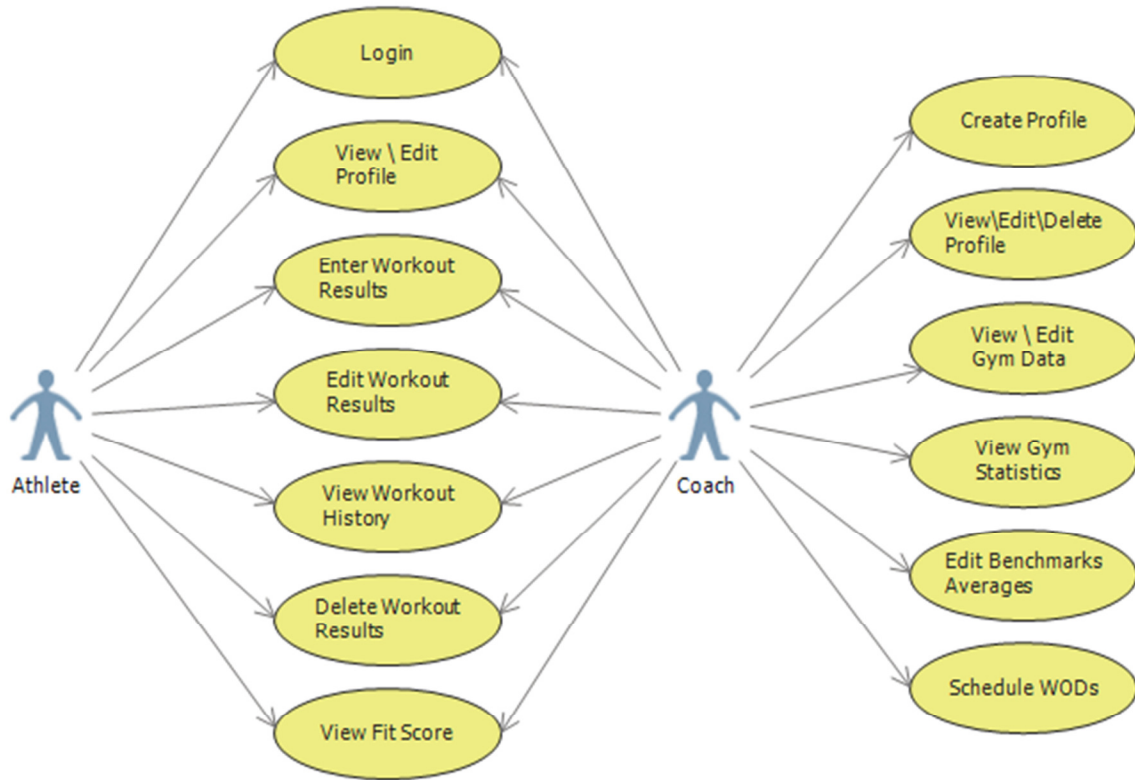
Rx – When a workout is completed “as prescribed” by the coach. This includes doing the correct movements, weight, and rounds. Also known as, Rx’d.

Web API – An application programming interface for both the webserver and web browser that allows retrieval of structured data.

WinSCP – A secure FTP client for Windows with features that include FTP, SSL/TLS, SFTP via SSH, and HTTP/HTTPS support.

WOD – (Workout of the Day) A set of movements that athletes will complete for a given day.

Appendix A: Use Case Diagrams



Appendix B – Use Case Models

Login	
Actor	Athlete or Coach
Description	Athlete logs into the mobile application or coach logs into the web interface
Data	Actor credentials, Gym ID
Pre-Conditions	Appropriate profile created. Gym has FrogFit service setup. Android app installed on mobile device.
Triggers	Navigate to the web address Mobile app is started
Events	Actor credentials verified. Home screen displayed or Credential verification error message displayed.

Create Profile	
Actor	Coach
Description	The data about the user is entered into the database.
Data	Information about the new user.
Pre-Conditions	Coach must be logged into the web interface.
Triggers	Pressing the Create button.
Events	The data about the user is entered into the database and a successful or error message is displayed.

View \ Edit Profile	
Actor	Athlete or Coach
Description	Actor views or changes profile data
Data	Name of profile to be changed
Pre-Conditions	Actor is logged into the mobile app or website.
Triggers	Choosing the view profile button on the mobile app or the Athletes link on the website. When viewing the information, clicking the edit button will make the fields editable.
Events	Profile data saved in memory and in database (mobile) or saved in database. Button changed to success text. Editable fields changed to static fields.

Delete Profile	
Actor	Coach
Description	Coaches are able to remove profiles.
Data	Name of profile to be deleted.
Pre-Conditions	Coach is logged into the website.
Triggers	Choosing the Athletes link on the website and selecting the profile. When viewing the information, clicking the Delete Profile button will delete the profile.
Events	The selected profile is removed from the database.

Enter Workout Results	
Actor	Athlete or Coach
Description	Workout results for an athlete are saved.
Data	Athlete name, workout completion times, repetitions, and weight.
Pre-Conditions	Athlete logged into the mobile app or Coach is logged into the website. Workout definition created.
Triggers	For the mobile app, selecting the enter data button then selecting the workout name to enter. For the website, selecting the athlete link then selecting the log results button.
Events	Success message is displayed. Workout data saved in database. Screen transitions to data report screen.

