To The Stars!

By: William Mucha

ICS4UP-01

AP Computer Science

A.Motyliwski

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Purpose

The purpose of this project is to demonstrate what I have learned in this class. Some mandatory concepts that I used in my project are the use of different data types including student written class types, use of ArrayLists, use of control structures such as repetitions and selection structures, use of classes and methods, use of polymorphism achieved through inheritance from an abstract class, use of file input and output and use of sorting. Some additional concepts used in my project are the use of StringTokenizer objects and the use of event handling.

Description

"To The Stars!" is a pixelated runner game that has 2 modes, a level mode and an endless mode. The user has control of a spaceship that he has control of the vertical movements of such spaceship that he has to use to dodge asteroids, aliens and to maneuver through gravity fields. The goal the player is reaching for in story mode is to complete all the levels while in survival mode the goal is to reach the highest score achievable by the player.

Achievement

Use of different data types including student written class types:
You can find many different data types in my program ranging from Strings to ints to booleans. Some student written data types can be found in the GameRunner class, some examples would be the TextFile (line 20) class type and the Music (line 22) class type, just to name a few.
Use of ArrayLists:
The use of an ArrayList can be found in the Animation class (line 22). Here the ArrayList is used to hold the frames (Sprite Images in certain order to make an Animation, not the Frame class itself but created from the Frame class).
Use of control structures such as repetitions and selection structures:
Repetitions and selection structures can be throughout the program in many classes, an example would be in the KeyPressed class. There are if statements after if statements checking to see if a certain key is pressed. You can also find while loops in the Game Runner class with break statement (lines 40,47,72 and 93)
Use of classes and methods:
Classes and methods are used throughout the program and you can go into almost every class and find methods. Ex. Alien class

<u>Use of polymorphism achieved through inheritance from an abstract class:</u>
An example for inheritance from an abstract class can be found with the Lobbies class. The Lobbies class is an abstract class that contains the abstract method getImages() which all of its child classes (MainMenu, StoryMode and SurvivalMode classes) have to override and use

<u>Use of file input and output:</u>
All the file input and output code can be found the the TextFile class. The method getTextFile() in the TextFile class is used to retrieve the stored information from the scores.txt file and is called in the MainMenu class to be displayed in the Highscores lobby. The method getHighscore(String name,int givenScore) takes in a string and a given score after the user fails to continue in survival mode. It then compares and sorts all the scores to determine which one is the highest and fills all the information back into the text file after it is done sorting.

<u>Use of sorting:</u>
Use of sorting can be found in the TextFile class. The method getHighscore(String name,int givenScore) takes in a string and a given score after the user fails to continue in survival mode. It then compares and sorts all the scores to determine which one is the highest and fills all the information back into the text file after it is done sorting.

<u>Use of StringTokenizer objects:</u>
Use of StringTokenizer can be found in the TextFile class. It can used to help put the string received from the "scores.txt" file into an array (lines 56-60 and 78-82).

<u>Use of event handling:</u>
Use of event handling can be found throughout the program. The most notable ones can be found in the KeyPressed class (KeyEvent + KeyListener) and in one of the Lobbies child classes (MainMenu, StoryMode, SurvivalMode class) that implements MouseListener (+ MouseEvent).

Unobtainable Goals

A problem that I crossed upon was that the clicking does not fully work, it only works if you click near the bottom half of an image. I am not sure if I am getting the dimensions wrong but this problem is not that major due to the fact that clicking still works.

Satisfaction
The aspect that I find the most pride in about my game is how my end result turned up to be almost exactly what I imagined it to be. I put in so much hard work and effort into this game and seeing it working at full capacity just sheds a tear in my eye. I loved programing this game and if I had the chance to do it again I would, without hesitation.

Regrets
A goal or idea that was not achievable for me due to lack of time was that I was thinking of making a rewards system where the player would be able to unlock and use different sprites or skins for the asteroids and the spaceship if they reached a certain high score or number of completions.

Catholic Expectations
During my culminating, I was a reflective, creative and holistic thinker who solved problems and made responsible decisions with an informed moral conscience for the common good.

Testers' FeedBack
Tester 1 (Kyle): This game looks like minecraft - the fonts especially. Like really… The game mechanics were simplistic in idea yet provided a challenge. I wish you added the ability to shoot things because shooting things in arcade games is fun.

Tester 2 (Matthew): The game is is unique especially the font. You should have added a shoot button but overall it was a good game.

Tester 3 (Jozef): The game was good overall. It was hard enough to give the user a challenge but not hard enough as to it being impossible. I would have liked to be able to shoot and destroy the asteroids and the aliens because I feel like that would take this game to the next level. Gg well played glha.