Dev – Basics 1

Minor Game Design & Development

HOGESCHOOL ROTTERDAM

Dev Class Intro

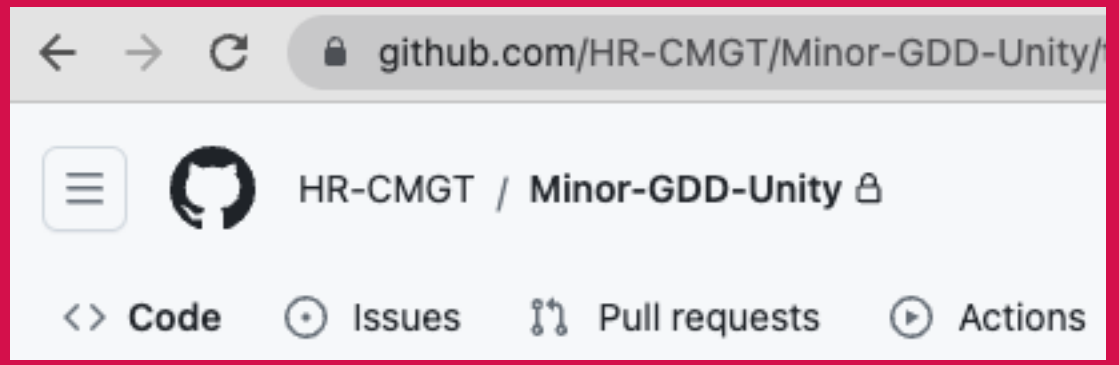
- Unity, C#
- Focus on 2D, then 3D
- Github, Discord

Part 1

- Github MGDD
- Github Documentation
- Unity Startproject
- Unity Package Manager
- Assignment (StartProject)
- Rigidbody2D - Component
- Rigidbody2D - Scripting
- Unity Documentation
- Unity Learn
- Unity’s Script Lifecycle

