Lab 1: 2D Unity Game – Space Explorer

Unity version: 6000.0.32f1

# A. Game Concept

Space Explorer is a 2D space-themed game where the player controls a spaceship, navigating through space while avoiding asteroids and collecting stars to enhance their ability.

# B. Game Elements

## 1. Spaceship (Player)

### 1.1 Description: A 2D spaceship that the player controls.

### 1.2 Functionality:

#### Move in all directions using the arrow keys.

1. Collect buff randomly by drop or kill asteroids

### 2. Asteroids

### 2.1 Description:

1. Floating 2D objects appearing from the top of the screen.
2. Fall vertically at varying speeds.
3. Can damage or destroy the player.
4. Can be destroyed by bullets.
5. Occasionally spawn a star on destruction.

### 2.2 Functionality

1. The game starts with a Start screen; the player presses Start to enter the main gameplay.
2. The player controls a spaceship that can move in all directions to avoid asteroids.
3. If the spaceship collides with an asteroid, the game ends.
4. Asteroids appear randomly.
5. The player can shoot to destroy asteroids.
6. Collecting stars increases the score or grants buffs.
7. Asteroid speed and difficulty increase as the level goes up.

### 2.3 Level Progression

1. Asteroid speed increases gradually, making them harder to dodge.
2. Asteroids spawn more frequently at higher levels.
3. Players must adapt to faster and more dangerous threats to survive longer.

## 3. Stars (Item Drop)

### 3.1 Description

### Collectible 2D stars appearing in space.

### Spawn approximately every 1 second or randomly when asteroids are destroyed with 10%.

### 3.2 Functionality

### Collecting stars increases the player’s score (which varies by star type) or grant buffs.

### May contribute to increasing asteroids’s speed and spawn rate.

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# C. Game Flow

## 1. Start Scene

1. **Play Button**: Starts the game and transitions to the Gameplay Scene.

## 2. Gameplay Scene

### 2.1 Game Elements

1. **Spaceship** – The player-controlled object.
2. **Asteroids** – Obstacles that the player must avoid or destroy.
3. **Stars** – Collectibles that increase the player's score or grant buff.

### 2.2 Objective

1. Navigate the spaceship while avoiding asteroids.
2. Collect stars to increase your score.
3. The game ends when the spaceship collides with an asteroid.

### 2.3 UI Elements

1. Score display to track the player's points.
2. Level display to show the current game level.

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## 3. End Game

1. When the game ends (the spaceship collides with an asteroid), the **New Game** button iis shown.
2. Selecting **New Game** navigates the player back to the Start screen.

# D. Future Development

1. Add more types of asteroids with different behaviors.
2. Develop additional enemy types to increase game variety.
3. Introduce various buff items to enhance gameplay and player abilities.
4. Implement spaceship upgrades to improve player’s stats and skills.