Unity Game Development Bootcamp

Lesson 01
Introduction to Game Development with Unity

CIRCUIT STREAM

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Learning Objectives

- Handle projects and Editor versions with the Unity Hub
- Control the Unity Editor
- Interpret 2D and 3D virtual space
- Use mouse and keyboard to move in 3D space
- Create and transform primitive GameObjects
- Apply simple materials to GameObjects

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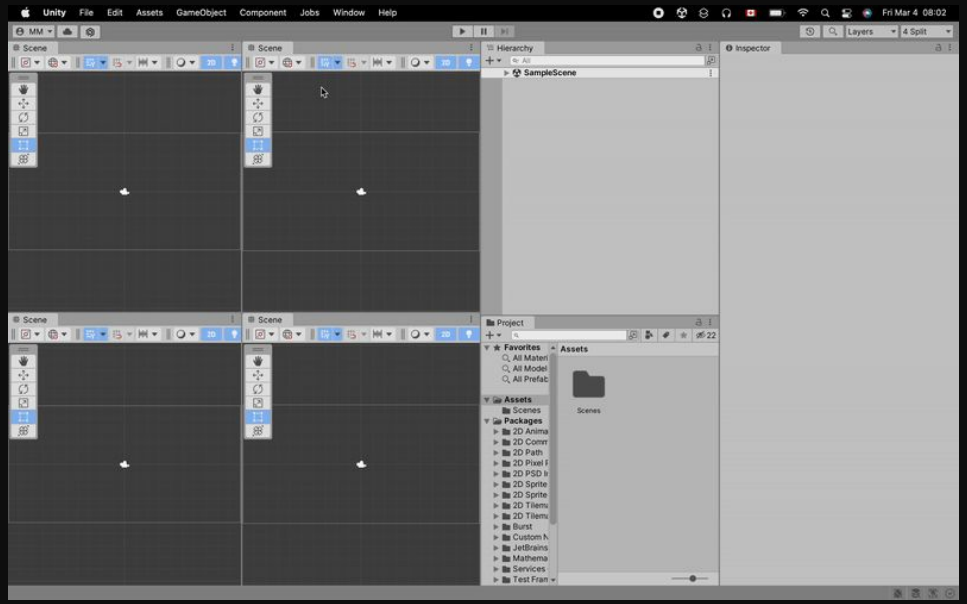
Lecture

The Unity Editor



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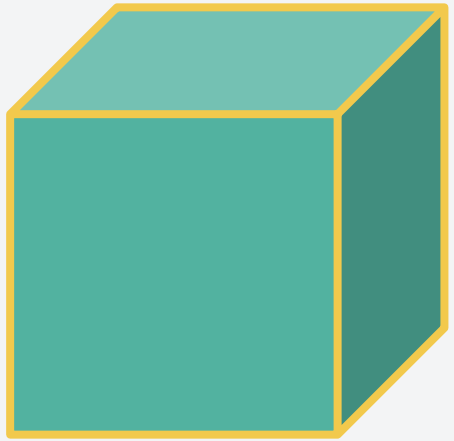
GameObjects

Every object in your scene is a GameObject. This includes lights, cameras, characters, empty GameObjects, and everything else.

GameObjects **do not have functionality** by themselves. You need to add **components** to define behaviors.



