G51FSE - Galactic War

Design Portfolio

Galactic War will be a 2D arcade shooting game with a theme based on space and spaceship battles. It is going to be designed and implemented using python/pygame.

Prototype

Game concept:

With a basic idea of game content in mind, we have looked at some popular 2D spaceship shooting games such as AttackWave and Galaxy Gunner. We have decided that our game will have a similar theme as we will incorporate a few basic principles from these games outlined above whereas there will also be additional features that will make our game stand out from them. The game is going to be one player only which means that only one spaceship is being controlled by the player. The main objective of the game will be to obtain scores according to both playtime and the number of enemies killed while the second objective will be to level up as playtime increases. The spaceship that the player controls will be able to move freely on the screen and the mouse will be the only mechanism that controls its movements in order to ensure simplicity of control. The player will have 3 lives to begin with, and there will be a health bar that shows the current status of the spaceship. However, the game will be over when the number of lives reaches zero.

Requirements Definition

Our task was to produce an 2D arcade game from scratch through design, prototyping, refinement, implementation, testing, and evaluation stages. The game that we are going to create should be creative and should aim at people of all ages.

Requirements Specification

* **Functional Requirements**

1. The player ship shall be controlled by mouse

1.1 The ship will always face towards the cursor

1.2 The ship will accelerate towards the cursor at a set velocity when the right button of the mouse is held down

1.3 The ship will always chase after the cursor when the right button of the mouse is held down and dragged

1.4 The ship will start to decelerate towards the cursor when the cursor stops moving

1.5 The ship will stop moving when the velocity reaches zero

1.6 The ship will shoot bullets continuously when the left button of the mouse is held down

1.7 The ship will stop shooting when the player lets go of the left button of the mouse

1. The bullets shall be released by both player’s ship and enemies' ships

2.1 The bullets will cause the spaceships (including player’s ship) to lose certain amount of health when they collide with each other

2.2 The bullets will disappear after they collide with other elements

2.3 The bullets will leave the screen when they reach the edges of the window

2.4 The player will be able to choose between click-and-shoot mode and auto-shoot mode

1. The enemies’ spaceships shall travel around the screen

3.1 There will be several types of ships

3.2 The speed of the ships will depend on their type

3.3 The ships may fly towards the player’s ship

3.4 The ships will be destroyed when their health reach zero

3.5 The ships will be destroyed when their collide with player’s ship

3.6 The ships will disappear when they are destroyed

1. Aerolites shall appear randomly into the screen

4.1 Aerolites will come in different sizes

4.2 The speed of the aerolites will depend on their size

4.3 Aerolites may travel in straight line or curved path

4.4 Aerolites may fly towards the player’s ship

4.5 Aerolites will cause the player’s ship to lose one life when they collide

4.6 Aerolites will be destroyed when their health reach zero or when they collide with other elements

4.7 Aerolites will disappear when they are destroyed

1. There shall be a health bar that keep a track of the player’s ship’s status

5.1 The colour of the health bar may change depends on the length of the bar

5.2 The length of the bar will decrease every time the ship collides with a bullet

5.3 The length of the bar will become zero when the ship collides with any elements other than the bullets

5.4 The amount of lives will decrease by one every time the health bar reaches zero

5.5 The game will be over when the number of lives reaches zero

1. There shall be a scoring system

6.1 The score will increase continuously as the playtime increases

6.2 The score will also increase every time an element in the game is destroyed by the player’s ship

6.3 The level of difficulty will increase every time a certain benchmark of playtime is reached

1. Sounds will be played every time an element in the game is destroyed
2. Background music may be playing throughout the game
3. There shall be a highscore board to record the player’s achievements
4. The player might want to have an option in the game which will allow connection to a social network

* **Non-Function Requirements**

1.2 The game must be compatible with Windows operating system, and it may be compatible with other major operating systems

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