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First responder game

Technical Design Document

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Technical Specifications and Design

# **OVERVIEW OF GAME**

First responders play an important role in this pandemic and are needed. They have saved several lives. However, they are most vulnerable to the virus.

Hundreds of First Responders have died or are battling the virus right now. Many others are still risking their life for people in need.

All first responders are heroes, this game shows that their heroic actions do not go unappreciated and unrecognized.

Attached is the user-specifications document:



# **TECHNICAL OVERVIEW**

## Technology Used

* I used the p5.js (a javascript framework) for coding. I used firebase for the real-time database, and Visual Studios platform to code on.

## GAME\_STATES Variable

* The GAME\_STATES variable control and change the transitions and states of the game.
* Using *Enums* created more readable code than using variables.
* There are 5 different GAME\_STATES
  + **GAME\_START\_INPUT**: Input Form State asks for username and stores in database
  + **GAME\_START\_NOTE**: Start Note shows minimal instructions on how to play the game and inspiration for game
  + **GAME\_PLAY**: Game Play is main game; virus, tools, player, timer, score, level will all be displayed
  + **GAME\_PAUSE**: Game Pause is the transition from one level to another. It gives player option to continue playing or end game
  + **GAME\_OVER**: Game Over (Choice or Contact with Virus; state will display highest personal score),

*const* GAME\_STATES = {

    GAME\_OVER: 0,

    GAME\_PLAY: 1,

    GAME\_START\_NOTE: 2,

    GAME\_START\_INPUT: 3,

    GAME\_PAUSE: 4

};

\**Code used for creating Game State Enums*

## Display

* Game should be playable on all devices, even if they all have different screen-sizes.
* Used window.innerWidth & window.innerHeight and proportions of these parameters to display and scale all UI elements

# **INPUT INTERFACES**

## Keyboard Support

* Keyboard movement uses four arrow-keys to move player in respective direction

## Touch Support

* Option between keyboard and touch-interface (if you have keyboard)
* Four buttons:
  + UP (U): Moves Player up
  + DOWN (D): Moves Player Down
  + LEFT (L): Moves Player Left
  + RIGHT (R): Moves Player Right

A picture containing application

Description automatically generated

*\*How touch-control buttons look in game*

# **User Interface design**

## Input Form

* Displayed first
* Enter username in input box
* Press ‘PLAY’ button to start game

Graphical user interface, text

Description automatically generated

*\*How Input Form looks like*

## Intro to game

* Displayed Second
* Includes small storyline to game and dedications
  + Who is a first responder?
  + What they are doing during Covid?

Graphical user interface, text, application, letter

Description automatically generated

*\*How Intro to Game looks like*

## Game play

* Displayed Third
* Displays current level, current score, and time
  + Timer is set for 60 seconds (the duration of a level), once timer runs out, game state is switched to Game State Pause
  + Score is decided by the number of tools collected (collected by contact with player)
* Move player using arrow-keys/touch-buttons
* Virus moves randomly, bouncing off edge of screen
* Tools are shown in random positions. There is a small text displayed as well that explains usage of tools

Graphical user interface, application

Description automatically generated

*\*How Main Game looks like*

## Continue to next level

* Displayed after level is completed (Only after level 1 & 2; after level three, game ends)
* Only two buttons are visible
  + CONTINUE (when clicked, starts next level)
  + END (when clicked, game ends, game state changed to end)

Graphical user interface, text, website

Description automatically generated

*\*How transition to next level looks like*

## End game

* Game is Over
* Displays individual all-time ranking

# **Database Design**

* Different player usernames stored as separate children
* Inside each username tab, there is a unique code (ID)
  + ID is generated from random characters
  + Each time same user plays, generates different ID
* Inside ID, different parameters are stored
  + Date and Time played
  + Level which you ended on
  + Score
  + Time Remaining in Level you ended on
  + Username
* Data is stored like this so that all time highest score of one player is easily accessible

Graphical user interface, text, application

Description automatically generated

*\*Database format*