



NÚCLEO DE COMPUTAÇÃO
GRÁFICA E MULTIMÉDIA

INTRODUCTION TO



**Pedro Esteves e Ricardo
Brioso**

Software

- Unity Editor
- **IDE** - Visual Studio, MonoDevelop, ...
- **Image editors** - PhotoShop, Illustrator, Gimp, Inkscape, ...
- **DAW** - Reaper, Audacity, ...
- **3D Modelling Software** - Blender, 3ds Max, Maya, ...



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THE UNITY ENVIRONMENT

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Hand Rotate Lock Pivot Local

Inspector Animation

Script ReloadBar

Extra_position X 0 Y 0.2

Sprite Reload

Rigidbody 2D

Body Type Dynamic

Material None (Physics Material 2D)

Simulated ☒

Use Auto Mass ☐

Mass 1

Linear Drag 0

Angular Drag 0

Gravity Scale 1.5

Collision Detection Discrete

Sleeping Mode Start Awake

Interpolate None

Constraints

Info

Sprite Renderer

Sprite bioGirlSprite_idle

Color

Flip ☐ X ☐ Y

Draw Mode Simple

Mask Interaction None

Sprite Sort Point Center

Material Sprites-Default

Additional Settings

Sorting Layer Default

Order in Layer 0

Box Collider 2D

Edit Collider

Material None (Physics Material 2D)

Is Trigger ☐

Used By Effector ☐

Hierarchy

GameSection

- Settings Manager
- Main Camera
- Canvas
- UICanvas
- EventSystem
- Player 2
- Player
- pointerEmpty
- respawning
- jardim
- ButtonsFX
- GameManager
- Audio Objects
- Platforms

Scene

Display 1 16:9

Scale 1x

Maximize On Play Mute Audio Stats Gizmos


Project Console

Assets > Scenes

Credits GameSecki MainMenu

Assets

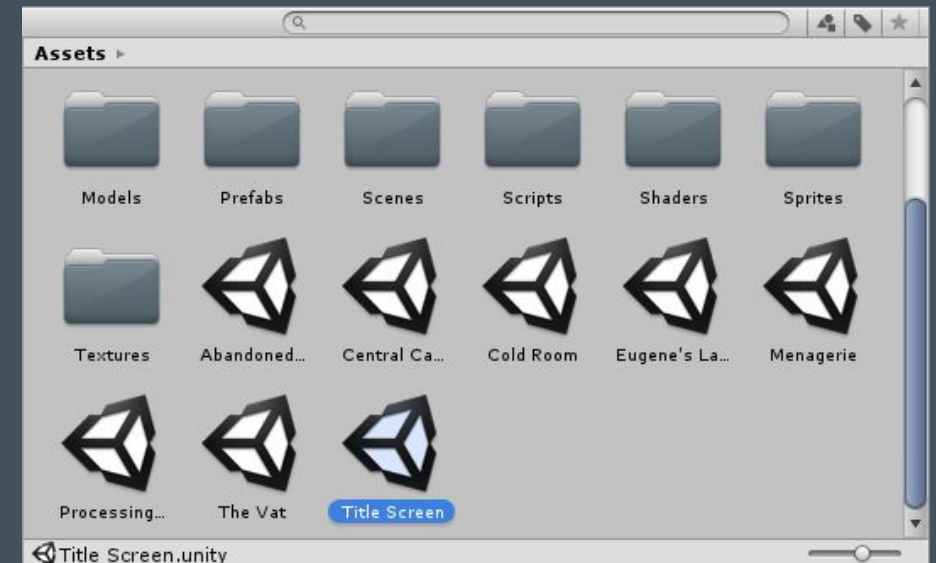
- Animation
- Audio
- Backgrounds
- Fonts
- Plugins
- Prefabs
- Resources
- Scenes
- Scripts
- Sprites
- TextMesh Pro
- Packages



Scenes

<https://docs.unity3d.com/Manual/CreatingScenes.html>

- Place where you place your environments, objects and decorations, i.e., where you build your game
- Each scene is like a unique level



