

Math Game Design Document

By Sohrab Kazak

This is a game meant for the exploration of concepts in the Intermediate Java class.

The main subject of the game itself will be asking math questions for a first grader. Specifically the game will test the ability of players to answer questions of addition or subtraction of numbers between 0 and 20.

The following is a non-exhaustive list of Java elements that must be implemented.

GUI - JavaFX

Graphics -JavaFX and Game assets

Colors - Text Colors

Sounds - Buttons have sound effects, main game loop has background music

Animations or Images - Non-Static trays are Animated scenes Button and Sprite elements are images

Event handling - Buttons, and Mouse Events are handled, Main Game loop is an Animation Timer that generates events

Exception handling - Done.

Layout managers - Many Components are nodes stacked inside layout managers from JavaFX.

File I/O - The leaderboard file is read and written to

This is the opening screen for the game. It contains four buttons that will change the state of the game.

The "Exit" Button will simply close the game.





The "Leaderboard" Button opens a side tray that displays the leader-board. The panel is built on launch of the application and populated by a seperate thread. A second press of the button will close the tray.

Pressing either the "Start" or the "Name" Button, have the same behavior under conditions.

If no name has been entered the "Start" Button will open this pop-up, asking for a Player's name this is save per instance, and can be changed.

The "Name" button opens this pop-up always.

Pressing the confirm button on this pop-up will save the player's name for the instnace of play.

The name can be changed at any point while in the menu.





This is the main game screen.



On the top is a transparent bar that contains the time elapsed in seconds, the player's current score and the player's name.

A large text block represents the current question being asked.

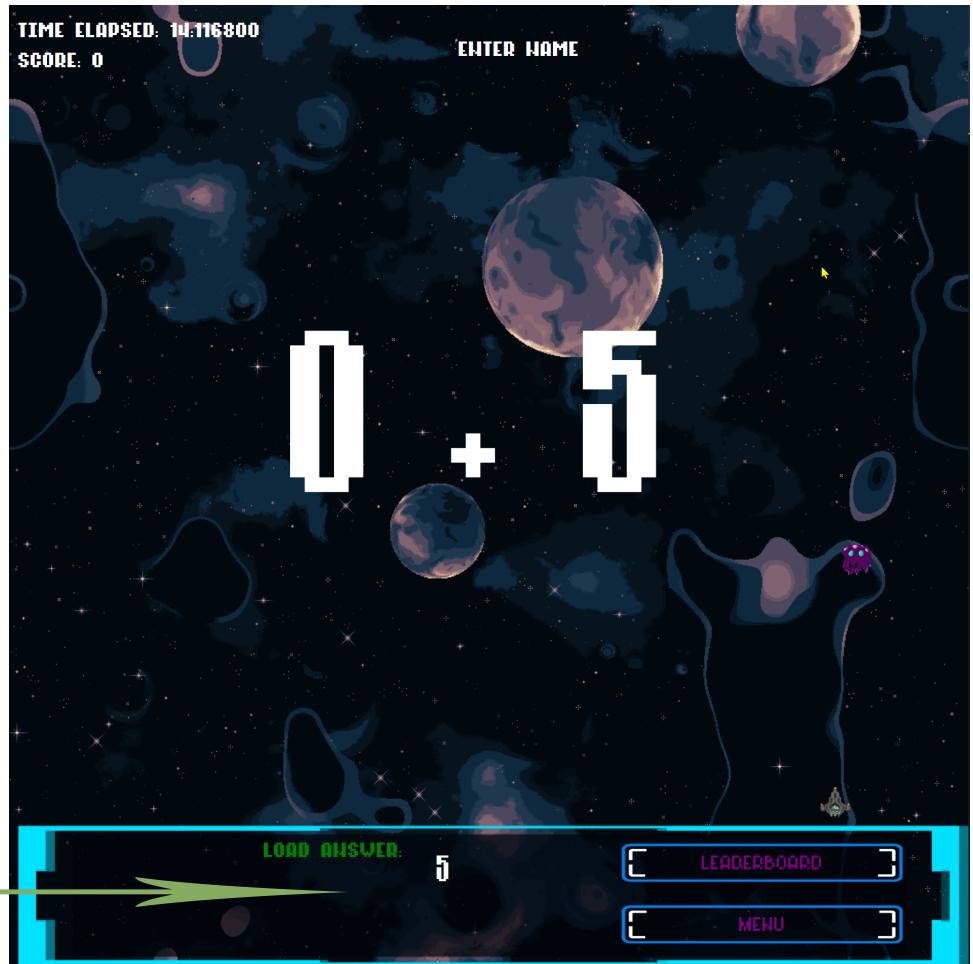
This is the enemy that represents the current problem

