Project Milestone 4

Team Number:

111-3

Team Name:

Team Runner

Team Members:

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Beau Walters

Application Name:

Runner

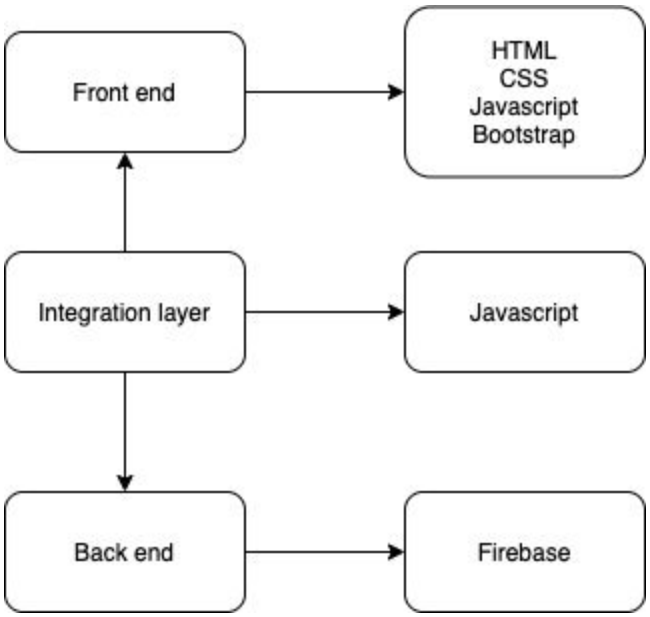
Github Repo:

https://github.com/mitchellphelps/CSCI_3308_Project

Revised List of Features:

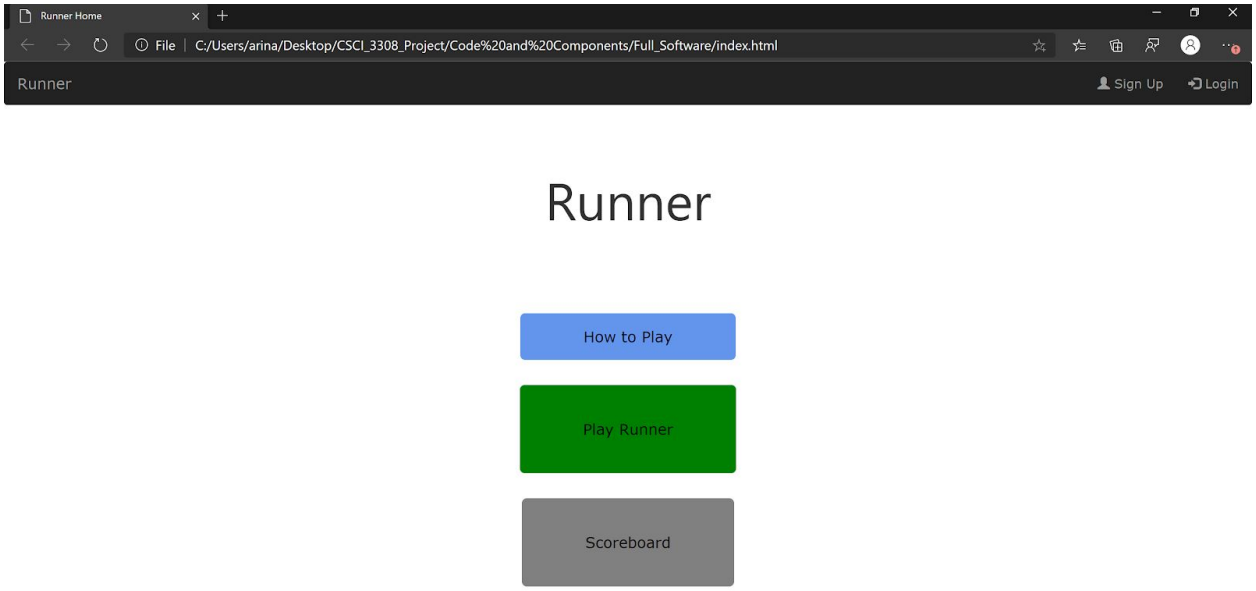
- Simple Animations:
    - The main player and some obstacles will have basic animations to make the game more fluid.
- Option to Change Animations:
    - There will be an option to change the game from the default theme to a coronavirus theme. The main character will change from a dinosaur to a doctor, as well as the boxes will become coronavirus-related obstacles.
- Leaderboard:
    - Will list the high scores of players in an easy to read list.
- One Continuous Level Per Difficulty:
    - The user will run until they die and the score will be calculated based upon how far they ran.
- Score Display:
    - As the user runs, the user's highest score will be displayed to see if the player is nearing a new PR.
- User High Score While Playing:
    - The highest score the user (who is signed in) has will be displayed on the top right of the game screen. If the user is not signed in, it will display the high score of the user in the current session.
- Controls:
    - The up arrow will be used to control the jumps of the Runner.
    - The runner will be moving forward perpetually and the up arrow will control the runners jumps. The runner will have to dodge obstacles that will constantly be getting in their way.
- Multiple Obstacles:
    - There will be multiple designs for the obstacles that the runner encounters. We are considering making obstacles look like rocks, bushes and maybe trees.
- Title Screen:
    - Click a button to play the game or see the leaderboard.
    - Introduces the player to the game and how to play.
- User Account:
    - Allows the user to create an account so that their score can be logged.

