Pong

Mehrad Haghshenas (2822865)

October 1, 2023

Abstract

Pong is a virtual recreation of the ping-pong game. The game was originally developed in 1972 by *Atari*. In this project, we develop the game using Visual Studio as the *IDE* with the Monogame plugin. In the following some details and how to play the game are described. The game was developed on a Mac computer.

1 Overview

The Project has has two folders, namely, *Content* and *Code*. There are also two files; namely, *Game1.cs* and *Program.cs* which are not inside any folders.

1.1 Content

The content folder contains the images and the font dependencies included in the game. Accordingly, the background, ball, and bat images are represented in png format. They were taken from the following website open game art. The font has been displayed and is *Arial*. However, the note is not being recognized by the project which we will discuss further on.

1.2 Code

Here are the codes for the project. The file *Ball.cs* includes the logic for the ball. Moreover, the *Bat.cs* file consists of the logic for the bats. The *AIBat.cs* was the *optional part* which I did. So the game can be played as a 1-player game and a 2-player game. All these files are a sub class of *Sprite.cs* where the general logic of all these components are written; though some are overridden where necessary. We also keep track of the score of each player. Each player has three lives and when it goes to zero then the game stops. Note that because we could not incorporate the font, there is no display to differentiate between the different states but the game has three states which operate correctly. In other words, the only fault here is that the user is not prompted or no text is displayed when the game goes from one state to the other. The three states are *NotStarted, Started, GameOver*. The game starts when the user presses *space bar* or *A*. If the user presses the space bar then the game will be a two player game. If the user presses the A button then the game will be a one player game; the second player being the AI. The AI is intelligent enough to play the game. The logic behind it is very simple, we take the position of the ball, if the Y, is higher than the current position of the *AIBat* then the bat must move up. If the Y is lower it must move down, otherwise it should not move. The game is in *started* mode until one of the players' lives reaches zero. In that case the, we will have *GameOver*. When the game initially starts, the ball is *ramdomly* generated moving towards one of 8 different directions.

2 Note

Overall in the game moving the paddles, a moving and bouncing ball, storing the number of lives, game states, and playing against a computer has been implemented. However, the game states and lives are not displayed.