

# Introduction to Game Development

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# Paradox Games

## Internal Development Studios

- Europa Universalis IV
- Crusader Kings 2
- Stellaris
- Hearts of Iron IV
- Magicka 2

## Paradox Interactive

- Cities: Skylines
- Pillars of Eternity
- Knights of Pen and Paper 2





# Paradox Interactive

- Swedish Company
- Main office in Stockholm
- Paradox Arctic in Umeå
- 200 Employees
- Started in 2004
- Careers Site: [career.paradoxplaza.com](https://career.paradoxplaza.com)

# Who Are We?

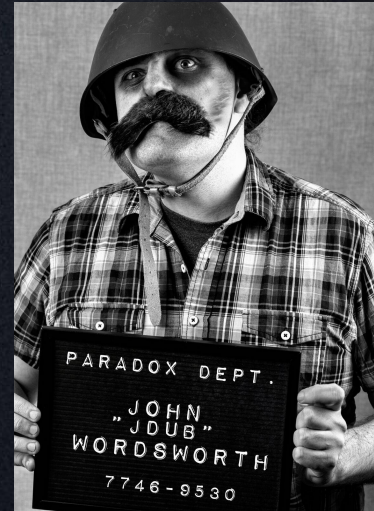
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# Before We Start

Groups of 2-3

Download Starter Pack

<http://tinyurl.com/tjejerk>

# Workshop Overview

1. Setting Up
2. Starter Project Overview
3. Challenges and Ideas
4. Tips & Hints





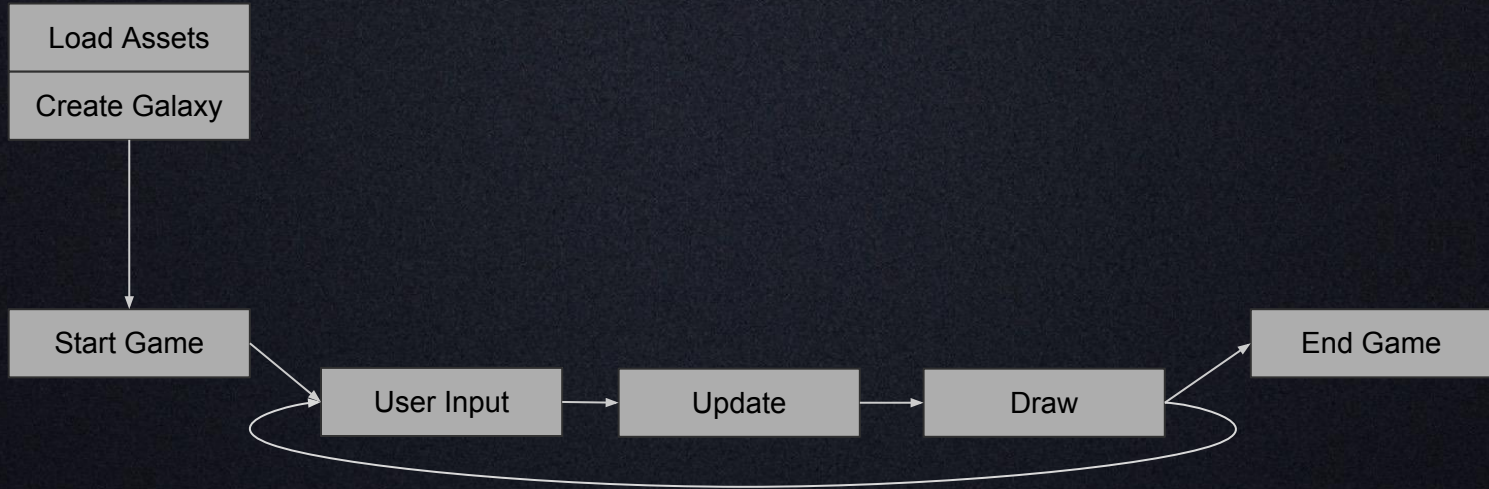
# Setting Up: Overview

Everything you need can be found in the Starter Pack.