Edit Workout Results	
Actor	Athlete or Coach
Description	Pre-existing workout data is changed.
Data	Athlete name, workout completion times, repetitions, and weight.
Pre-Conditions	Athlete logged into the mobile app or Coach is logged into the website. Workout definition created and must already be completed and entered.
Triggers	For the mobile app, selecting the view workouts button, selecting the workout, and then select edit. For the website, selecting the athlete link, choosing the athlete, and then selecting the workout to change.
Events	Workout data will be updated in the database.

View Workout History	
Actor	Athlete or Coach
Description	Workout results are displayed in graphical form and in data form.
Data	Information about the selected workout and the logged in user's information.
Pre-Conditions	User must be logged into the mobile app or website and workout results submitted for the desired workout, category, and date range.
Triggers	On the mobile app, select the view workouts button then select the desired workout or category. On the website, selecting the Overview link then selecting the desired category.
Events	Selected workout data is retrieved and displayed in graphical form and in data form.

Delete Workout Results	
Actor	Athlete or Coach
Description	Workout results are removed.
Data	Information about the selected workout and the logged in user's information.
Pre-Conditions	User must be logged into the mobile app or website and workout results submitted for the desired workout, category, and date range.
Triggers	On the mobile app, select the view workout button, select the desired workout, and touch the delete results button. On the website, select the Overview link, select the desired workout, and click the delete link.
Events	Selected workout data is removed from the database.

View Fit Score	
Actor	Athlete or Coach
Description	A radar graph is displayed with the fit and confidence score.
Data	User information
Pre-Conditions	User must be logged into the mobile app or website.
Triggers	On the mobile app, touch the view fit score button on the home screen. On the website, click the Athletes link, choose the athlete.
Events	Fit and confidence score for the logged in user or the chosen athlete is retrieved.

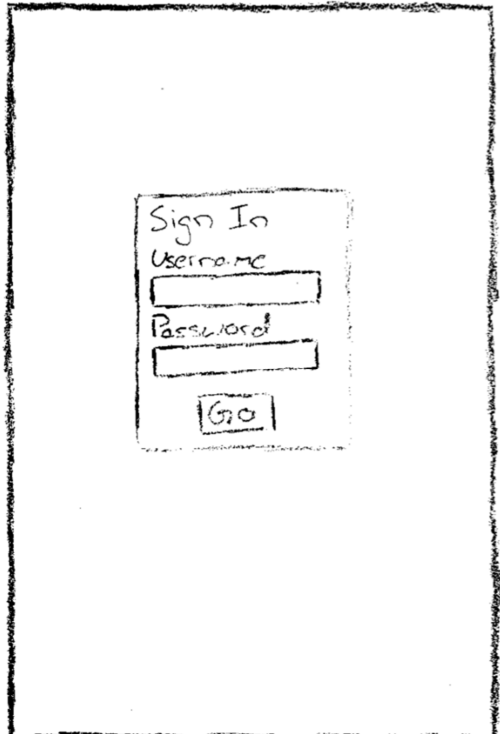
View \ Edit Gym Information	
Actor	Coach
Description	Data about the gym is displayed and can be edited.
Data	Gym information.
Pre-Conditions	Gym administrator must be logged into the website.
Triggers	Clicking the setting link and clicking the gym information link.
Events	Data about the gym is retrieved and displayed.

View Gym History	
Actor	Coach
Description	Workout results about the gym are displayed in graphical form and in data form.
Data	Information about the selected workout and the logged in user's information.
Pre-Conditions	Gym administrator logged into the website and workout results submitted.
Triggers	Selecting the Gym link then selecting the desired filter.
Events	Workout results for the gym and the selected filter is retrieved and displayed in graphical form and in data form.

Edit Benchmark Averages	
Actor	Coach
Description	Benchmark data is changed.
Data	Benchmark name, average and the logged in user information
Pre-Conditions	Gym administrator must be logged into the website.
Triggers	Clicking the setting link, clicking the change benchmark averages link, and then selecting the benchmark to change.
Events	Data about the select benchmark is changed and displayed.

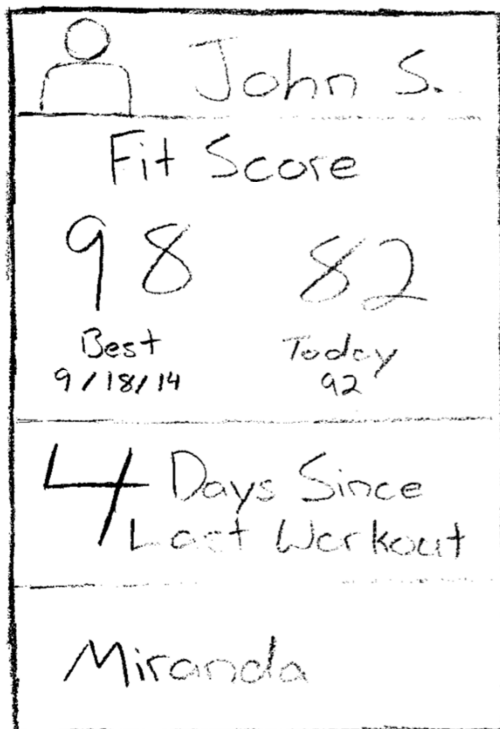
Schedule WODs	
Actor	Coach
Description	A WOD is chosen for athletes to complete for the selected date.
Data	The name of the WOD to schedule and the date to schedule.
Pre-Conditions	Gym administrator must be logged into the website.
Triggers	Click the Choose WOD link.
Events	A WOD is saved for the chosen date.