Github MGDD

https://github.com/HR-CMGT/Minor-GDD-Unity/



Github Documentation

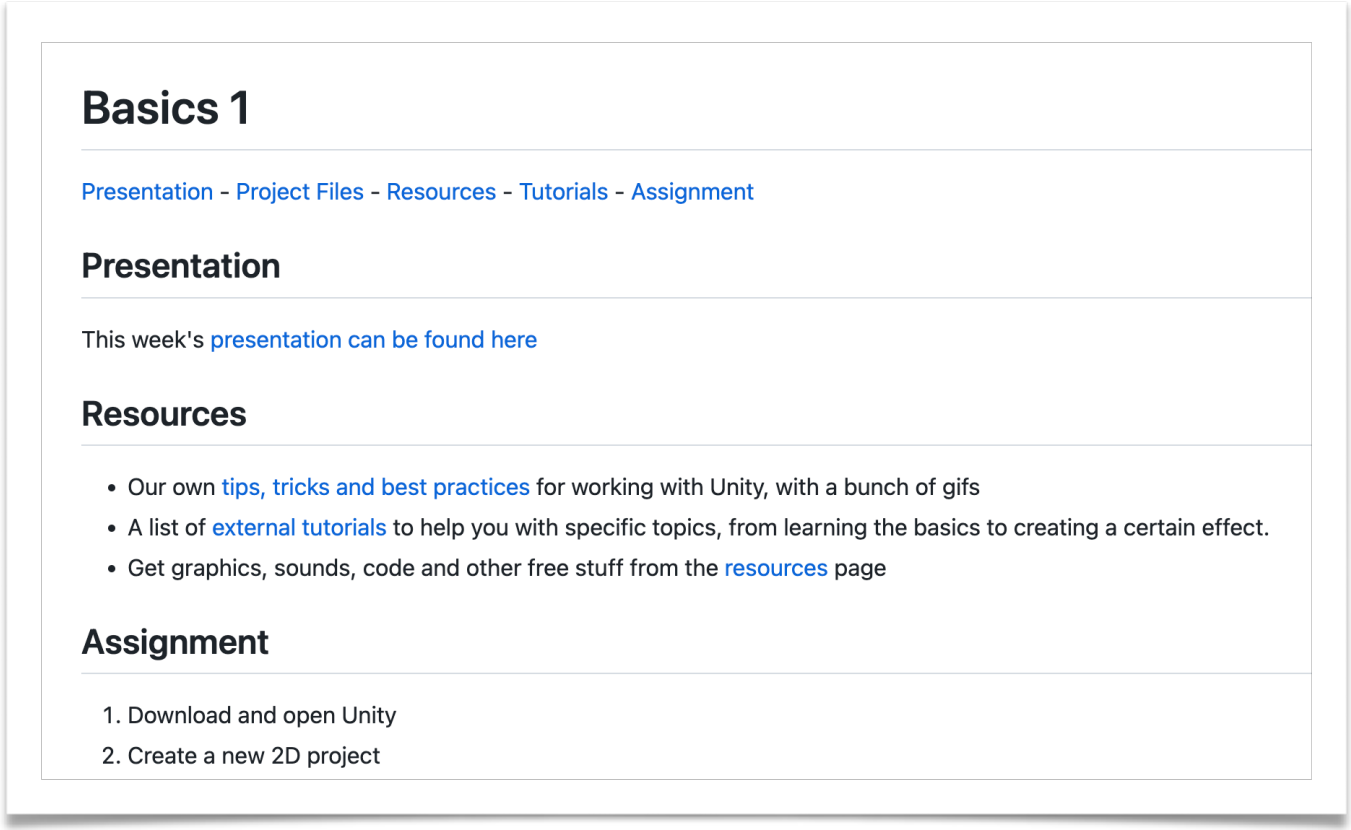
Resources

Tutorials

Project Files

Unity Tips & Best Practices

Code Snippets



Basics 1

Presentation - Project Files - Resources - Tutorials - Assignment

Presentation

This week's presentation can be found here

Resources

- Our own tips, tricks and best practices for working with Unity, with a bunch of gifs
- A list of external tutorials to help you with specific topics, from learning the basics to creating a certain effect.
- Get graphics, sounds, code and other free stuff from the resources page