The player sits here at the bottom of the screen

This is the player's tray

Use the mouse's location on the screen to move the player's avatar along the track at the bottom of the screen

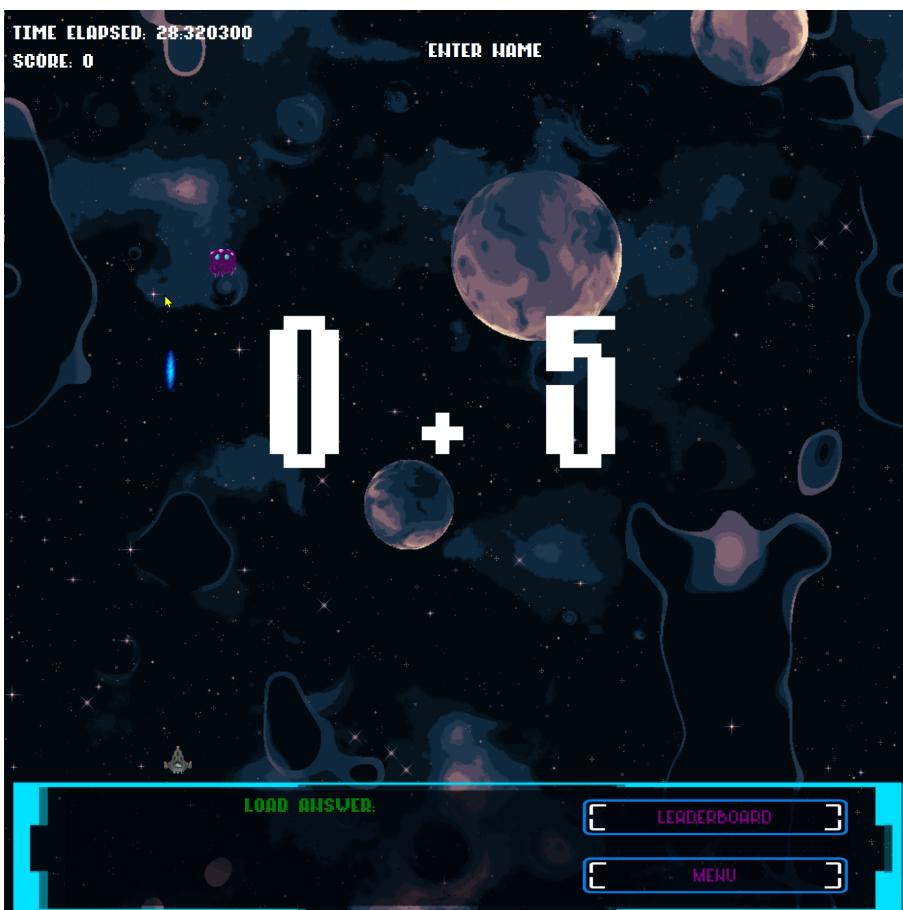
Enter the answer to the problem here.



Click the mouse to launch the projectile with the guess into the game.

If you are wrong the question will become red.

If you are right the problem will change, and the score will increment.





The "Leaderboard" Button will open this tray containing the leaderboard.

The "Menu" Button here will return the player to main menu.