Appendix C – Android Prototypes



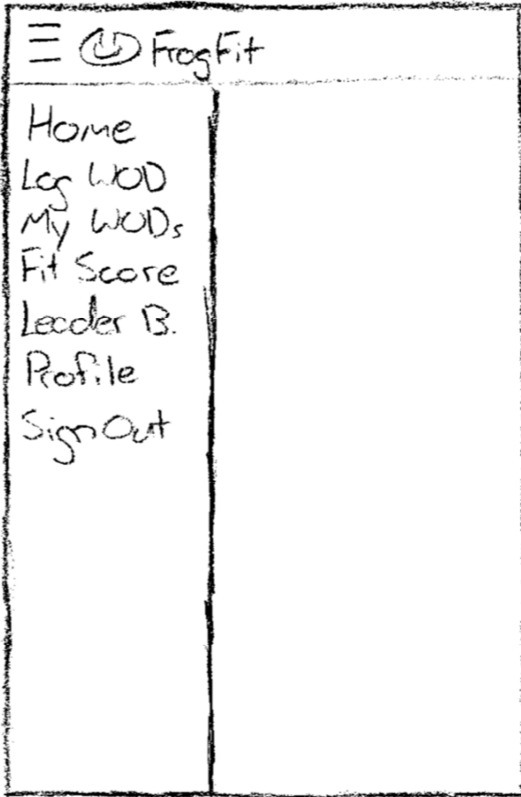
Login Screen

- First screen open when app is started.
- Use your credentials to access app's home screen.



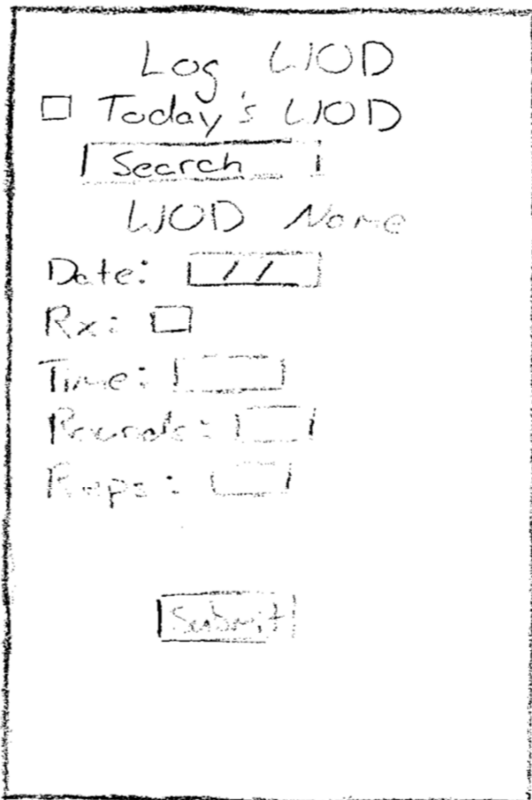
Home Screen

- First page that you come to once logged in the app.
- Displays your name, best and current fitscores, the number of days since your last logged workout, and your last workout.



Open Sidebar

- Side menu that allows you to navigate to different pages within the app.



Log WOD Screen

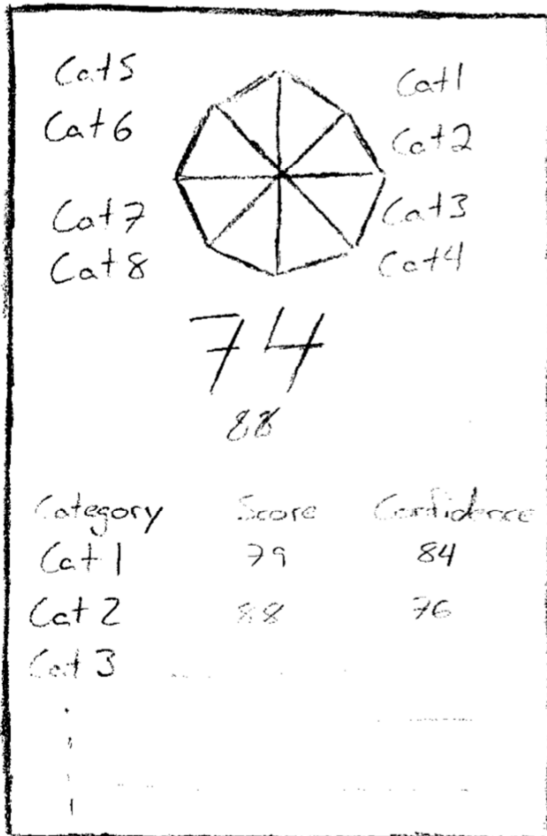
- Reached when you select Log WOD on the open sidebar.
- This screen allows you to log a WOD as an athlete.