Architecture Diagram:

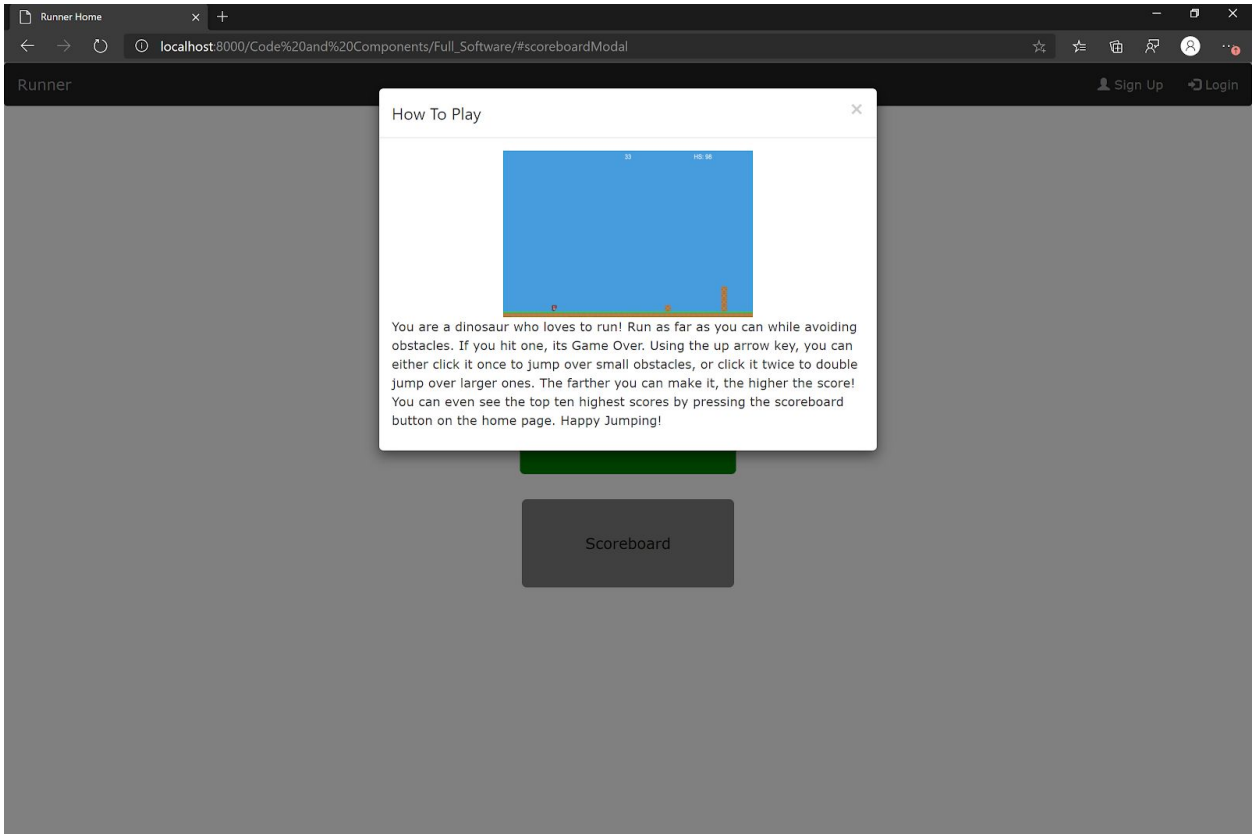


The front end of the application contains the HTML, CSS and Javascript to handle the gameplay and front end interactivity of the web app. The integration layer contains the code to write to and read from the Firebase database. The