Gameobjects

<https://docs.unity3d.com/Manual/GameObjects.html>

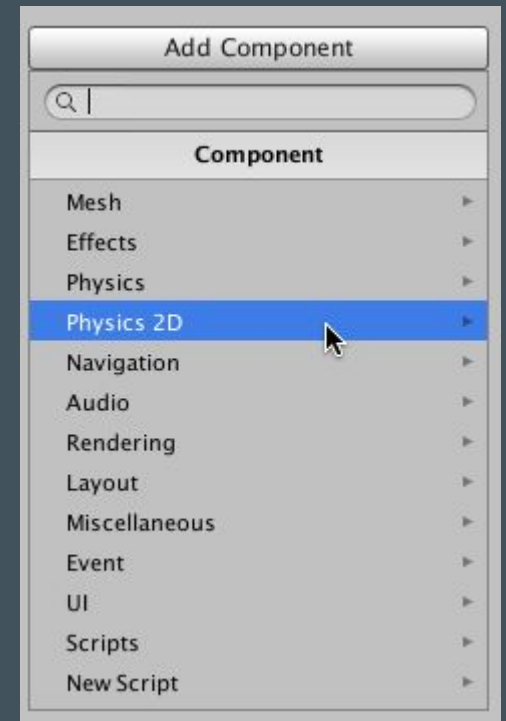
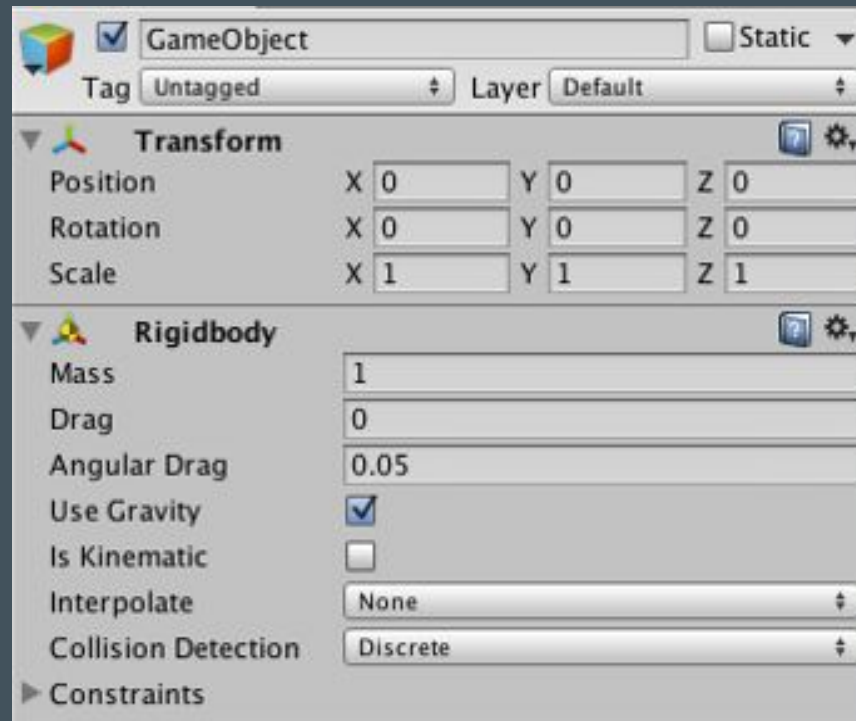
- **Basic building block** - everything in your game is a Game Object
- Behaviour and characteristics are determined by their **components**
- Depending on what kind of object you want to build, you add different combinations of components



Components

<https://docs.unity3d.com/Manual/UsingComponents.html>

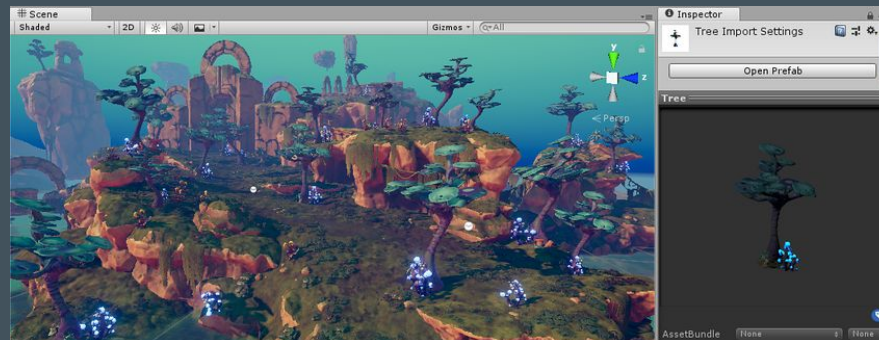
- Transform
- Rigidbody
- Colliders
- Sprite renderer
- Audio source
- Scripts
- (...)



