

COMP 7970 Final Project Report

Ravinder Putta (rzp0039)

Star war game is a single-view app in which several objects (space ships) are made to flow on the screen randomly at random positions. These spaceships are then shot by the opposition side's leader ship using missiles. During this game, a score is also displayed on the screen, which is proportional to the number of spaceships shot.

App structure and flow:

This game is developed using apple's 2-D game development framework called "Spritekit". It has many libraries and inbuilt functionality, which greatly makes game development less complicated.

This app in total, has 4 scenes i.e. Initial Scene, Game Scene, Game End Scene and "Game Over" Scene. When the app is launched, viewDidLoad() function of GameViewController class is executed. From this function, the control is then passed to "FirstScene" which displays a button to start the game.

Once the game is started by tapping on "start game" button, the code in the didMove() function of GameScene class is executed. This class has all the functions for adding several nodes and to handle collisions in the GameScene.

Initially the player is added onto the screen and it is made to move horizontally across the screen using addSpaceShip() function and touchesMoved() functions respectively. Once the player is ready, alien ships are added onto the screen by generating random positions across the screen. Then these are made to move from top to bottom. Once any node crosses the bottom it is removed from its parent.

After adding the player and aliens, the player is made to shoot the alienships. This is done using fireMissiles() function. This function is called whenever the user touches the screen to shoot. Whenever user touches the screen, touchesBegan() function is called, and the fireMissiles is called inside this function.

The animation of moving the objects is handled here mostly using the moveTo function of SKAction.

Physics Implementation:

Now to make the nodes in the screen respond to collisions and contacts sprikeKit makes use of physics and it has numerous functions to make this happen. In order to recognize each node in the screen, an identifier is given to every node. Everytime a collision happens on the screen "didBegin()" function is called to handle the collision.

In that function, two nodes are evaluated to see which one is a missile and alien ship using their identifiers. When a missile collides with the alien ship both the missile and alien ship are removed from the parent nodes and the score is updated. Here, once the score reaches above 50 the complexity of game increases by adding more number of nodes per second.

All the mp3 files and images used in the app are found in internet and they are added in the zip file.

Instructions to use the app:

1. Launch the app using any iPhone size in portrait mode.
2. Click on "Start Game" to start the game and "swipe up" to end the game.
3. Shoot the incoming alien ships to increase the score. If any ship passes through the screen without getting destroyed, number of lives will be decreased by one.
4. Once all the lives get used up, the game will end to display "Game Over" screen.
5. To play the game again tap on the "New game" button.

References:

<https://www.raywenderlich.com/123393/how-to-create-a-breakout-game-with-sprite-kit-and-swift>