My WODs

Date	Name	Score
1/01/15	Fran	5:10
1/02/15	Miscela	7:24
1/02/15	11.1	11:16

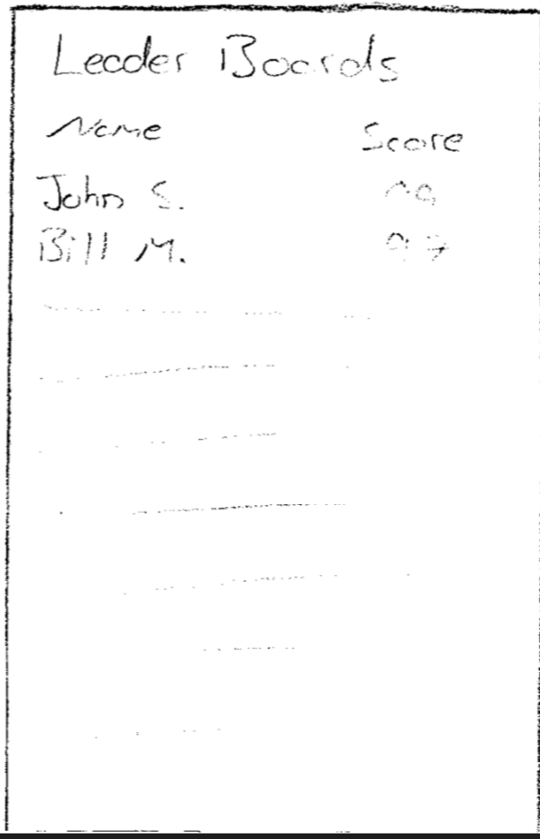
My WODS Screen

- Reached by selecting My WODs in the sidebar.
- Displays the WODs that you have completed in the past.



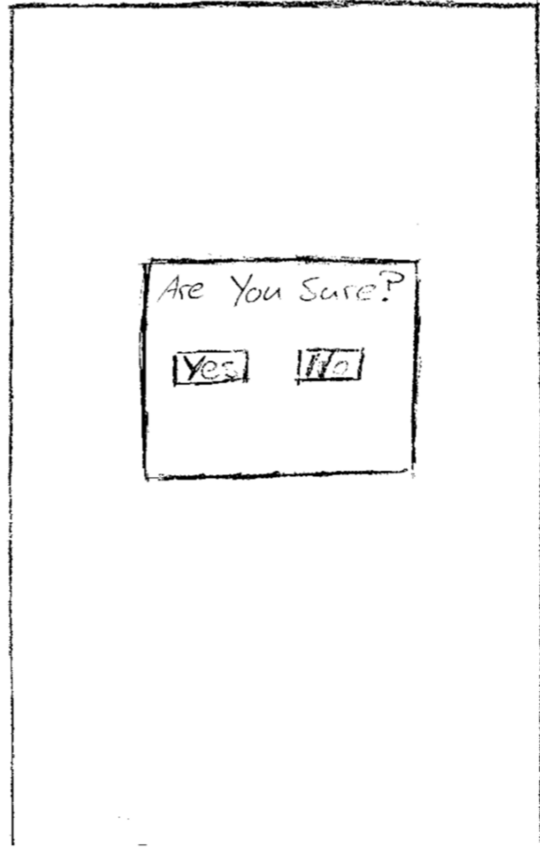
FitScore Screen

- Reached by selecting FitScore in the sidebar.
- Display's the athlete's overall fitscore along with the fitscore for each category.



Leaderboards Screen

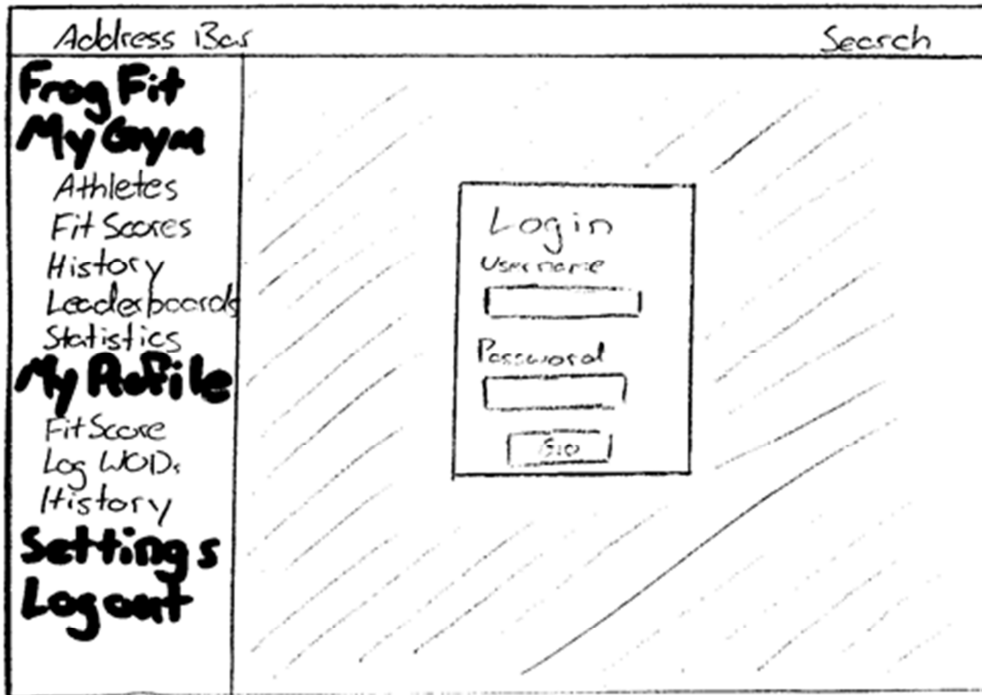
- Reached by selecting Leaderboards in the sidebar.
- Display's the athletes that perform the best in the gym.