Prefabs

<https://docs.unity3d.com/Manual/Prefabs.html>

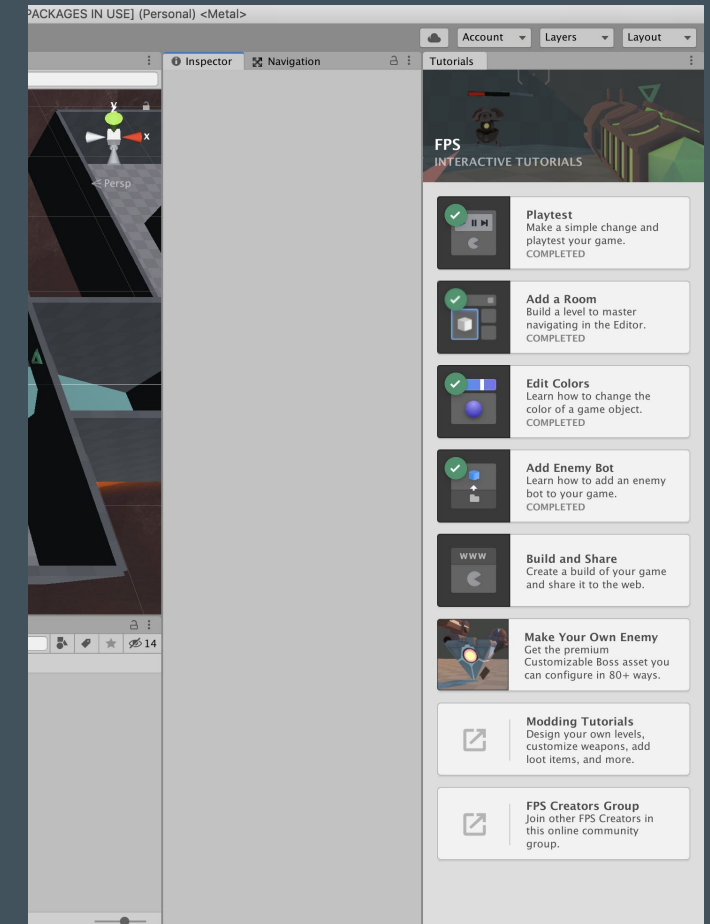
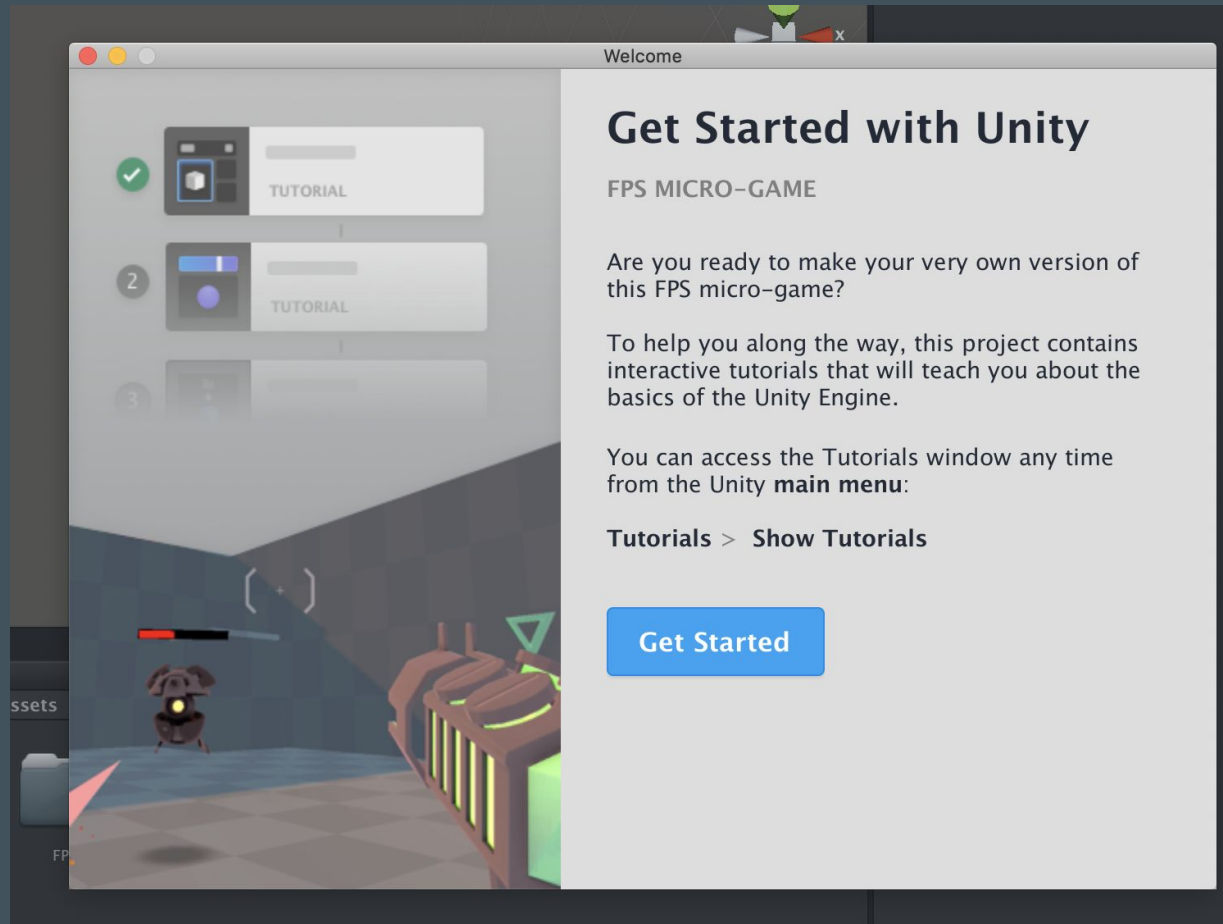
- Unity allows to **store a complete object with components and properties** as a **Prefab**
- Useful whenever you need to **reuse the same gameobject**
- Acts as a **template**
- Changes made to a prefab reflect on all its instances
- You can, however, override components and settings individually





