

# Design Document

Minesweeper

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# 1. Introduction

The purpose of this design document is to create a helpful blueprint for our Minesweeper website. It will provide both our instructor and ourselves with a useful reference for how the site works, looks, and operates.

## 2. Technologies

### *2.1 Ruby on Rails*

Ruby on Rails is a popular web framework used by many companies today. It has a lot of tools that will be helpful for designing our website. Ruby on Rails provides us with an MVC framework that is useful in creating a fluid website where users can access the game with ease and navigate various functions of the website, such as account settings and a Minesweeper leaderboard.

### *2.2 Foundation*

Ruby on Rails is nice for a lot of back-end tasks, but Foundation is a fantastic framework when it comes to designing stuff for the front-end. It is built to be completely responsive and makes use of a grid system. Utilizing all of the tools that Foundation includes will help tremendously and save us a lot of time in the long run.

### *2.3 Heroku*

Heroku will be the host of our minesweeper website. We can deploy our code straight to Heroku and provide users with fast, free access to the site. The address for our website will be : `Sweeper.HerokuApp.com` .

## 3. Languages

### *3.1 Ruby*

Ruby will be used for back-end functions and will connect the game with the database.

### *3.2 Javascript*

Javascript is going to be the main language we use for the game's mechanics. This code will be responsible for setting up the board and updating it as the user clicks on blocks.

### *3.3 HTML5*

HTML5's features will be integrated into both our website and the game. A majority of the front-facing stuff will be HTML.

### 3.4 CSS3

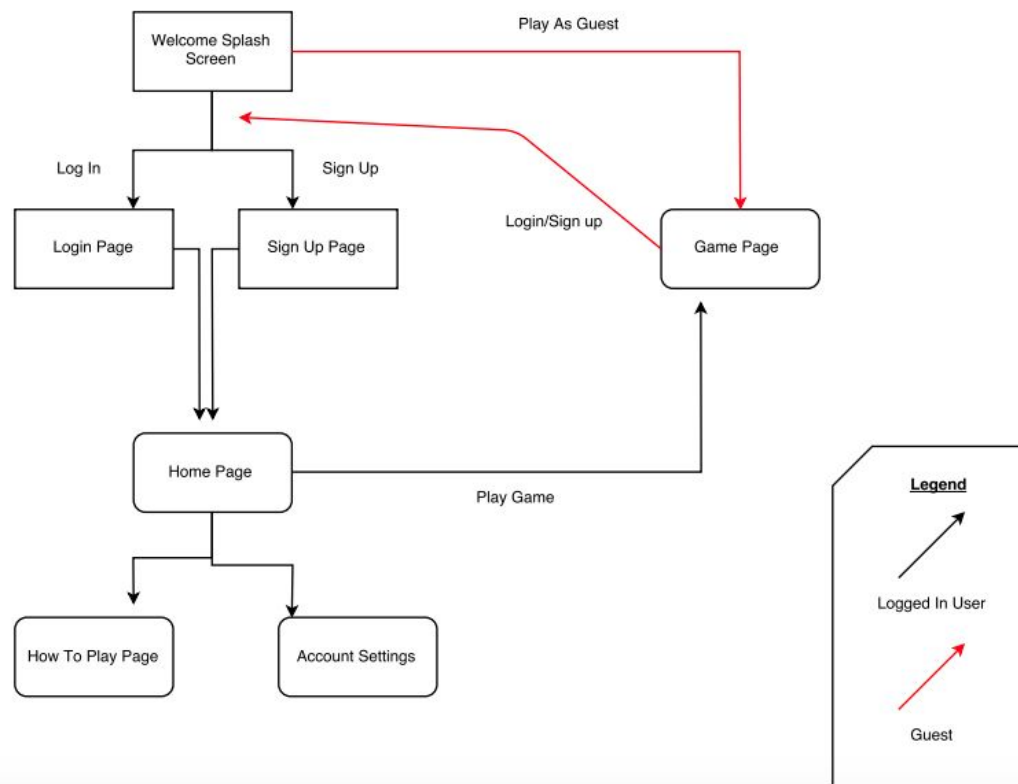
All of the styling will be taken care of with CSS. It will allow us to update the board as the user plays the game and easily change skins based on the user's preferences.

## 4. Database

We're going to be using SQLite3 as our database, since it comes built into Ruby on Rails. Our database is going to be quite simple and only have a single table holding all of the data about the user. The columns in this table will be:

- Email (string)
- Username (string)
- Password (hash)
- Highscore (integer)
- Total Score (integer)
- Wins (integer)
- Losses (integer)
- Rewards (integer)

## 5. Webpage Layout



## ***5.1 Welcome Splash Screen***

A welcome page is the first page users see. Here they are given the options to log in to their account, sign up for a new account, or play as a guest. If they choose to play as a guest, the only page they will have access to is the Game page. They won't have access to any of the game's special features, like rewards, as a guest user. Guests will also have access to two links somewhere on the page allowing them to log in or sign up if they choose.

## ***5.2 Log In***

The login page has a form for users to fill in their credentials for signing in, their username/email and password.

## ***5.3 Sign Up***

The sign up page has several forms for the user to input their email, username, and password along with confirmation forms to verify the proper information. Each user has to have a unique username.

## ***5.4 Home***

The user's homepage has several features. First of all, there is a "Play Game" link present on the page because the game is the main feature of the website. Additionally, there are links available to access account settings and a How to Play page. The home page will also feature a section showing all unlockable rewards and how many the user has gotten so far. Lastly, there will be a leaderboard showing all the highest scoring user's usernames on the board. Clicking someone's username on the leaderboard shows you that user's in-game stats, unless they have it set to private.

## ***5.5 Account Settings***

The account settings page offers a user several different features. First of all, there is the ability to update your email and password. Your username, however, is permanent. Second, the user has the ability to access their stats, reset their stats, and set their stats to private so other users can't access this information. Lastly, the user has the ability to delete their account altogether in the settings page.

## ***5.6 How to Play***

The How to Play page provides users with a brief explanation of how to play the Minesweeper game. Every other feature in the website will be designed to be intuitive enough that users won't need a tutorial or explanation.

## ***5.7 Game***

The game page has the most important feature of the whole website, the actual minesweeper game. There will be the main board, a scoreboard, a timer, a hint button, and some information regarding your current game, such as the number of bombs and tiles left. There will also be a settings button where users can change in-game settings, for instance changing difficulty from easy to medium. A majority of the user's time will be spent here playing the game and trying to beat their high score and unlock more goodies.