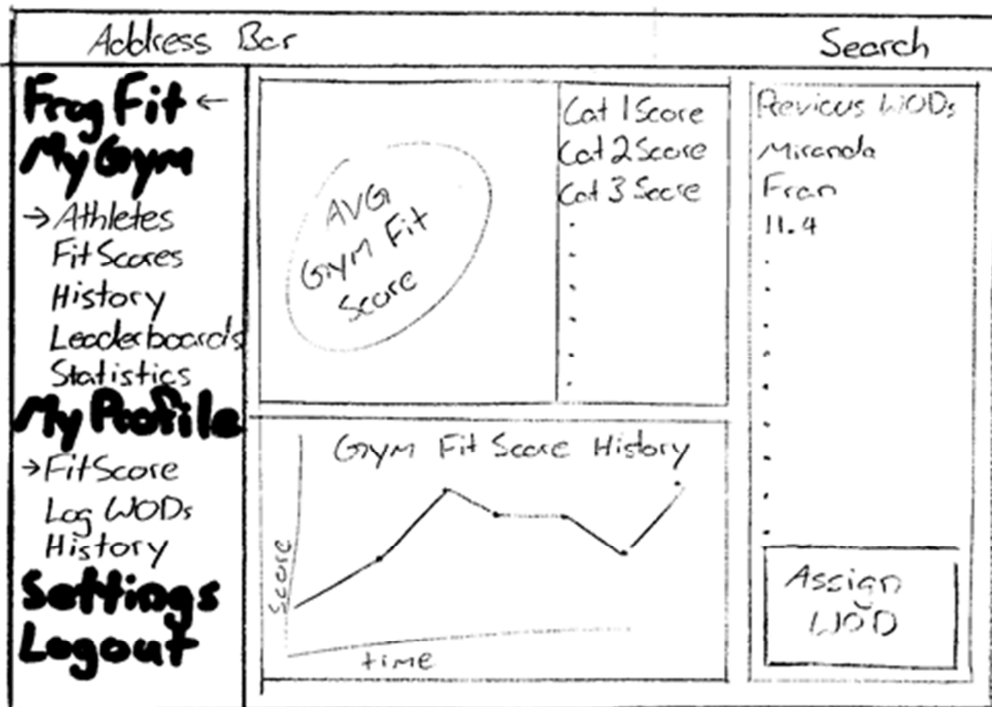
Logout Screen

- Reached by selecting Logout in the sidebar.
- Brings up confirmation popup asking if you are sure you want to logout.