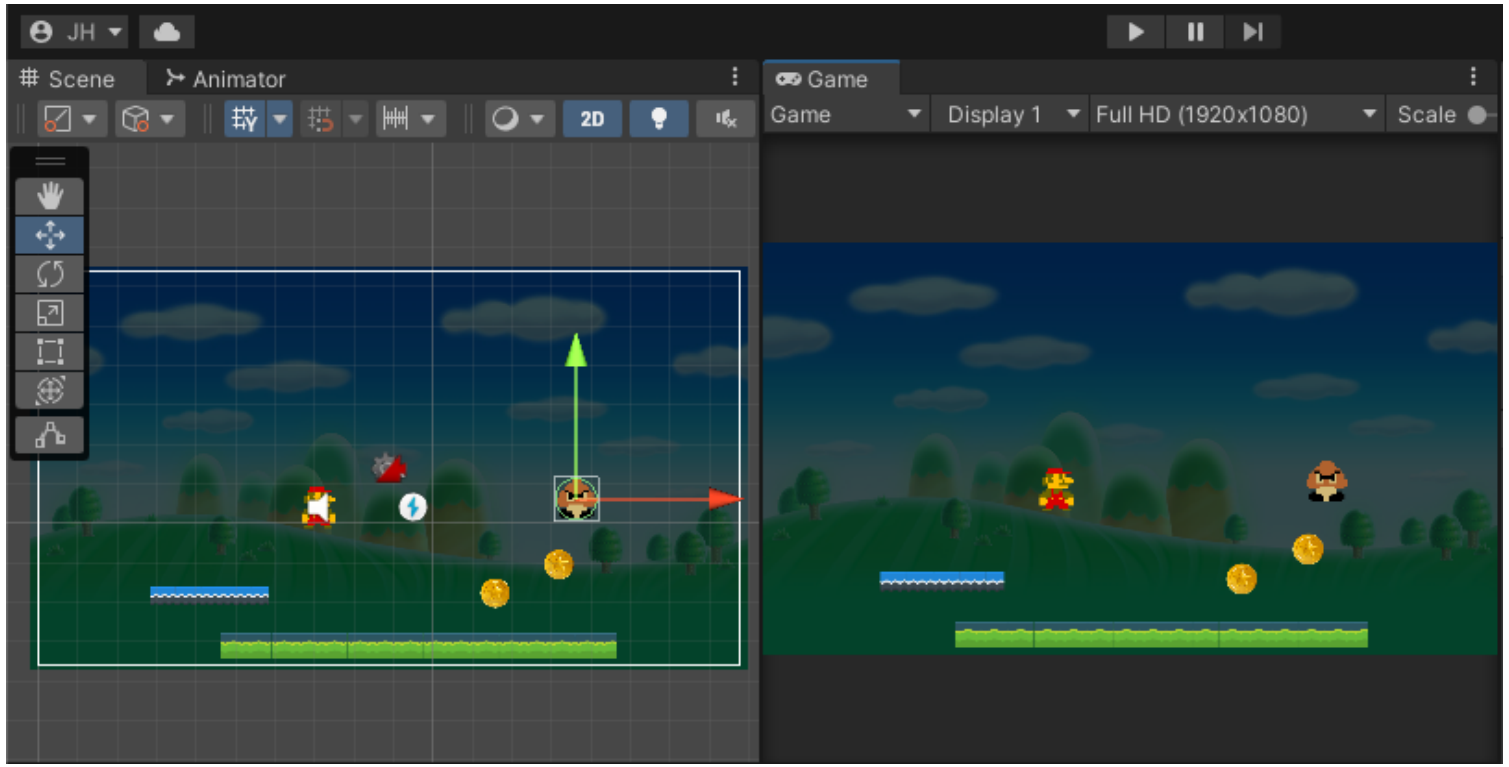
Assignment

1. Download and open Unity
2. Create a new 2D project

Unity Startproject

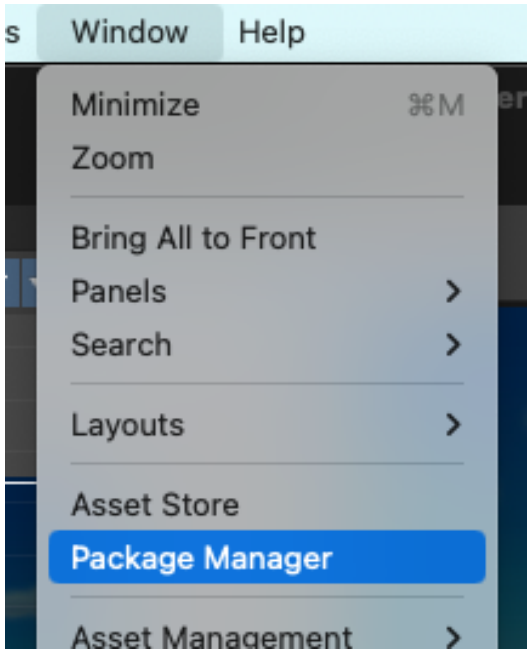
UnityPackage

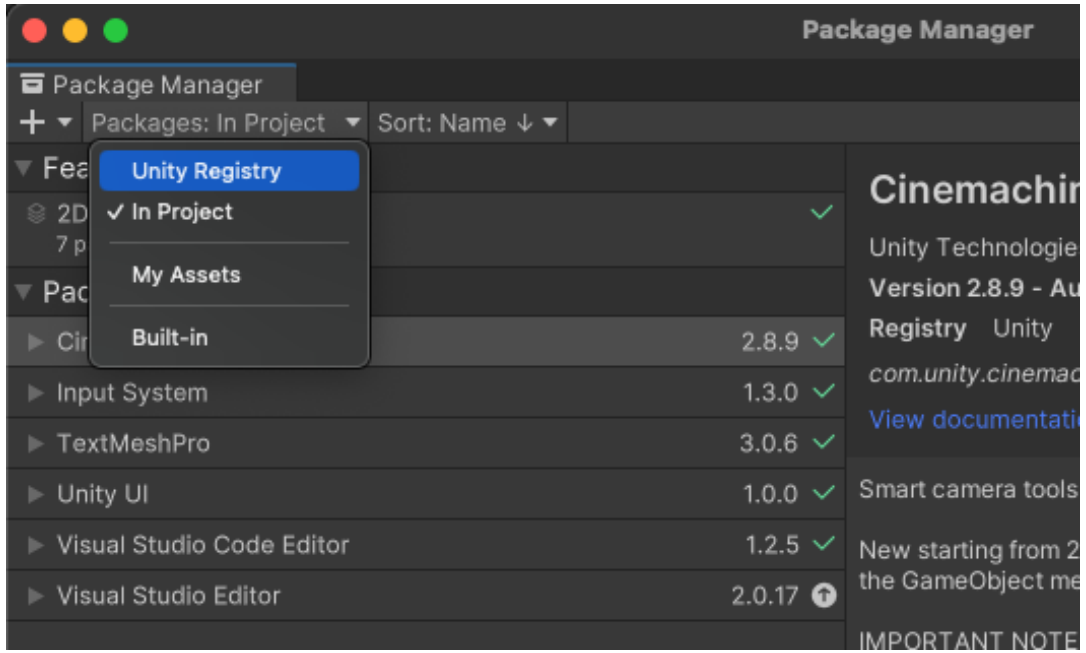
[Github link]

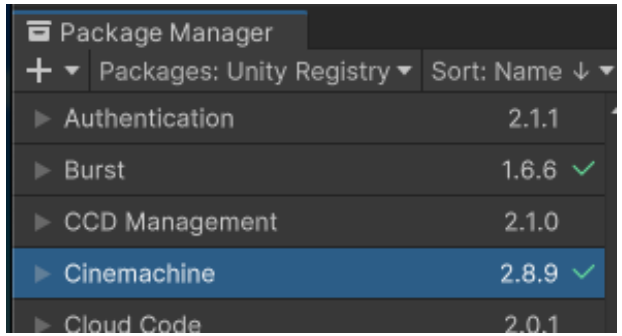


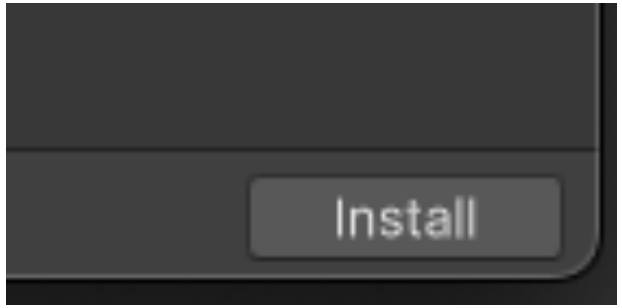
Unity Package Manager

Open Package Manager, select Unity Registry, install Cinemachine & Input System









Assignment (StartProject)

- Camera Follow
- Configure the Player
- Programming the Player
  - Jump
  - Move
  - ResetPlayer
  - OnCollisionEnter2D
  - CollectCoin
- Jump Sprite
- Add Coins
- Play Around

Rigidbody2D - Component

Note: Requires a Collider2D to work!

Body Types:

Dynamic / Kinematic / Static

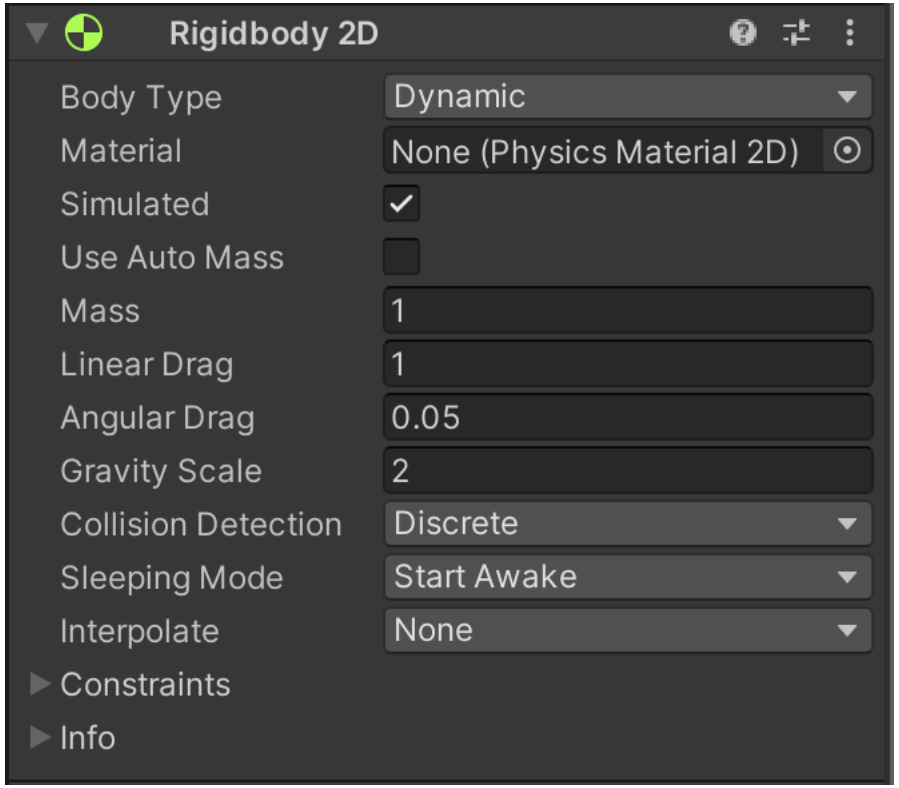
Constraints:

Freeze Position X/Y, Freeze Rotation Z

Material:

PhysicsMaterial2D, friction and bounciness

Mass, Gravity Scale and Linear Drag ('air-friction') settings for "weight"



Rigidbody2D - Scripting

Frequently used properties and functions of Rigidbody2D

Tip: use AddForce [script ref] for moving a dynamic Rigidbody2D, and use a big

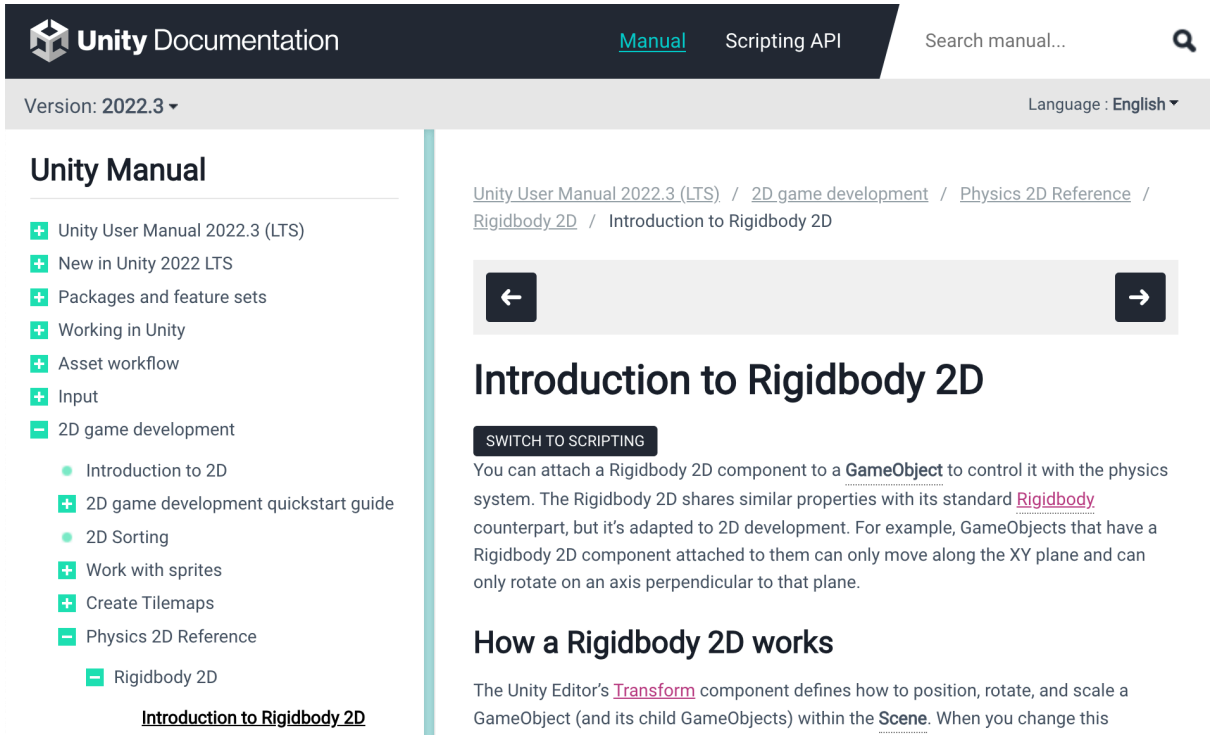
```
rb = GetComponent<Rigidbody2D>();

rb.velocity = Vector2.right; // set the velocity directly, ignore mass
rb.AddForce(Vector2.right); // push the object, include mass
rb.isKinematic = true; // "freeze" the object
rb.MovePosition(new Vector2(0, 0)); // set the world position directly
```