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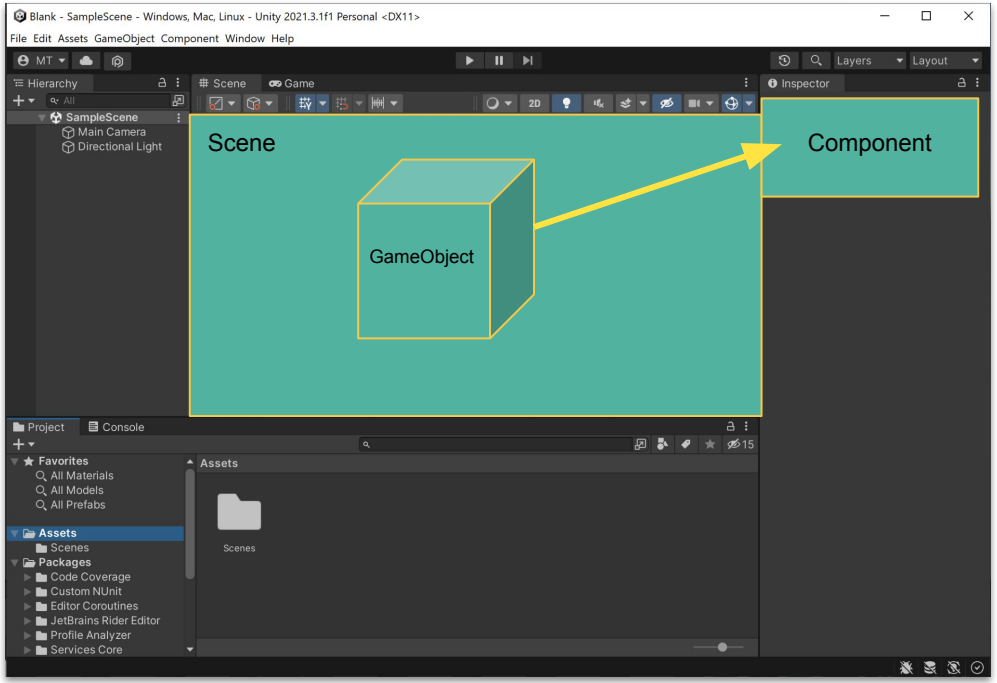
Anatomy of a Scene

Scene

- GameObjects
  - Components
    - Data



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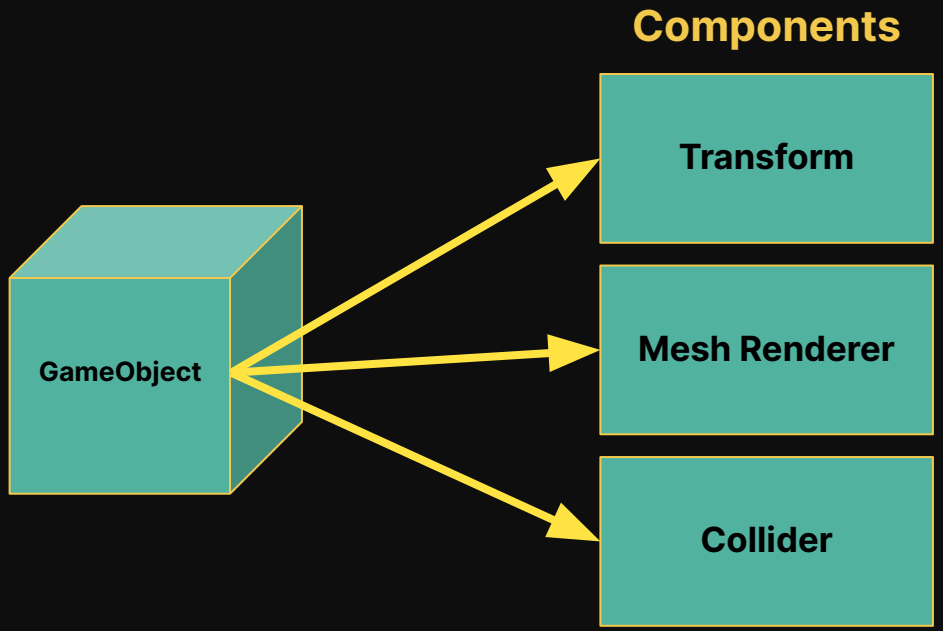
Anatomy of a GameObject