- **Chrome / Firefox:** Install this first if you don't have it installed.
- **Brackets Editor:** Just run...  
    Brackets/Windows/brackets.exe  
    Brackets/macOS/Brackets.app
- **Stellaroids Phaser:** Contains the Phaser starter project.
- **Stellaroids Canvas:** Contains the harder Canvas-based project.



# Project Overview





# Project Overview

## Concepts

- **Game States**
  - Title Screen
  - Main Game
  - Game Over
- **Galaxy**
  - Spawn actors
  - Update actors
  - Destroy actors

## Soundtrack Copyright

- If you share this game online in the future, please don't include...  
"Luminescence.mp3"

# Setting Up: Demo

- Small edits, refresh often!



# Quests & Challenges

## Main Quests

- Tweak Game Behaviour.
- Moving Asteroids.
- Add background music.
- Asteroids and bullets should collide.
- Add sound FX.
- Adding more asteroids.
- Ending the game.

## Side Quests

- Special “Bomb” attack.
- Extra life pickups.
- Different sized asteroids
- Different Stages
- Bullets bounce off of wall
- Player shield
- Make your own collision detection
- Add an end boss
- Alien Spaceships

# Quest Guide



# Quest: Tweak Game Behaviour

## Specification

- Make the player ship move faster / slower to your liking!
- Change the size of the game world to fit your screen.
- Make the bullets faster/slower.

# Quest: Tweak Game Behaviour

## Hints

- Open **game/player.js** and tweak some of the variables in the `.create()` function.
- Open `game/bullets.js` and tweak bulletSpeed and bulletLife.
- Open `index.html` and tweak gameWidth and gameHeight.



# Quest: Moving Asteroids

## Specification

- The asteroids start out boring and still, let's make them move!
- Asteroids should start the game spinning.
- Asteroids should start the game moving.

# Quest: Moving Asteroids

## Hints

- Add 'asteroid.setRotation()' to make the asteroids spin when you create them in setRotation.
- Use thrust to make the asteroids kick in a direction



# Quest: Adding Background Music

## Specification

- Play “music/luminescence.mp3” when the game starts.

# Quest: Adding Background Music

## Hints

- Use game.load.audio to load the audio files in ***assets.js***.
- In ***maingame.js*** add code to play the background music in the create function.
- Use game.add.audio and .play() to create an audio object and play the audio.



# Quest: Asteroids and Bullets Colliding

## Specification

- When a bullet hits an asteroid, both should be destroyed.

# Quest: Asteroids and Bullets Colliding

## Hint

- See `player.js` for how the player collides with asteroids.
- Add `'this.sprite.body.collides(...)'` to `asteroid.js`.
- In the “onHit” function that is called, use `'this.destroy()'`.
- Do the same for `bullet.js`.



# Quest: Adding Sound FX

## Specification

- Play “audio/player\_fire\_01.mp3” whenever a new bullet is spawned.
- Play “audio/asteroid\_death\_01.mp3” whenever an asteroid is destroyed.
- Play “audio/player\_death.mp3” whenever the player dies.

# Quest: Adding Sound FX

## Hint

- Add the audio files in assets.js.
- Create a sound object using `'explosion = game.add.audio('explosion');'`
- Play the sound effect using `explosion.play()`



# Quest: Adding more Asteroids

## Specification

- Having only 2 asteroids is boring...
- When the game starts, create 5-10 asteroids at random locations.

# Quest: Adding more Asteroids

## Hints

- In the create() function in game/galaxy.js, make a for loop to spawn a number of asteroids.
- Instead of using a fixed X, Y position in “new Asteroid()”, use ‘Math.rand() \* GameInfo.worldWidth’ or ‘Math.rand() \* GameInfo.worldHeight’ to pick a random point in the game world.



# Quest: Ending the Game

## Specifications

- If the player runs out of lives, the game should return to the title screen.
- If the player destroys all of the asteroids, the game should return to the title screen.

# Quest: Ending the Game

## Hints

- In `player.js`, when the player dies, check to see if the number of lives remaining is zero or less. If it is, use `'game.state.start()'` to go back to the title screen.
- In `galaxy.js`, use `numberOfAsteroids()'` to check to see if the number of asteroids remaining is zero or less. If it is, go back to the title screen.