back end layer is a Firebase cloud firestore database that stores key value pairs for our user data. We plan on hosting the entire application including the front and back end on Firebase hosting when we deploy the web app.

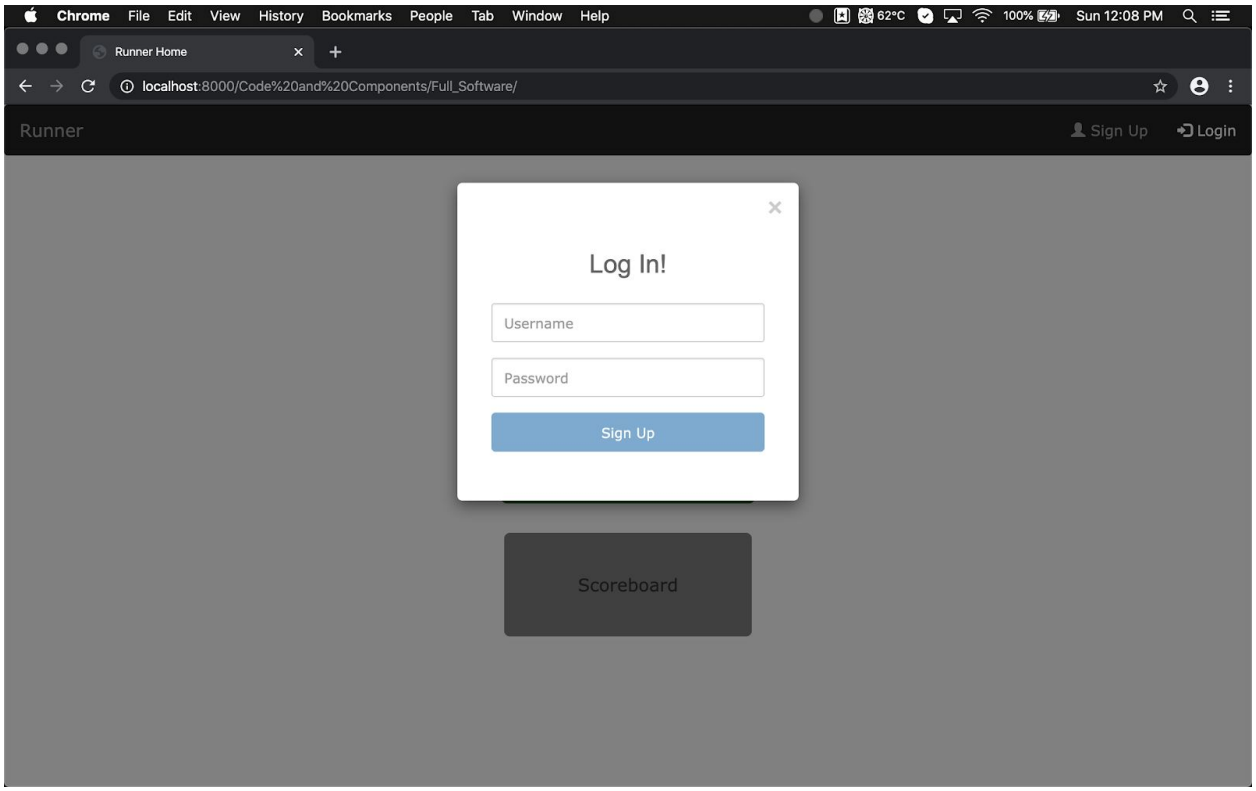
Front End Design:



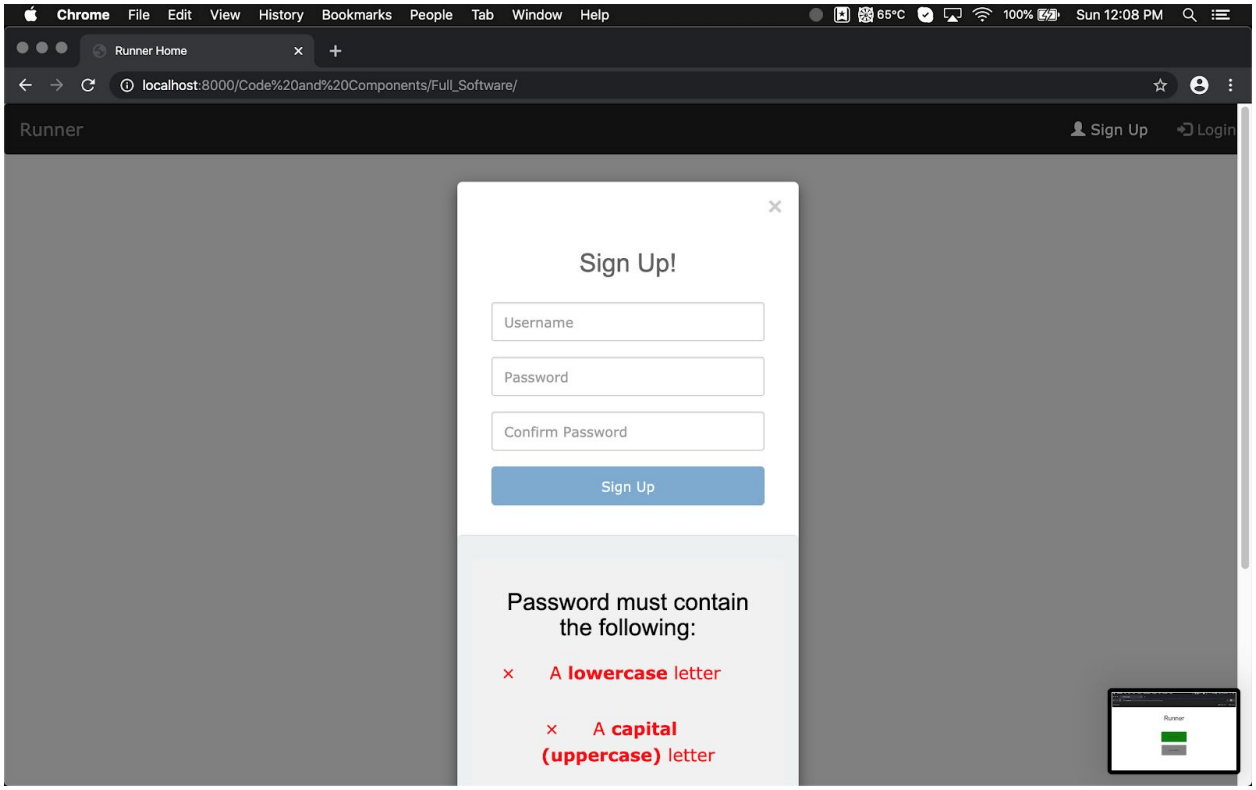
When first entering the game, the user will be presented with the home screen. Here, they can click on one of four buttons. The blue “How to Play” button will open a modal and give the user instructions on how to play the game. The green “Play Runner” button will start the game. The gray “Scoreboard” button will allow the user to see the scoreboard. The “Sign Up” button at the top right will open a modal and allow the user to make an account. The “Log In” button at the top right will open a modal and allow a pre-existing user to log in.