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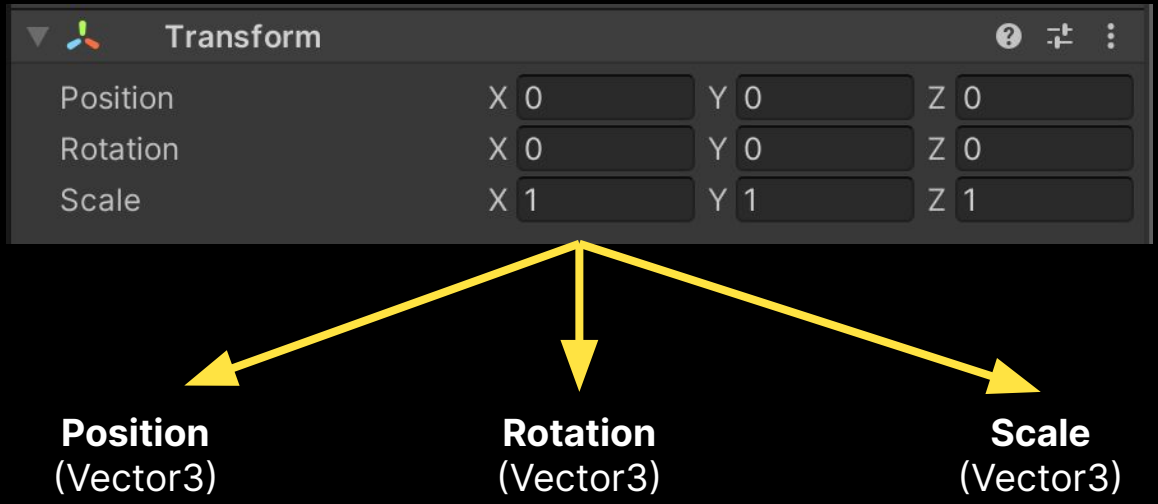
Transform Component



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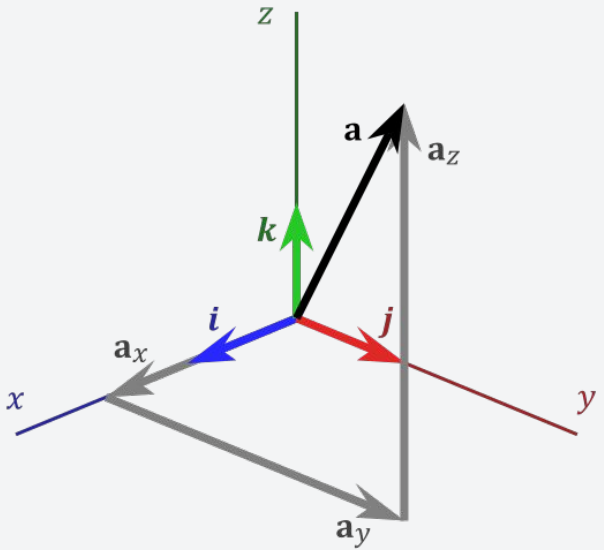
Vector 3

It is a data type made up of
a group of three numbers.

It is data that can be used to represent position, rotation, or scale

Unity measures everything with configurable ***Unity units***, which by default are:

Distance: **1 Unity unit = 1 m**
Mass: **1 Unity unit = 1 Kg**



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Lecture

The Unity Interface

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Lecture

Scene Navigation

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Challenge 01

5 mins

Navigate the scene 1

Zoom in until you can read the text on the saw, then do a full rotation around the workbench with and without orbit.

Rotate	Hold **right-click**, then **drag**
Move	Hold **Alt + middle-click**, then drag
Move without middle-click	Hold **Alt CTRL left-click**, then **drag**
Orbit	Hold **Alt left-click**, then **drag**
Zoom	Use the **scroll wheel**
Zoom without middle-click	Hold **Alt right-click**, then **drag**

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Challenge 02

5 mins

Navigate the scene 2

1. Move out and rotate around the whole scene.
2. Move in and rotate around a small object. Adjust mouse sensitivity.
3. **Pretend to build a scene**: move around, and look at all the surfaces from different perspectives. Get used to navigation.

Move forward	Hold **right-click W**
Move backward	Hold **right-click S**
Move left	Hold **right-click A**
Move right	Hold **right-click D**
Move up	Hold **right-click E**
Move down	Hold **right-click Q**
Change Sensitivity	Hold **right-click**, then move **mouse wheel**
Increase Speed	Hold **Shift**

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Lecture

GameObjects & Transforms

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Challenge 03

5 mins

Practice moving GameObjects

Make a cube that barely covers the whole scene using **Isometric** and **XYZ** gimbals.

Move tool	**W**
Rotate tool	**E**
Scale tool	**R**
Rect tool	**T**
Vertex snapping	Hold **V**
Grid snapping	Hold **Ctrl**
Toggle pivot/center	**Z**
Toggle global/local	**X**

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3D Space

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Challenge 04

15 mins

Create objects

Create objects using primitive shapes. You can create:

- A table
- A chair
- A simple tree
- A door with a `GameObject` as a pivot point for the hinge
  Use Snap (**V**) to align the pivot

Do not delete the objects, you will use them for the next challenge.

