

National Near Earth Object Preparedness Strategy and Action Plan or NNEOPSAAP

Programming Fundamentals 1

User Guide

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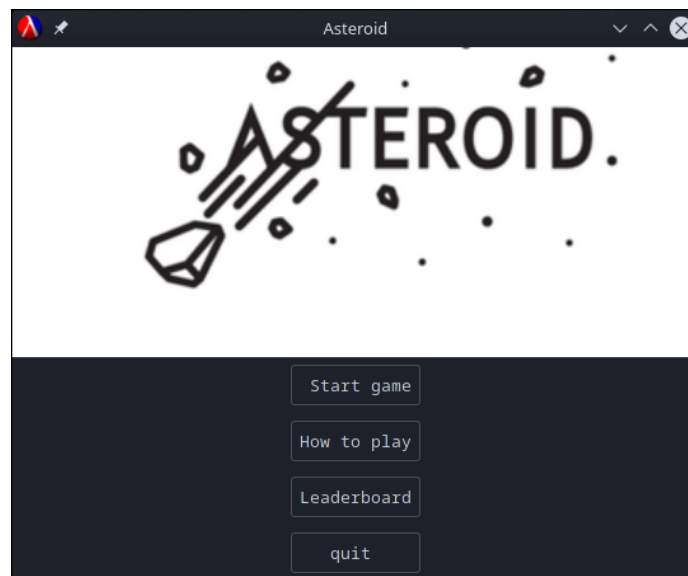
1 Introduction

National Near Earth Object Preparedness Strategy and Action Plan is a game which was designed to be easily playable while providing an enjoyable experience to the player. It is extremely rewarding as it is created to be a single player game that is connected to a main server or a main arena in order to promote competitiveness and diversify the playerbase.

The game is solely written in Racket and is therefore executed by compiling the source code and running the Main.rkt file. The leaderboard software however is not written in racket as it is an additional feature we decided to implement in this project. The leaderboard requires a combination of programming languages due to its complexity and can be found on the cerfeda.com. All interactions to the website and changes to the database are submitted through racket after which a game attempt can be evaluated and compared to previous runs.

2 Main menu

As the player runs the game, he is greeted with a our so called "Asteroid Launcher". This window serves a purpose of introducing the options implemented throughout the development of the project in order to make a player comfortable before committing to run the game, rather than entering a game immediately on source code compilation.



The Launcher consists of 4 options creating the Main Menu of the game. These 4 options are as follows:

"Start game" (Allows player to be greeted with an another window where he will need to input their respective name and the number of lives they are willing to play with, after which he will proceed to enter the game with such settings. This data will be also used to create the database entry for this specific run.)

"How to play" (Upon clicking on this button the player will be able to read this specific document, therefore allows the player to be more familiar with the workings and the nature of the game at hand.)

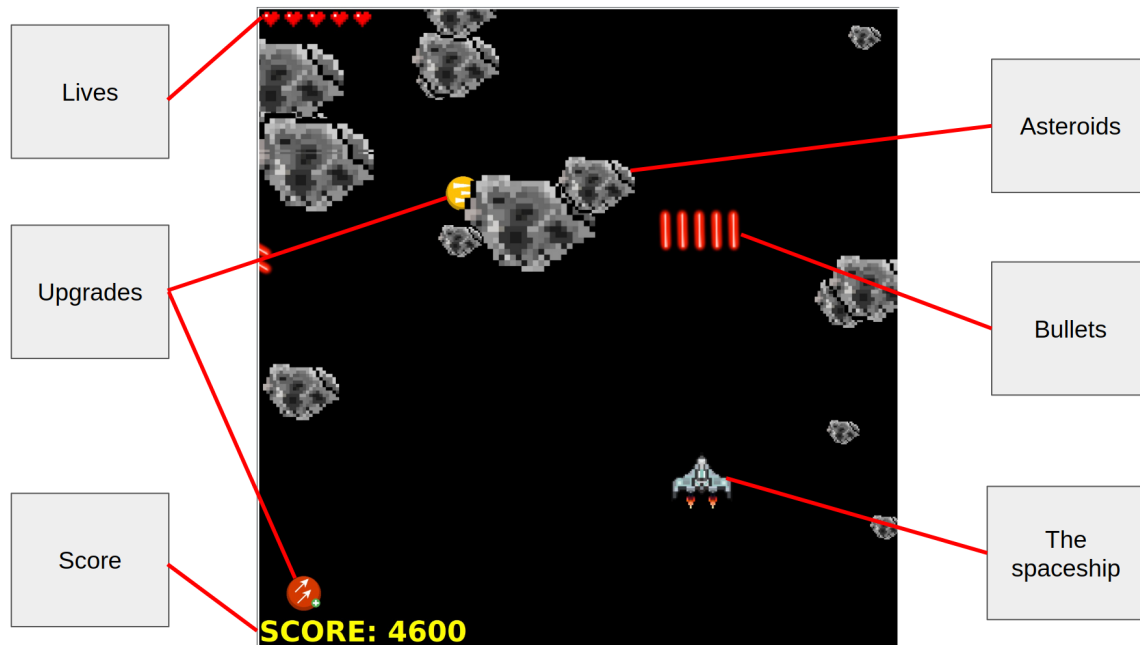
"Leaderboard" (Clicking this button opens a "tab" on the default web browser on the host machine the racket is running on and displays the leaderboard with all previous runs and their respective rankings)

"Quit" (This instruction exits the client and halts the program from running.)