Unity Script Reference - Rigidbody2D

Unity Documentation

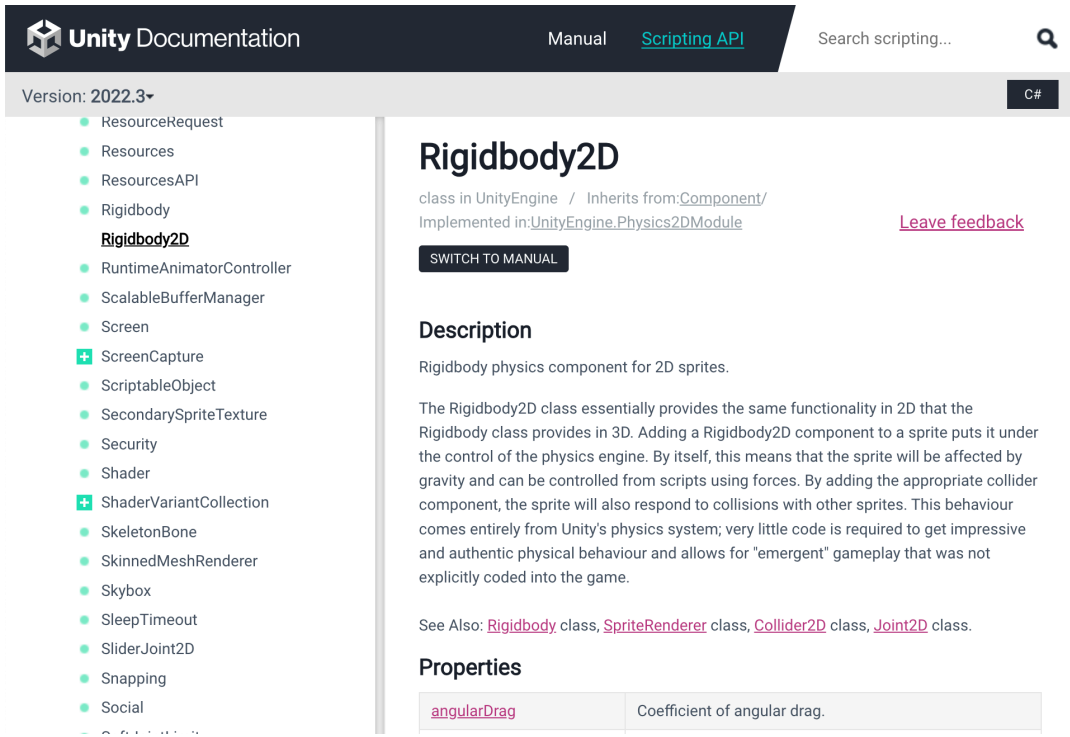
1. Unity Manual

"Tutorials" on how Unity's systems work



2. Unity Script Reference