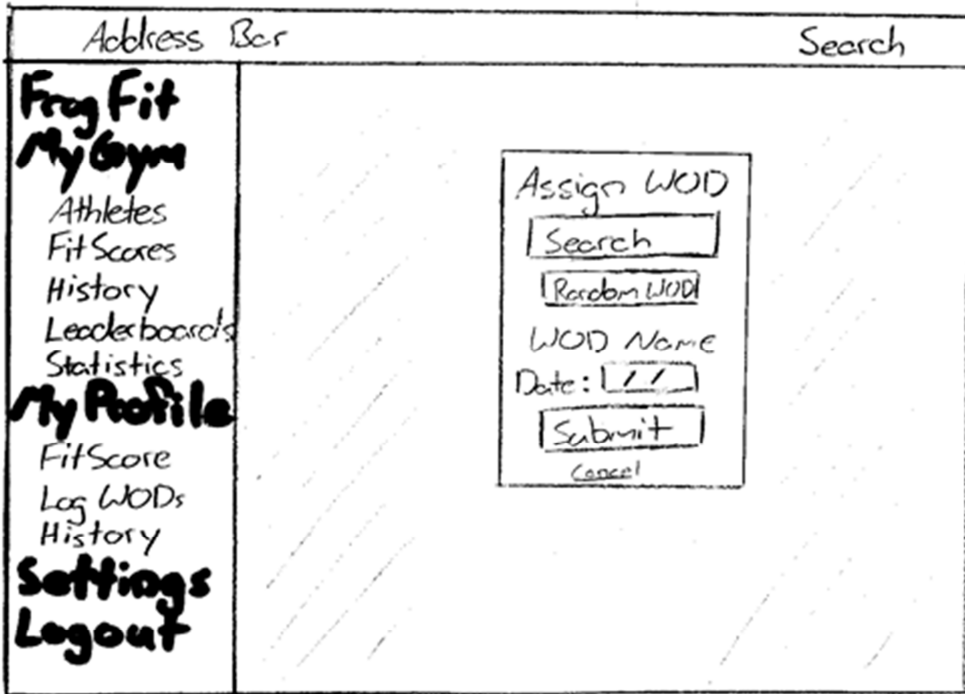
Appendix D – Web Prototypes



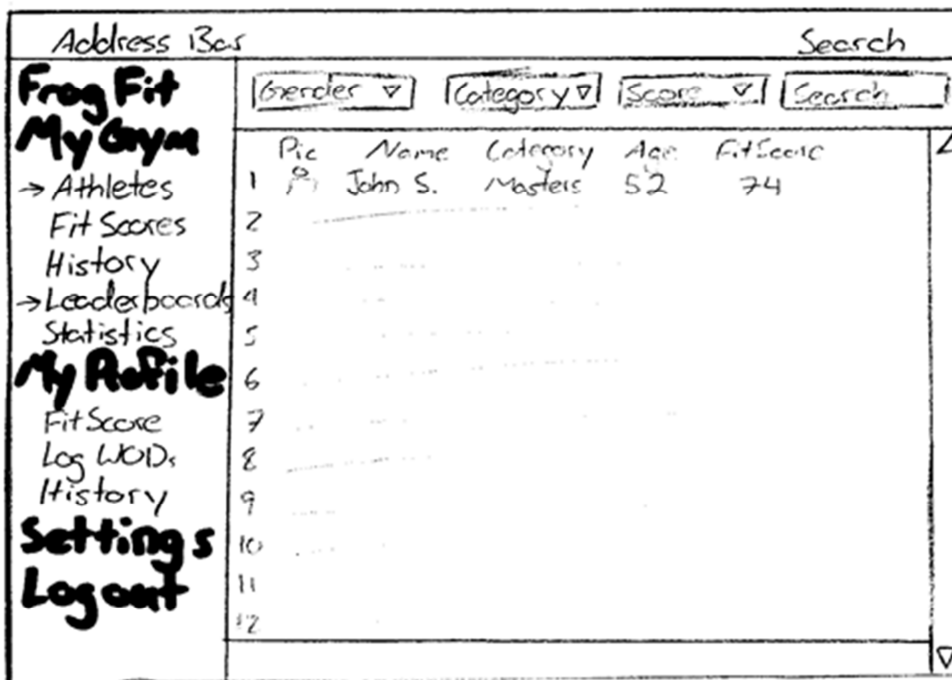
- **Login Page**- First thing you reach when accessing the site. Login to gain access to the rest of the site.



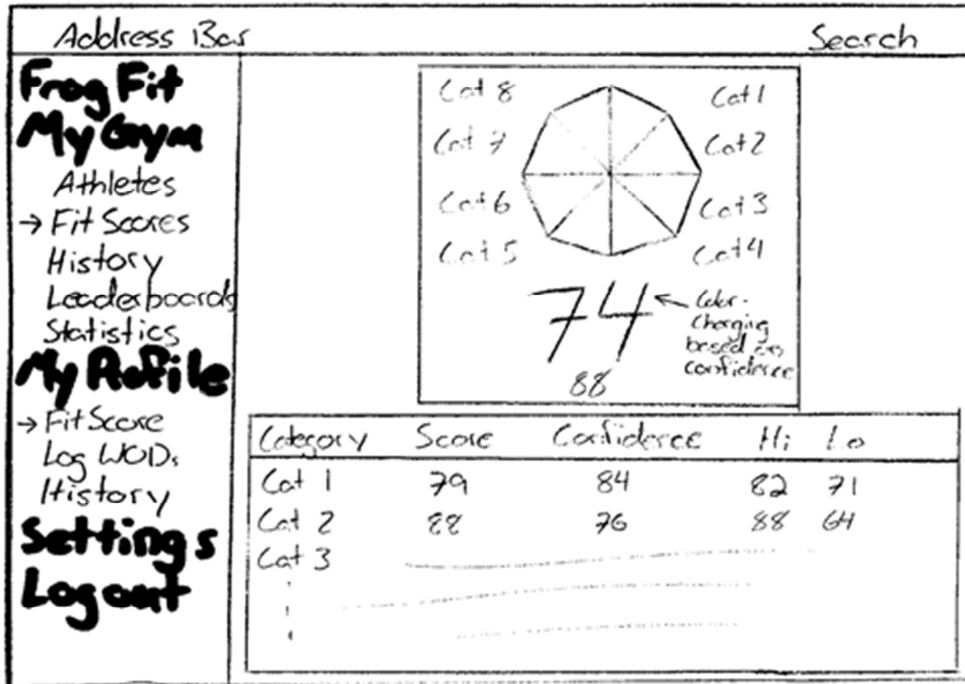
- **Home Screen**- Once logged in, this will be your initial screen.



