

Rocket Patrol

Making a Game (in Phaser)

Schedule Overview*

6/22	Introduction
6/24	Programming Our First Phaser Game
6/29	Version Control & Scenes
7/1	Input and Movement
7/6	Physics and Debugging
7/8	State Machines & Cameras
7/13	JSON, Tilemaps, Map Editors
7/15	Tweens & Particles
7/20	Special Topics
7/22	Final Presentations

*This will inevitably change a bit

Schedule Overview*

6/22	Introduction		
6/24	Programming Our First Phaser Game	Rocket Patrol Tutorial Due	6/26
6/29	Version Control & Scenes	Rocket Patrol Mods Due	6/29
7/1	Input and Movement		
7/6	Physics and Debugging	Endless Runner Due	7/6
7/8	State Machines & Cameras		
7/13	JSON, Tilemaps, Map Editors	Final Game: First Build	7/13
7/15	Tweens & Particles		
7/20	Special Topics		
7/22	Final Presentations	Final Game Due	7/22

*This will inevitably change a bit

First Day Survey

- "accessing Google is not really easy in my place."
 - ◆ I've made the slides available via GitHub
 - ◆ If there is any part of the class that is inaccessible to you please let me know!
- "an easy weekly to-do list"
 - ◆ The Course Summary at the bottom of the [Canvas page](#) is the most accurate to-do list
- "Sufficient time between readings"
 - ◆ I tried to place the readings when they'd be useful for you to know...
 - ◆ ...but the secret is that there's no late penalty and they'll be available until the end of class.

First Day Survey

- A group willing to meet in person / a group in my time zone
 - ◆ Sounds like we should make it a priority to make it easy for people to match with each other
- "a variety of times to talk to TAs and professors for help"
 - ◆ I'll have my office hours schedule posted next week
 - ◆ Working on getting the TA in place
- "I would like to get better at Javascript" / "watching or following along helps" / "improve my debugging skills" / "know where to put files"
 - ◆ We're going to be doing a lot of all of this.
- Provide lecture recordings
 - ◆ This was the plan from the beginning

Javascript Experience

"Have you used JavaScript
before?"



Office Hours

Working on the long-term
schedule.

For this week...

Friday:

8am - 9am

1pm - 3pm

This week's to-do list

- Thu Jun 24, 2021 (due by 9am)
 - ◆ First-Day Survey
 - ◆ How is your programming environment setup?
 - ◆ Web Dev Basics
- Fri Jun 25, 2021 (due by 11pm)
 - ◆ Eloquent JavaScript: Values, Types, Operators, & Program Structure
- Sat Jun 26, 2021 (due by 9pm)
 - ◆ Rocket Patrol Tutorial [~3–5 hours]
- Tue Jun 29, 2021 (due by 9am)
 - ◆ Eloquent JavaScript: Functions, Data Structures, Objects, & Classes
 - ◆ Rocket Patrol Mods [~10–15 hours]

JavaScript

More Javascript

Translate some 2010s JavaScript into 2020s JavaScript

```
function summarizer1(pairs, combine, initial) {  
  var combine = combine || function(a,b) {return a+b};  
  var initial = initial || 0;  
  
  var results = {};  
  
  for(var i = 0; i < pairs.length; i++) {  
    var pair = pairs[i];  
    var key = pair[0];  
    var value = pair[1];  
    var previous = key in results ? results[key] : initial;  
    results[key] = combine(value, previous);  
  }  
  return results;  
}
```

Slides full of code that you can't copy-paste??

Let's open these in VSCode instead! We can get some additional practice along the way.

(copyable text in the slide notes)

```
function summarizer2(pairs, combine = (a,b) => a+b, initial = 0) {  
  let results = new Map();  
  for(let [key, value] of pairs) {  
    results.set(key,  
      combine(value,  
        results.has(key) ? results.get(key) : initial));  
  }  
  return results;  
}
```

This Class:

Follow along as I
program a game!