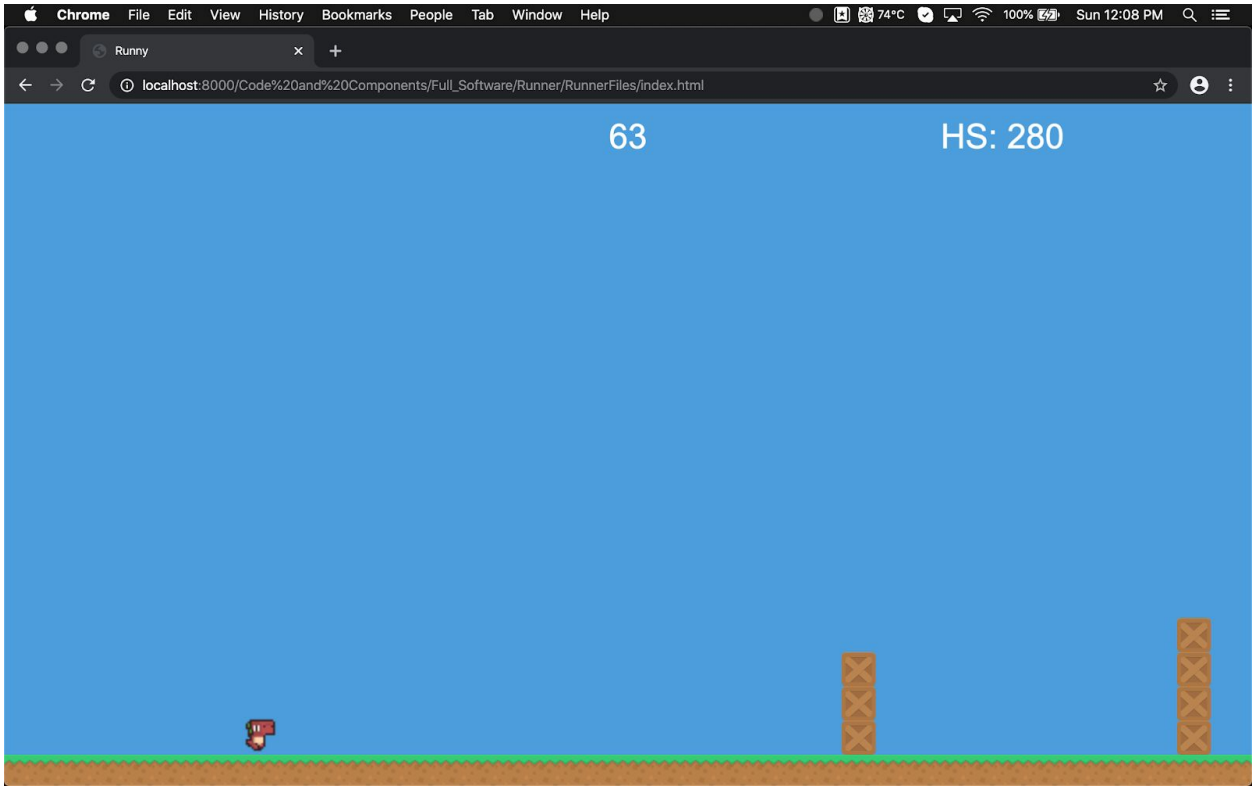
The how to play modal shows an image of the game and describes how to play it.



