

Laser Defender

Game Design Document

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Description Of Game

Laser defender is a modern 2D clone of Space Invaders. In particular, it takes from space invader the movement and fire mechanic, but omits the destructible covers. The player, represented by a spaceship, will be able to move within the play space using the left and right arrow keys, while shooting projectiles upward in the playspace.

The game will be a single infinite level, with enemies perpetually spawning as the player destroys them. Each destroyed enemy will earn the player score points, with the aim of the game being to reach the maximum score before the player's inevitable destruction by an enemy. Enemies will also shoot projectiles, that the player will have to avoid.

Key features:

- Player ship will be able to move left and right within the game space.
- Player actions will be reflected in animation of the player ship
- Player ship will shoot one type of projectile
- Enemies will fly in formation
- Enemies will have an animation while in formation
- Enemies will be spawned outside the playspace and fly into their formation position
- Upon destruction, enemies and player will animate as a fireball
- The background to the game will be animated and give the impression of flying through space
- When a projectile strikes an object, it will play a small strike animation
- Sound will be generated by the following events:
 - player fires
 - enemy fires
 - player is destroyed
 - enemy is destroyed
 - player projectile strikes enemy
 - enemy projectile strikes player
- Background music will also play during the game
- The player will have three lives, and be able to absorb three enemy shots before dying

- Enemies may require more than one shot to be killed.

What You'll Learn

After learning about collisions in BlockBreaker, Laser defender will be used as an exercise to learn about triggers. In addition, 2D animations, in particular, Laser defender will introduce you to the Mecanim animation framework, which will enable complex animations and animation states by using a simple visual interface. We will also review and practise past lectures, in particular lessons on creating and manipulating prefabs will be thoroughly reviewed.

Screen Mockups



How to extend Laser Defender

There are many possible extensions to laser defender. In particular, we think that the following areas would be interesting to develop.

- **Multiple enemy types** could be achieved, and would lead to a nice game progression if the enemies spawned became progressively harder to beat.
- **Multiple projectile types** would let the player decide between which weapons to use, or would allow more diversity in the incoming enemy attacks.
- **Debris** could be an interesting addition to the game. It could cause mayhem amongst enemies (which is always fun) but could also be yet another thing for the player to

keep track of while playing. Debris could be shot off destroyed enemies, or just one particular type of enemy.

- **Power Ups** Would be a great addition to Laser Defender. Power-ups could enable the player to have a continuous beam of energy, or fire spread shots, or have invincibility for a short time.
- **Loot drops** by the enemies (power ups/health bonus/etc...) would make the game more interesting. In particular, if enemies dropped health regeneration bonuses, the game could then be played for longer.