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Basics of Game Engines

Task 1

Space Invaders

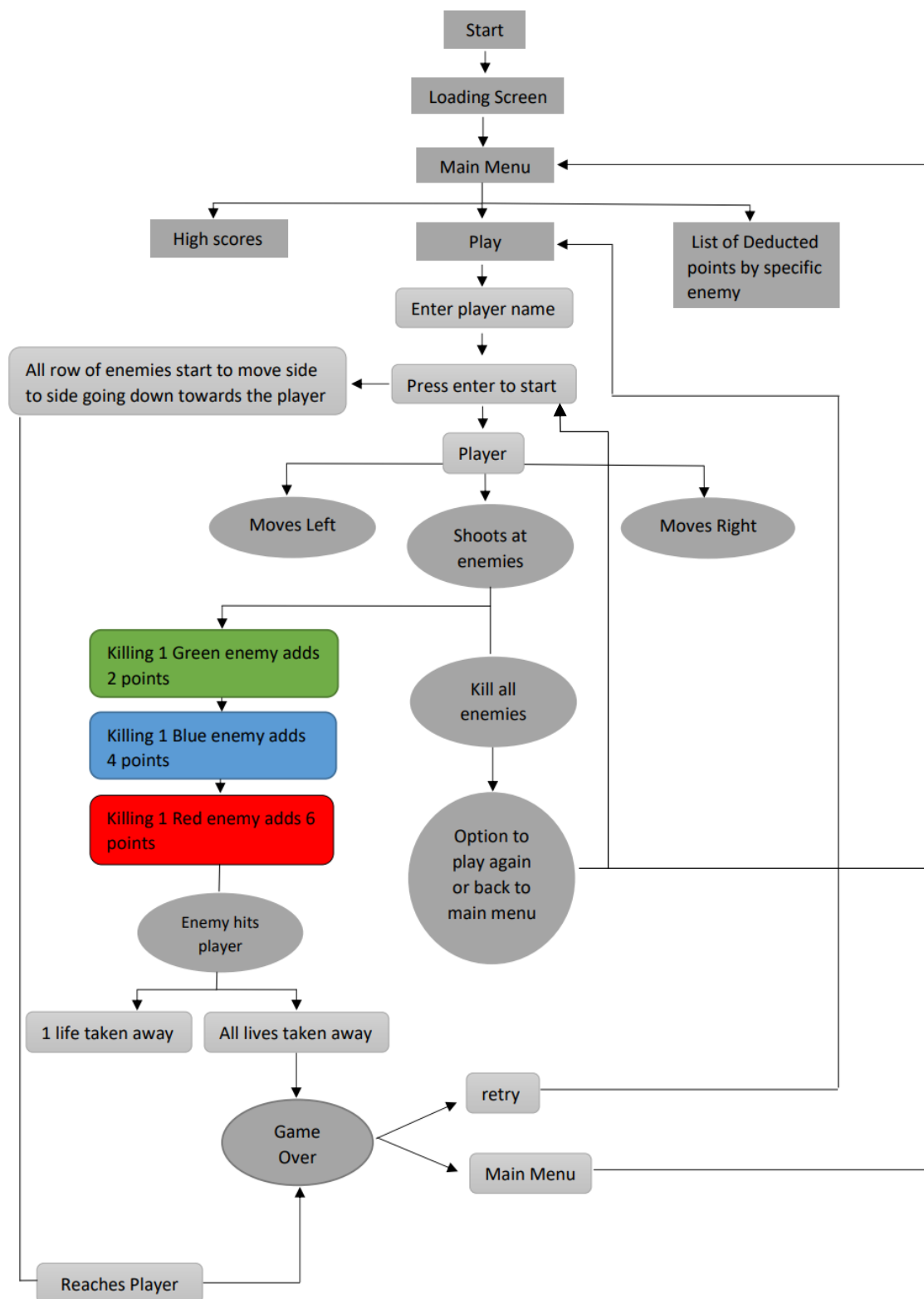
A. **The Target Device**

Space Invaders is an old arcade game created in 1978, by Tomohiro Nishikado, which is a shooting game based on killing enemies coming towards you and gaining points throughout with high scores. The Target device for my game will be on Desktop, where the mouse is used to choose from the options on the main screen of the game, and the left and right arrow keys on the keyboard to move around, as well as the space bar to shoot at the enemies.

Screen Resolution = 256x224 Pixels

2400 - 3FFF (1C00 bytes = $256 * 28$) $28 * 8 = 224$. Screen is 256x224 pixels

B. Gameplay Flow Chart



C. Pseudocode

Players script

//if right arrow is pressed player moves to the right

//if left arrow is pressed player moves to the left

//if space bar is pressed player shoots laser

Game Script

//when the game is opened the loading screen appears

//Main Menu appears showing high scores and specific points deducted from each type of enemy

//when pressing on high scores, a list of names and scores associated with each one appear

//when pressing start the game setup shows on screen

//a box will appear telling you to enter name of the player, following by pressing enter to start the game

//when pressing enter again the enemies start shooting down every 1 second, while moving from side to side of the screen, speeding up at each bounce off the screen