In-editor tutorials

<https://learn.unity.com/tutorial/beginner-walkthroughs>



Programming


<https://unity3d.com/learning-c-sharp-in-unity-for-beginners>

- Tells gameobjects how to behave and interact with each other
- C# (Unity supports javascript but is discontinued)
- A game is created by combining scripts with gameobjects and their components
- Unity runs all scripts in a loop, frame by frame
- Scripts must be instantiated in the scene
- By default, scripts are created as classes
- Filename must match class name!



Unity Reference

<https://docs.unity3d.com/ScriptReference/>

 DOCUMENTATION

Manual [Scripting API](#)

Search scripting...

unity.com →

Version: 2020.1

C#

- UnityEngine.CrashReportHandler
- UnityEngine.Diagnostics
- UnityEngine.Events
- UnityEngine.Experimental
- UnityEngine.iOS
- UnityEngine.Jobs
- UnityEngine.LowLevel
- UnityEngine.Lumin
- UnityEngine.Networking
- UnityEngine.ParticleSystemJobs
- UnityEngine.Playables
- UnityEngine.PlayerLoop
- UnityEngine.Profiling
- UnityEngine.Rendering
- UnityEngine.SceneManagement
 - Classes
 - CreateSceneParameters
 - LoadSceneParameters
 - Scene
 - SceneManager**
 - SceneUtility
 - Enumerations
- UnityEngine.Scripting
- UnityEngine.Serialization

SceneManager

class in UnityEngine.SceneManagement / Implemented in: [UnityEngine.CoreModule](#) [Leave feedback](#)

Description

Scene management at run-time.

Static Properties

sceneCount	The total number of currently loaded Scenes.
sceneCountInBuildSettings	Number of Scenes in Build Settings.

Static Methods

CreateScene	Create an empty new Scene at runtime with the given name.
GetActiveScene	Gets the currently active Scene.
GetSceneAt	Get the Scene at index in the SceneManager's list of loaded Scenes.
GetSceneByBuildIndex	Get a Scene struct from a build index.
GetSceneByName	Searches through the Scenes loaded for a Scene with the given name.
GetSceneByPath	Searches all Scenes loaded for a Scene that has the given asset path.
LoadScene	Loads the Scene by its name or index in Build Settings.



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Credits for the Game Assets:
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Isac Novo
Maria Cunha
Pedro Claro
Tomás Moreira

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NOW, LET'S MAKE A GAME

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