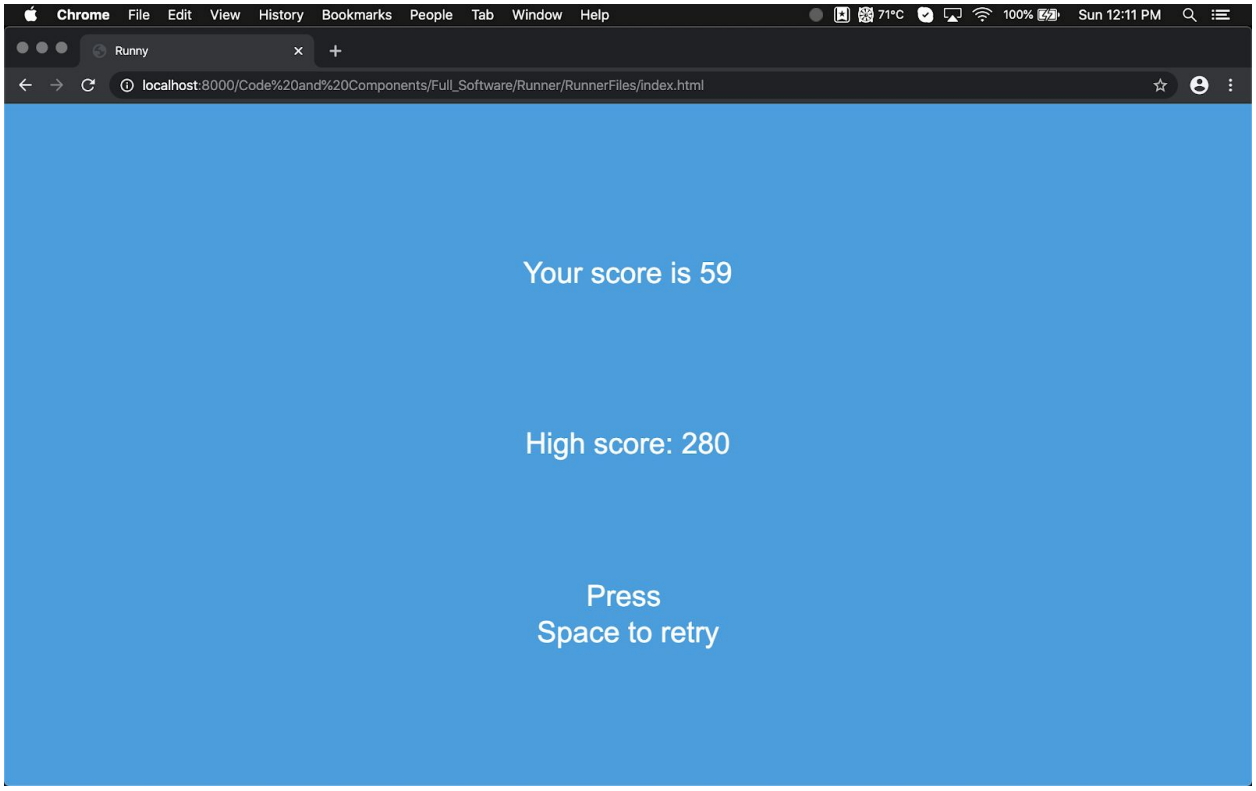
The log in modal prompts the user for their username and password, then the button will open.



The sign up modal prompts the user for a username, password, and a confirmation of the password. This also tells the user to create a strong password with a lowercase letter, an uppercase letter, a number, a minimum of 8 characters, and a matching confirmation.



This is the game screen. The player can be seen as the dinosaur on the left side of the screen. The obstacles will be represented by vertical objects, in this case boxes. The current score of the user is seen at the top middle, where the high score of the user is in the top right.