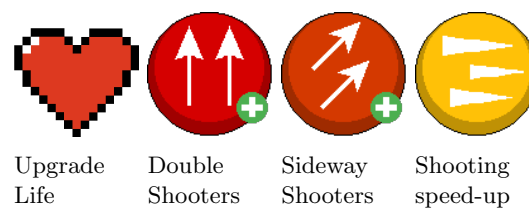
3 The game

Once a user has entered the game his mouse will be bounded to the space ship which will on click shoot bullets. These bullets will travel at a specific speed until they collide with an upcoming asteroid. The goal is to shoot as many asteroids and not let them hit the spaceship.

Every time an asteroid hits the spaceship, the player's life count decrements until there are no more lives left. Every time a bullet collides with an asteroid, the player's score count increments to a higher value. This can happen indefinitely in order to promote the competitiveness on our servers and allow players to break previous records.



We also introduced upgrades in order to have a more diverse player experience.



These 4 upgrades could be found throughout the game and upon collection allow a player to advance the game-state to a more elaborate one. Each of these elements, after collection ("contact") with the ship, let a player enjoy one of the following upgrades:

"Upgrade life" - Increments the life counter and allows a player to make an another mistake while maneuvering through asteroids.

"Double Shooters" - Adds an another "gun" to the front of the ship shooting 2 bullets at the time, which allows a player to hit multiple targets.

"Sideway Shooters" - Adds 2 other "guns" to the sides of the ship shooting at an angle on both sides, this makes the hit rate increase tremendously.

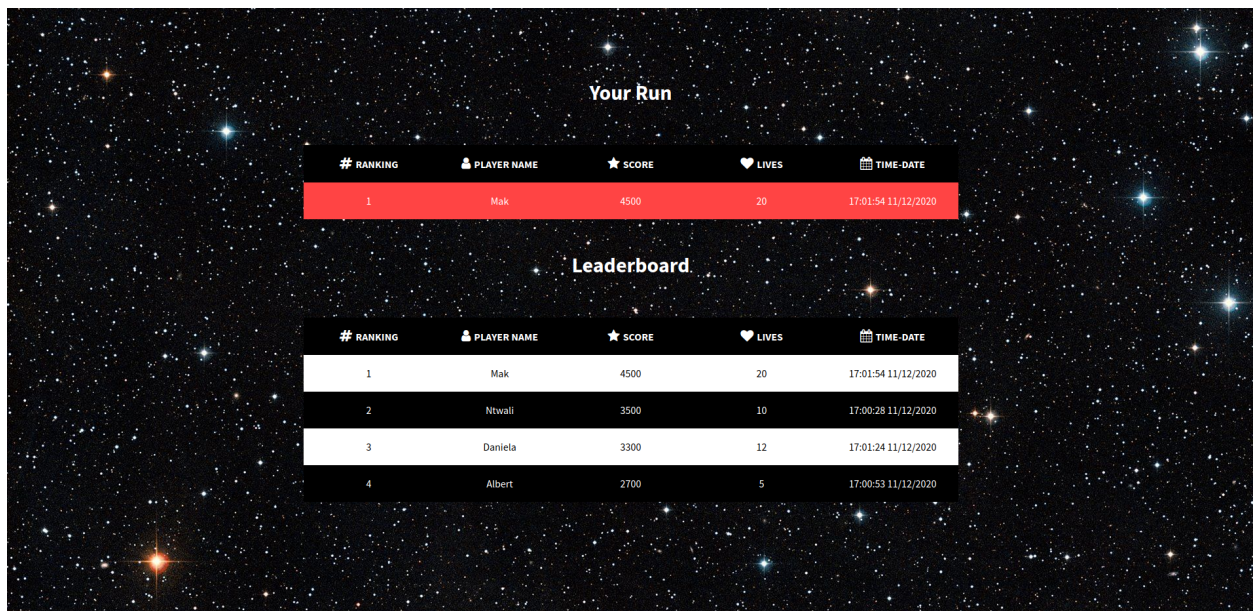
"Shooting speed-up" - Allows the ship to have an increased rate of "bullets per second" which is crucial for catching fast asteroids.

4 The leaderboard

The Leaderboard can be accessed through the button in the main menu that would open a page with the current leaderboard status. It display all current entries that are running on the server and provides a layer with a score of the current run. The "Your Run" section will be empty as the run is not yet completed.

The same leaderboard will be open when the player completes a run. It consists of 5 fields. First field is the time and the date of the entry. To the left of it there is the number of lives a player started the game with. There is also a score which represents the final points a player acquired from the initialization to the exit. The name of the Layer is also passed from the greeting screen before one enters the game to the leaderboard representing the player responsible for that specific run. The final field is the ranking field and it ranks players based on score which they have achieved by playing the game and allows the first player or the "record holder" to be on the top of the page, and other players thereafter.

Example for our development team:



The screenshot displays two tables on a starry space background. The top table, titled "Your Run", has a red header and one data row. The bottom table, titled "Leaderboard", has a black header and four data rows.

# RANKING	PLAYER NAME	★ SCORE	♥ LIVES	📅 TIME-DATE
1	Mak	4500	20	17:01:54 11/12/2020

# RANKING	PLAYER NAME	★ SCORE	♥ LIVES	📅 TIME-DATE
1	Mak	4500	20	17:01:54 11/12/2020
2	Ntwali	3500	10	17:00:28 11/12/2020
3	Daniela	3300	12	17:01:24 11/12/2020
4	Albert	2700	5	17:00:53 11/12/2020

5 Conclusion

Overall we believe that the game offers a pleasant experience with the enjoyable and intuitive interface. The game is easy to use and is ran with only one command. It can run on multiple systems and the leaderboard is accessible even from mobile devices. This makes this project for a perfect cross-platform gaming experience with some added trivia in the form of the game title.