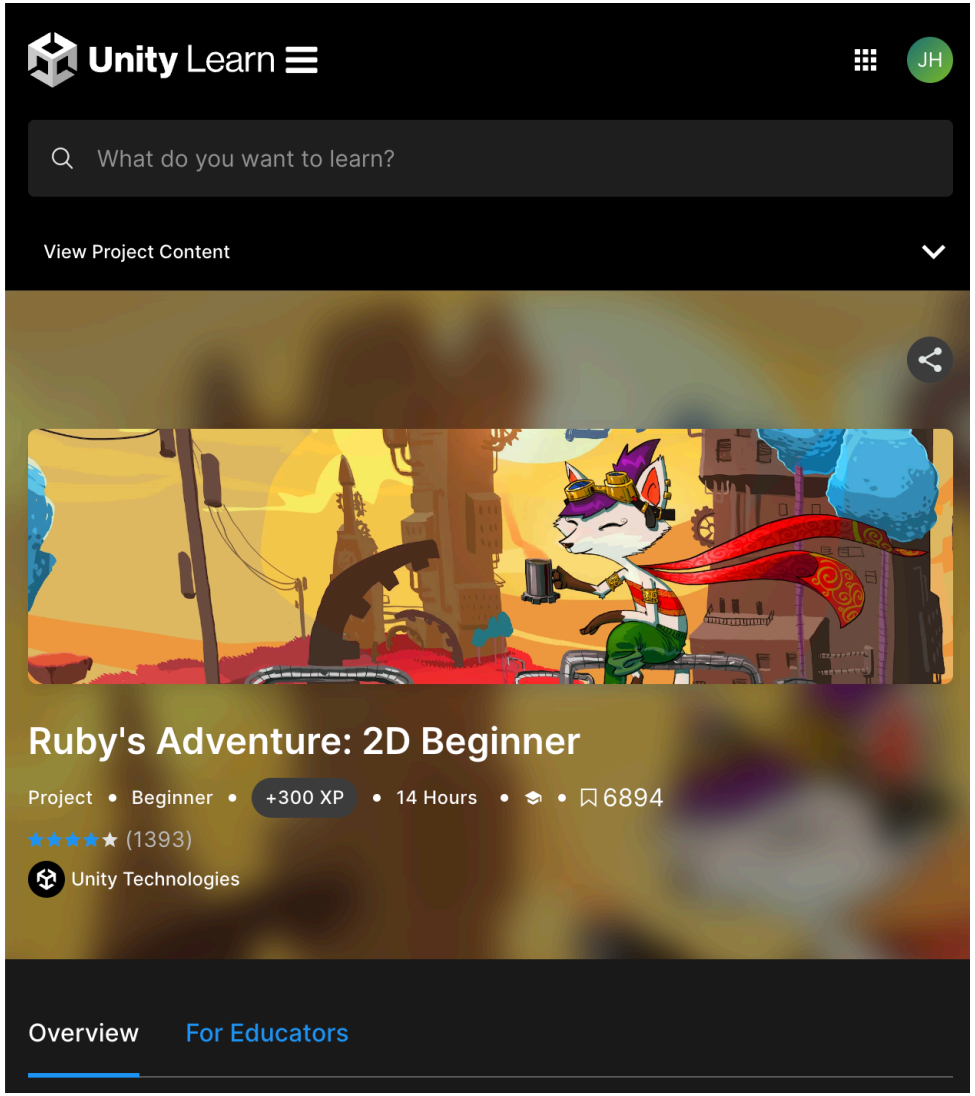
Overview of Scripting API



Unity Learn

Unity Learn:

- Unity's official tutorials
- All "difficulty" levels
- (New) systems explained
- Up-to-date