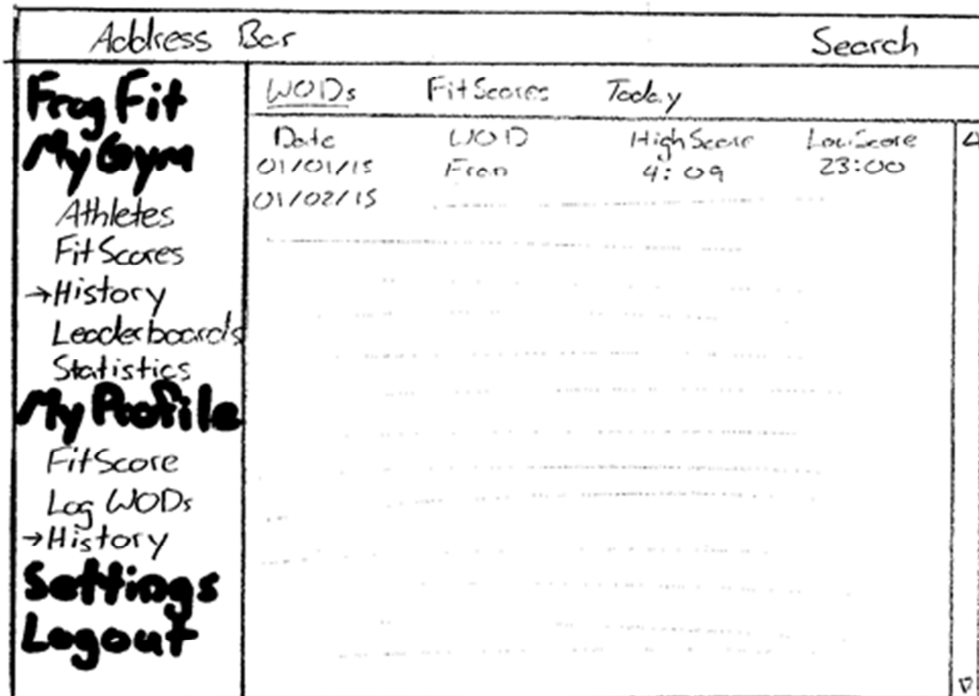
- **Assign WOD Modal**- Reachable by clicking the “Assign WOD” button on the home screen. Allows user to assign WOD to athletes.



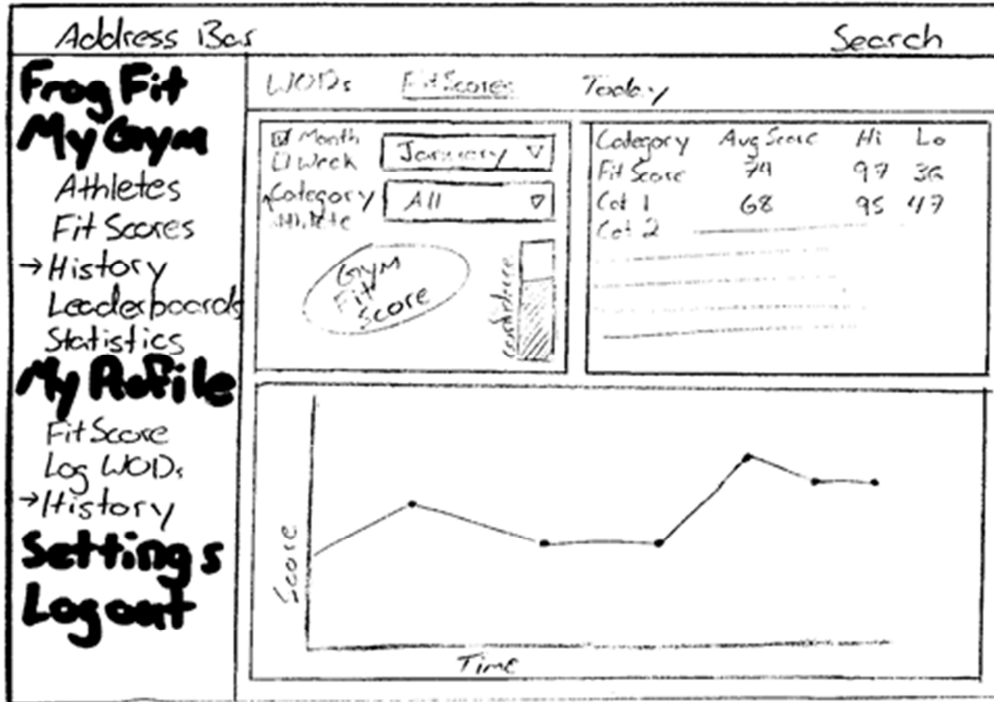
- **Athletes and Leaderboards** – Both the athletes and leaderboards page will be formatted this way. They will both list the athletes with their category, age, and fitscore. Clicking on the athletes name will give more details about the athlete.



