Game Documentation: Space Shooter

Overview

Space Shooter is an arcade-style shooting game where the player controls a spaceship and aims to survive as long as possible while destroying enemy spaceships and avoiding asteroids. The game offers power-ups to enhance the player's abilities and introduces increasing difficulty over time. The goal is to achieve the highest score and stay alive for as long as possible.

Gameplay:

Controls:

Use the arrow keys to control the player's spaceship, moving it up, down, left, or right.

Press the spacebar to shoot lasers from the spaceship.

Objective:

Destroy enemy spaceships and asteroids while avoiding collisions.

Survive for as long as possible and achieve the highest score.

Scoring:

The player earns points by destroying enemy spaceships and asteroids.

Each destroyed enemy spaceship contributes to the player's score.

Power-ups

Power-ups appear at regular intervals during gameplay.

Power-ups can be collected by colliding with them using the player's spaceship.

There are three types of power-ups:

Health Power-up: Restores health or grants an extra life.

Infinite Shoot Power-up: Enhances the shooting speed temporarily.

Collision Power-up: Grants temporary immunity to collisions.

Game Over

The game can end in the following scenarios:

Player Spaceship Destroyed: If the player's spaceship collides with an asteroid or an enemy spaceship, the player loses one life. If the player has no remaining lives, the game is over.

Health Depleted: If the player's spaceship sustains too much damage from collisions or enemy attacks, the health is depleted, and the player loses one life. If the player has no remaining lives, the game is over.

Difficulty

The game may increase in difficulty over time, introducing more enemy spaceships and more asteroids.

Power-ups may become rarer or appear at shorter intervals as the game progresses.

Classes

Button

Description: Represents a button used in menus and options.

Functionality: Handles user interactions, renders the button, and manages appearance and behavior.

Powerup

Description: Base class for different types of power-ups.

Functionality: Manages movement, collision detection, and rendering of power-ups.

HealthPowerup

Description: Represents a health power-up.

Functionality: Restores health or grants extra lives to the player's spaceship upon collection.

InfiniteShootPowerup

Description: Represents a power-up that enhances the shooting speed temporarily.

Functionality: Modifies the player's shooting behavior to allow rapid-fire upon collection.

CollidePowerup

Description: Represents a power-up that grants temporary collision immunity.

Functionality: Enables collision immunity for a limited duration upon collection.

Asteroids

Description: Represents asteroids in the game.

Functionality: Handles movement, rendering, and collision detection for asteroids.

Laser

Description: Represents lasers shot by the player's spaceship and enemy spaceships.

Functionality: Handles movement, rendering, and collision detection for lasers.

Ship

Description: Base class for the player's spaceship and enemy spaceships.

Functionality: Provides common functionality such as shooting lasers, managing cooldowns, and rendering.

Player

Description: Represents the player's spaceship.

Functionality: Extends the Ship class with features specific to the player, such as health management, score tracking, and user input handling.

Enemy

Description: Represents enemy spaceships.

Functionality: Extends the Ship class with features specific to enemies, such as computer controlled movement patterns and shooting behavior.

Conclusion

This documentation provides an overview of the Space Shooter game, including gameplay mechanics, controls, objectives, scoring, power-ups, conditions for game over, and class descriptions. It serves as a guide for players and developers to understand the game's functionality and rules.