Rocket Patrol (1978)



Gameplay



Platform

What was happening in 1978?



A [film](#) was released.



A [plane](#) crashed.

What else was going on?

- The Cold War continues in the shadow of the moon landings and the Resistance War Against America.
- Militarization of space in popular culture:
<https://www.youtube.com/watch?v=vzyHxYxc-Mo>
- Defensive rocket installations:
https://en.wikipedia.org/wiki/Stanley_R._Mickelsen_Safeguard_Complex
- BSG Cylons as allegorical Soviets:
[https://en.wikipedia.org/wiki/Battlestar_Galactica_\(1978_TV_series\)#Criticism_and_legal_actions](https://en.wikipedia.org/wiki/Battlestar_Galactica_(1978_TV_series)#Criticism_and_legal_actions)



The galactic negotiations between the people and the Cylons really resembled the U.S./Soviet SALT talks—not in their actual form but in the perverted interpretation of the enemies of the treaty from the family of Washington hawks...Their inspiration is the pumping-up of military, anti-Soviet hysteria, which in this case is disguised in the modern costume of socio-scientific fantasy...Anti-Soviet symbolism dressed in a transparent tunic of science fiction.

Melor Sturua, Izvestia



Rocket Patrol notes

- Player controls the launcher, the ~~Soviets/Cylons~~/computer controls the ships
- Player shoots one missile at a time (likely due to hardware limitation)
- Time limited gameplay (like arcade shooting galleries)
- Left-right movement maps to knob control (I think)
- Simple text display at top (state-of-the-art video text rendering)

Let's make our own version of this game!

Assignment

Follow the
Rocket Patrol
Tutorial

Assignment: Rocket Patrol Tutorial

Complete the in-class [Rocket Patrol tutorial](#).

Turn in two things to Canvas:

- a link to your public GitHub repository
- a link to your published, playable game (using GitHub Pages)

Please be sure to test your game in Chrome—that's the browser we use to grade.

Remember our contract of trust in this class. You could clone my finished game and turn it in as your own, but you won't learn anything that way, and it'd be an odd waste of your time. Choose the TRUE path: type in your own work 👍

Assignment

Modify Rocket Patrol

Assignment: Modify Rocket Patrol

Before you start: Please clone your Rocket Patrol tutorial so you have a fresh repository for your modifications!

Starting Tier

- Track a high score that persists across scenes and display it in the UI (5)
- Implement the 'FIRE' UI text from the original game (5)
- Add your own (copyright-free) background music to the Play scene (5)
- Implement the speed increase that happens after 30 seconds in the original game (5)
- Randomize each spaceship's movement direction at the start of each play (5)
- Create a new scrolling tile sprite for the background (5)
- Allow the player to control the Rocket after it's fired (5)

Assignment: Modify Rocket Patrol

Before you start: Please clone your Rocket Patrol tutorial so you have a fresh repository for your modifications!

Novice Tier

- Create 4 new explosion SFX and randomize which one plays on impact (10)
- Display the time remaining (in seconds) on the screen (10)
- Replace the UI borders with new artwork (10)
- Create a new animated sprite for the Spaceship enemies (10)
- Create a new title screen (e.g., new artwork, typography, layout) (10)
- Implement parallax scrolling (10)

Assignment: Modify Rocket Patrol

Intermediate Tier

- Create a new spaceship type (w/ new artwork) that's smaller, moves faster, and is worth more points (20)
- Implement an alternating two-player mode (20)
- Create new artwork for all of the in-game assets (rocket, spaceships, explosion) (20)
- Implement a new timing/scoring mechanism that adds time to the clock for successful hits (20)
- Implement mouse control for player movement and mouse click to fire (20)
- Use Phaser's particle emitter to create a particle explosion when the rocket hits the spaceship (20)
- Create and implement a new weapon (w/ new behavior and graphics) (20)