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Materials

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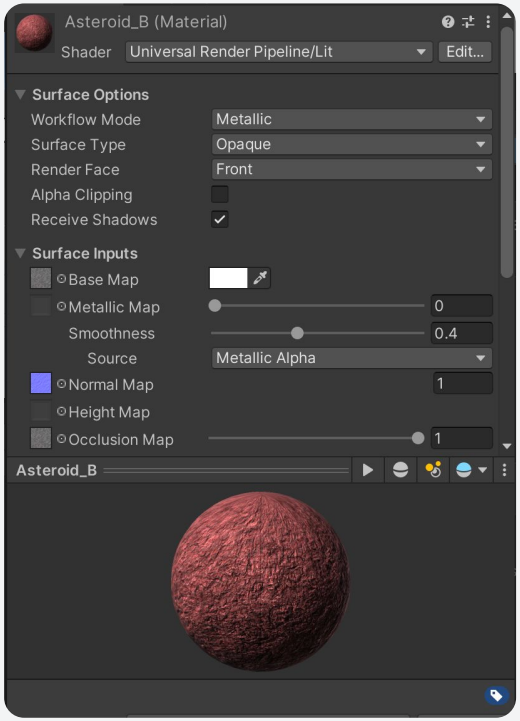
Materials

A **material** is what defines the **appearance of a surface**.

Materials and shaders go hand in hand. Materials refer to shaders, which are programs that run on the GPU.

Depending on which shader is used, a selection of parameters are available to modify.



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Challenge 05

15 mins

Add simple materials to objects

Add materials to the objects you created using primitive shapes.

- A blue table
- A red chair
- A simple tree, green would be the standard here
- A brown wooden door with a yellow knob

Save these, we will use then in the next lesson.

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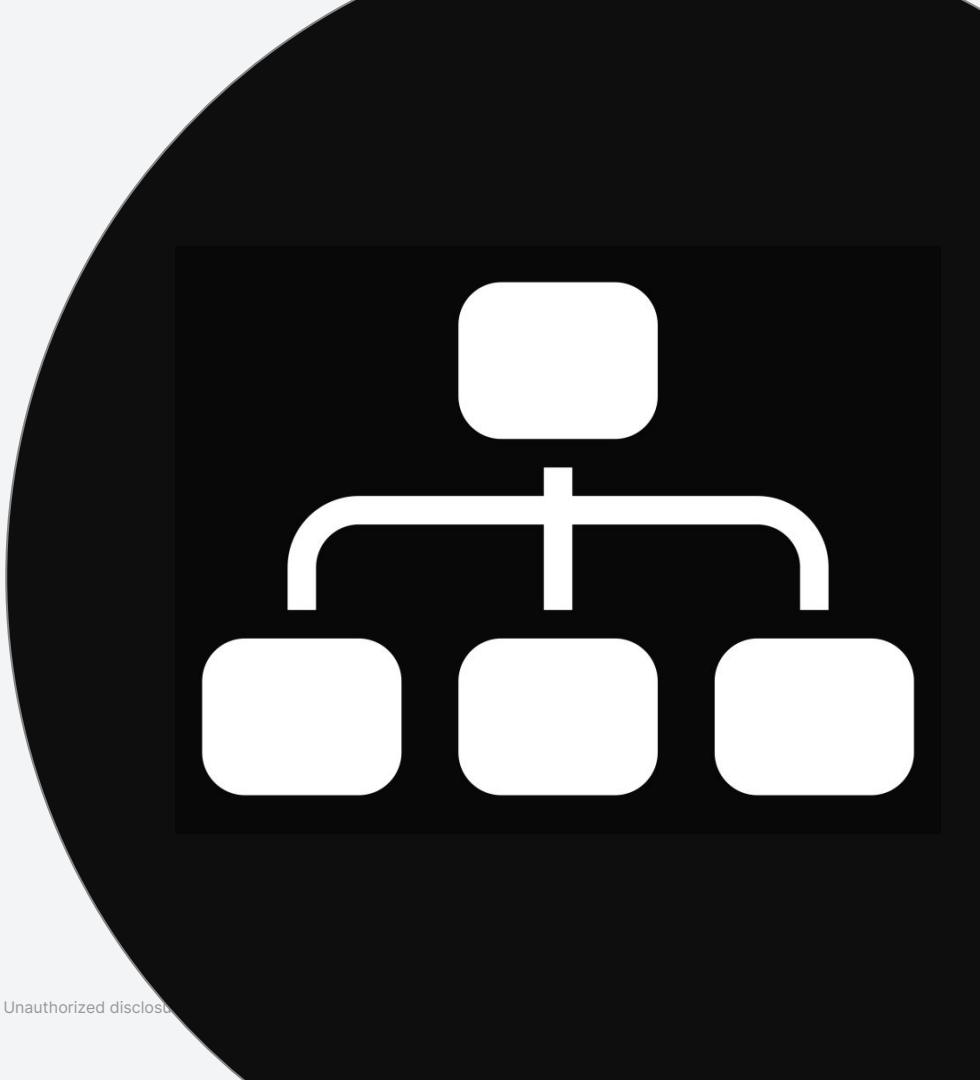
Project Organization