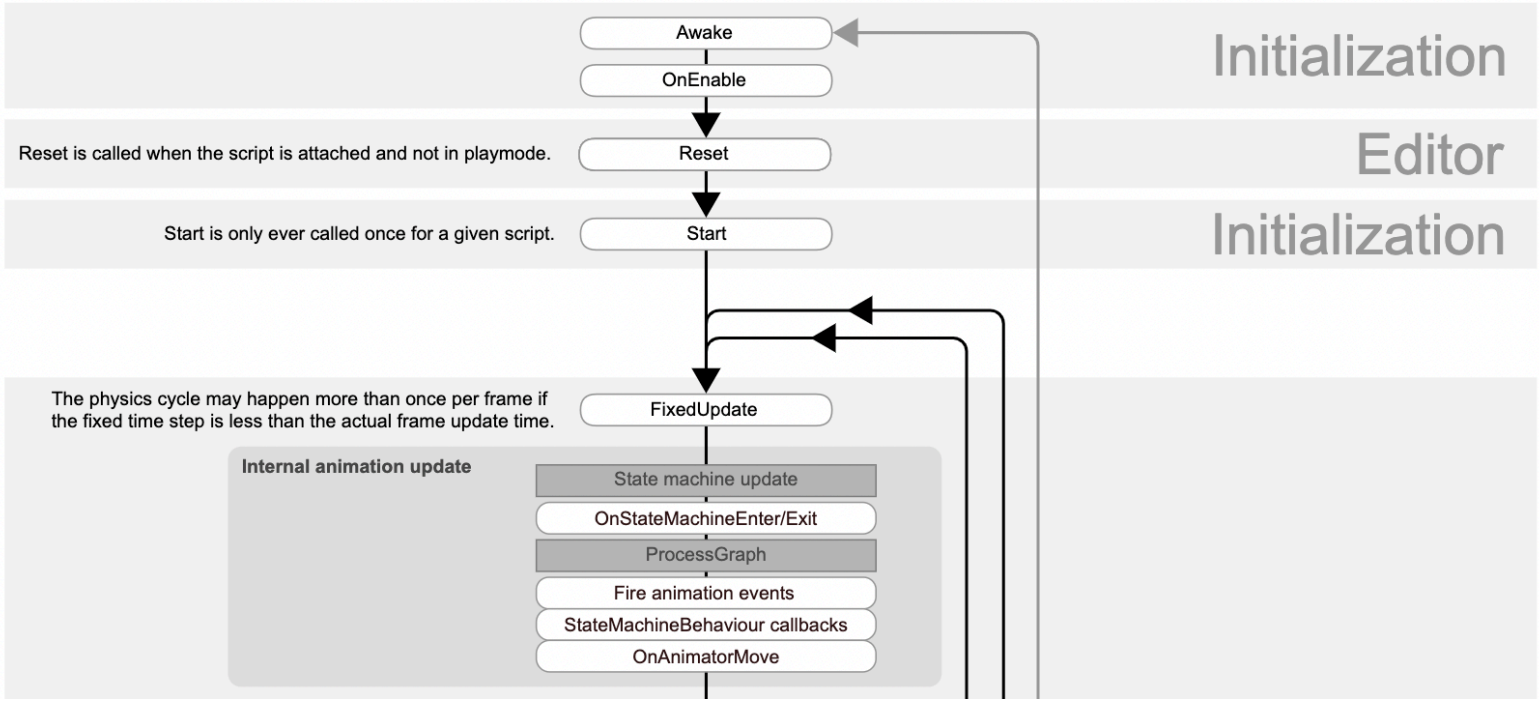


Ruby's Adventure: 2D Beginner
Recommended tutorial for 2D game dev [link] ->

Unity's Script Lifecycle

Most used, in order of execution:

- Awake
- OnEnable
- Start
- FixedUpdate
- OnCollision (+Enter/Exit/Stay)
- Update
- OnDisable



From: [Unity Manual - Order of execution for event functions [link]]

Part 2

Creating and Destroying GameObjects
Unity’s Component-based workflow
Using Prefabs
Referencing (Game)Objects
InputSystem

Creating and Destroying GameObjects

Asd

Unity’s Component-based workflow

- Adding components
- Referencing by component

Using Prefabs

- Prefab editing
- Dragging prefabs into a scene

Referencing (Game)Objects

- How Unity handles dragging references
    - Difference between Project view and Hierarchy

(Next week more details)

InputSystem