This is the screen presented to the player when the game ends. It displays the score of their latest attempt, their high score, and a prompt to press space to retry.

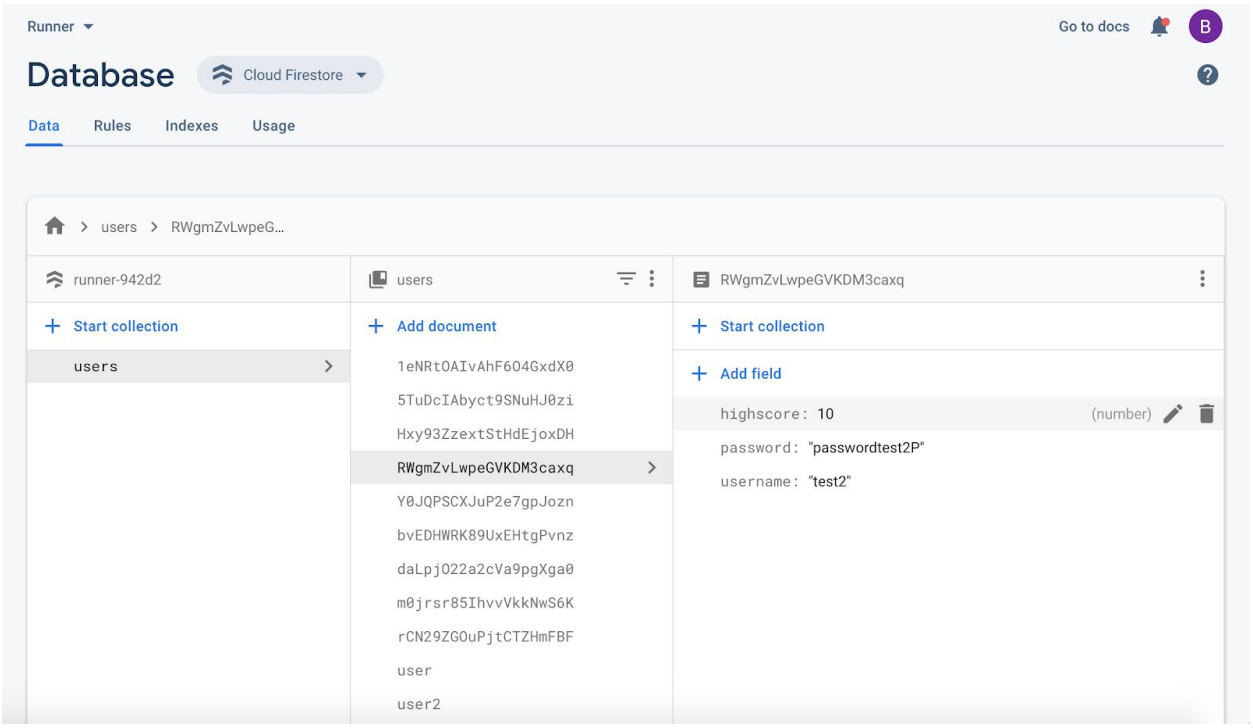
We are planning on editing the visual design of the game to have a coronavirus theme. Instead of a little dinosaur the character will be a doctor and instead of the boxes as obstacles we will use virus particles. The character and obstacles will look similar to these icons:

Web Service Design:

- Web APIs are not being used. This section is not applicable.

Database Design:

- We chose to use Firebase as our database. We are using the cloud firestore feature to store our user data. Each user has a username, password and highscore. We create a new document for each user and within each document we store our three data points. The database is designed using key-value pairs so that we can easily identify each piece of data and authenticate and verify users and highscores.


Runner
Go to docs
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Database
Cloud Firestore
Data
Rules
Indexes
Usage
users
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Start collection
users
users
Add document
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Start collection
Add field
highscore: 10
(number)
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username: "test2"