//when player kills all enemies the option to start again, keeping your high score visible, or return to home screen, appears

//when player dies, the game ends (Gameover)

//when player dies, option to retry or return to main menu will appear

//when pressing retry, game set up appears once again, score going back to 0

//when pressing return to home screen, screen will be redirected to the main menu

Player shot (laser)

//when player hits an enemy with laser the enemy dies

//hitting a green enemy adds 2 points to high score

//hitting blue enemy adds 4 points to high score

//hitting red enemy adds 6 points to high score

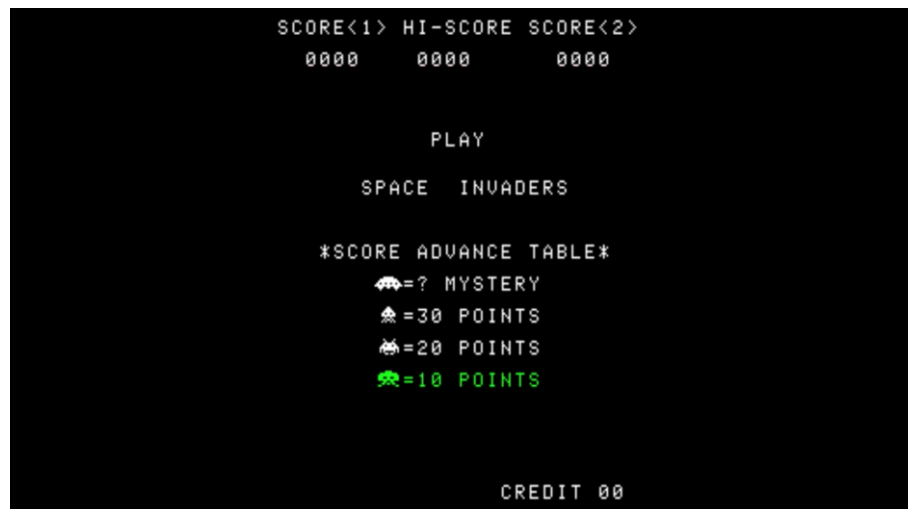
Enemy shot (laser)

//when enemy hits player a life is lost

(Delta Y for shots going 4 pixels down per step)

D. Walkthroughs

-When entering the game, you will be faced with the home screen. High scores being displayed, the amount of points added to your score when killing a specific invader (enemy), and the play option to actually play the game.



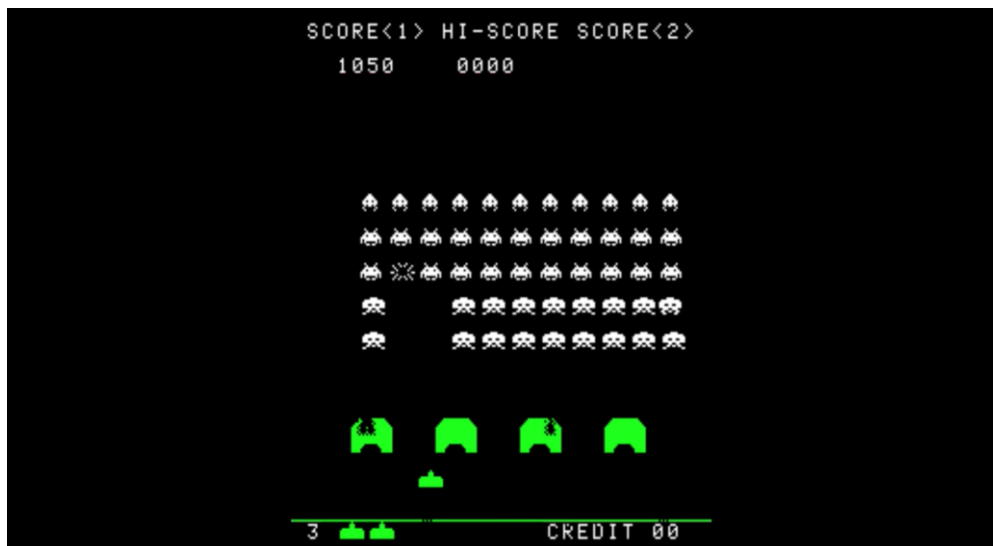
-Once pressing play, you will be faced with the actual game set up, with the amount of lives and credit at the bottom, the player also being at the bottom, and in this case, 4 blocks used as protection from getting hit by the enemy. These blocks eventually break when being hit several times by the enemy. All the rows of invaders in the centre, and the high score at the top of the screen.



-Once starting the game, the rows of enemies all start moving side to side and down a row each time a side is hit, while picking up speed. Your score will also rise as each enemy is killed.



-If you manage to win after killing all the invaders, the game will start again, keeping your high score visible at the top of the screen.



-When losing all your lives, game over will pop up on the screen, giving you the option to play again. In this case, by inserting coins to add credit to play. Your score will also be displayed at the top of the screen.



E. Game Objectives

This particular game falls under the Shooter genre, as the aim of the game is to kill all the enemies coming towards you and gaining points in order to obtain a high score. It is a very simple game to play, but becomes quite addictive once starting, in fact, this game was the most and still is the most influential game in history.

F. Art Assets