Assignment: Modify Rocket Patrol

S(hrek) Tier

- Implement a simultaneous two-player mode (30)
- Redesign the game's artwork, UI, and sound to change its theme/aesthetic (to something other than sci-fi) (60)

#FACADE Tier

- Create your own mod and justify its score (👤) ⬅️ requires teaching team approval

Assignment: Modify Rocket Patrol

Please submit the following items to Canvas:

- a link to your public GitHub repository
- a link to the game hosted on GitHub pages

And in your source code, remember to:

- Include a comment with your name, project title, date, and how long it took to complete the project
- Include a comment in your main file that includes your points breakdown (along with any necessary explanation)
- Cite your sources if you received help from anyone 💪

Bonus Slides

Framework

A “foundation” or “support structure” **around which** you build an application.

Frameworks provide a relatively static, generic structure on and in which you build something specific and unique.

You build **with** a framework

Phaser
Three.js
P5.js
ImpactJS
LÖVE
MonoGame

Engine

Full-feature toolsets that handle core logic and implementation details upon which you build an application.

Engines provide a self-contained but externally-controllable piece of code that encapsulates powerful logic designed to perform a specific kind of work.

You build **on** an engine

Unity
Unreal
CRYENGINE
Construct2
GameMaker
Godot
Frostbite



How do you choose a framework, anyway?

First, get your head straight

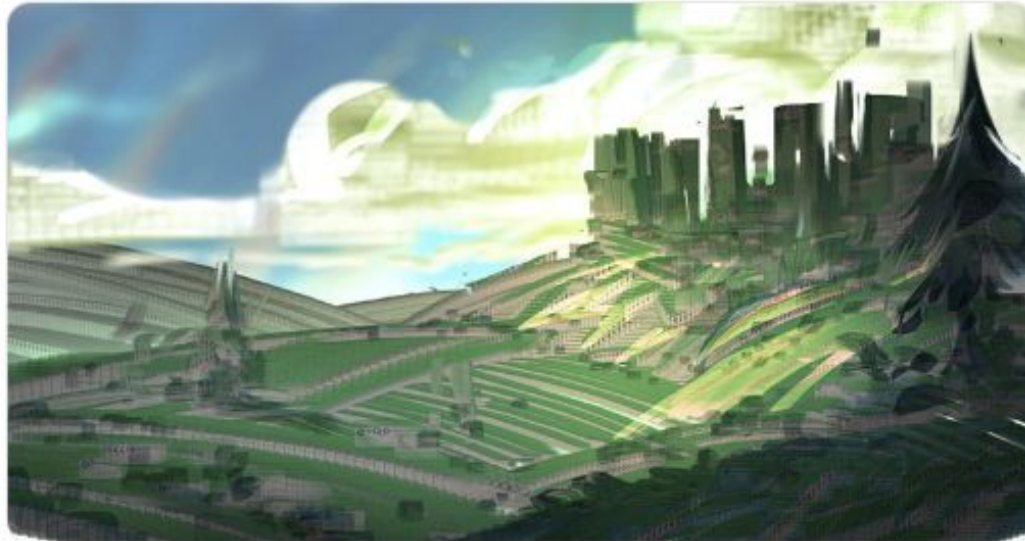
It's **not** the tools

I like this example...



Carlos Ruiz @Kairuiz_ · 20 Apr 2017

So let's say I was doing environment sketches just for fun



💬 10

🔄 511

❤️ 737



Carlos Ruiz

@Kairuiz_

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10 511 737



11:22 AM - 20 Apr 2017

668 Retweets 967 Likes



Some Helpful Questions

- What works best for you and/or your team?
- What fits your skill level?
- What workflow makes sense to you?
- What creates the least amount of friction?
- What fits your budget?
- What are your target platforms?
- What scales to multiple games or genres?
- Can I get help when I need it?
- What quality of help will I receive?
- What compromises am I comfortable making?
- Will I be able to achieve my target goal?