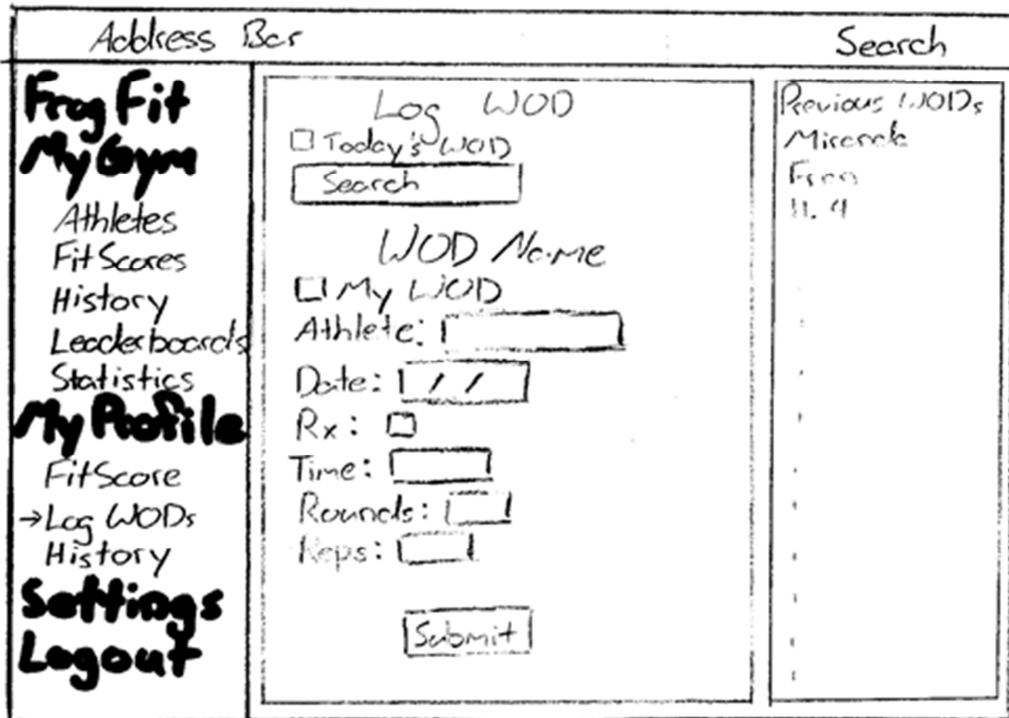
- **FitScore Screen** – Accessed by clicking the FitScore or FitScores button on the navigation bar. Displays the gym or athlete overall Fitscore breaking it down by category.



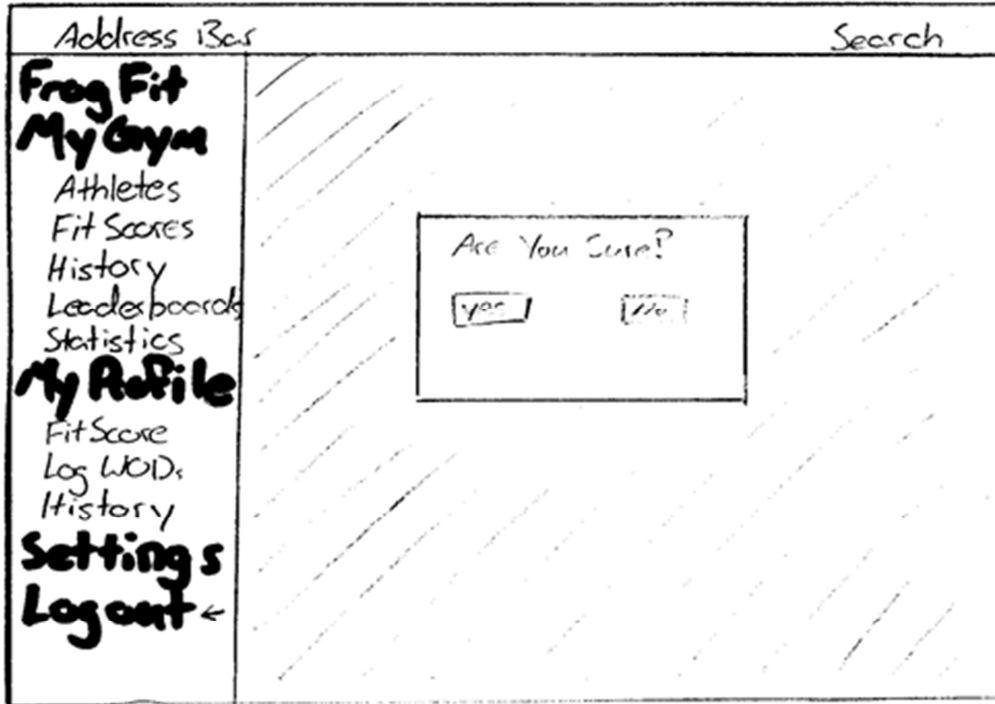
- **History Screen** - Reached by selecting History under either My Gym or My Profile. Display the previous WODs that have been completed, their date of completion, and the high and low scores of the WOD.



- **History Detail Screen** – Reached by selecting a WOD on the History page. This screen will give details about the selected WOD



- **Log WOD Screen** – Reached by selecting Log WOD. Allows coaches to log a workout that has been completed by an athlete.



- **Logout Screen** – Reached when Logout is selected on the navigation bar. Confirms that you would like to Logout of FrogFit.