You are free to arrange your project files however you like. But it is imperative to stay organized!

Here are some recommended methods:

- Organizing by **context**
- Organizing by **type**
- Organizing by **license**



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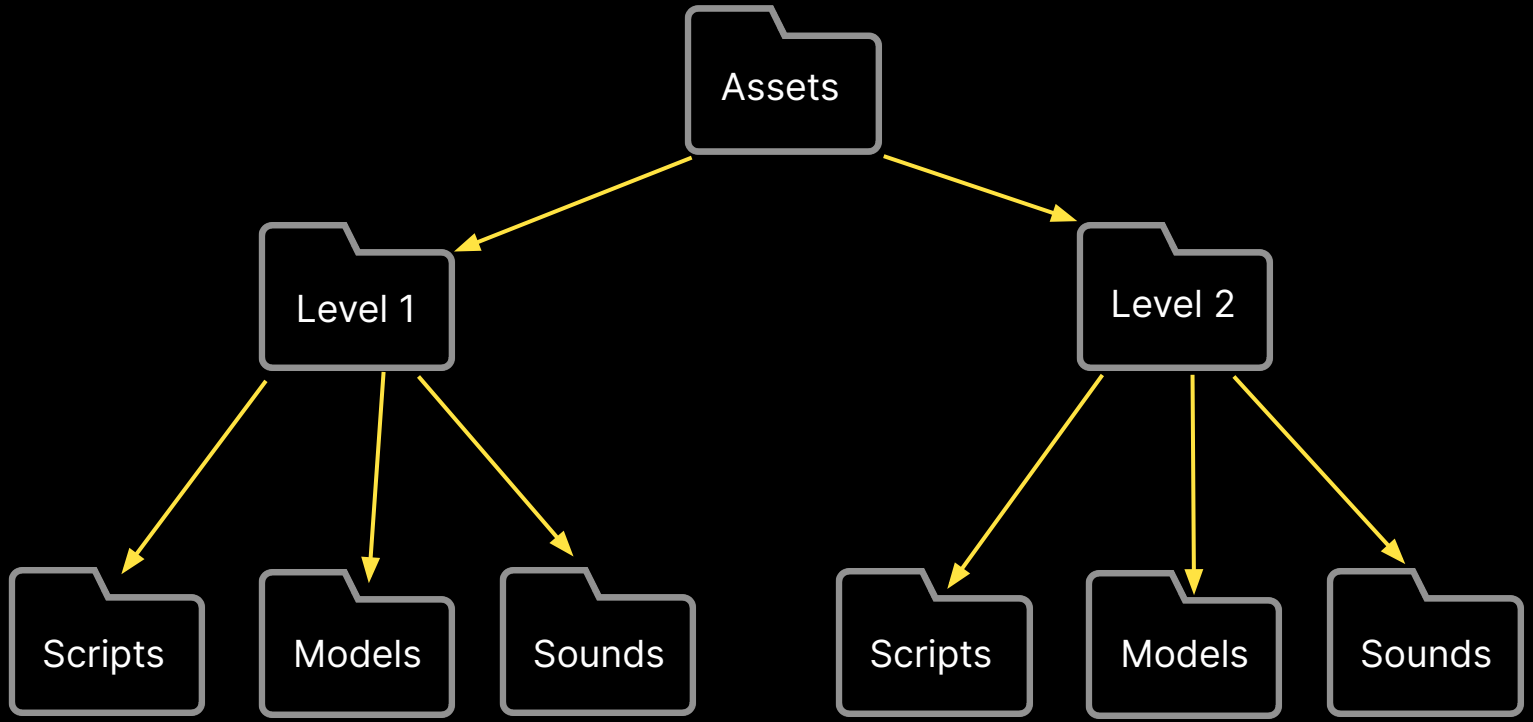
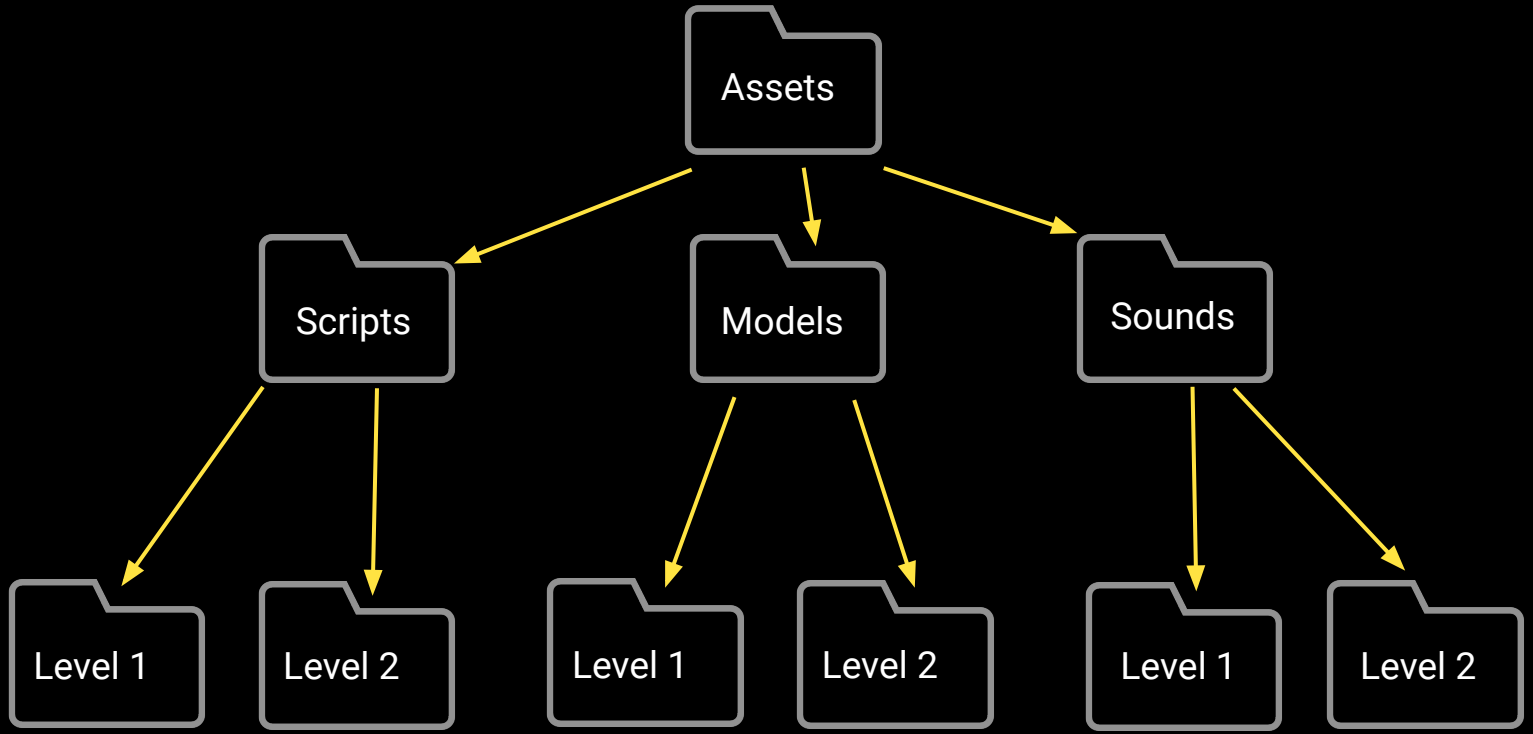
Context


Assets
Level 1
Level 2
Scripts
Models
Sounds
Scripts
Models
Sounds

Type


Assets
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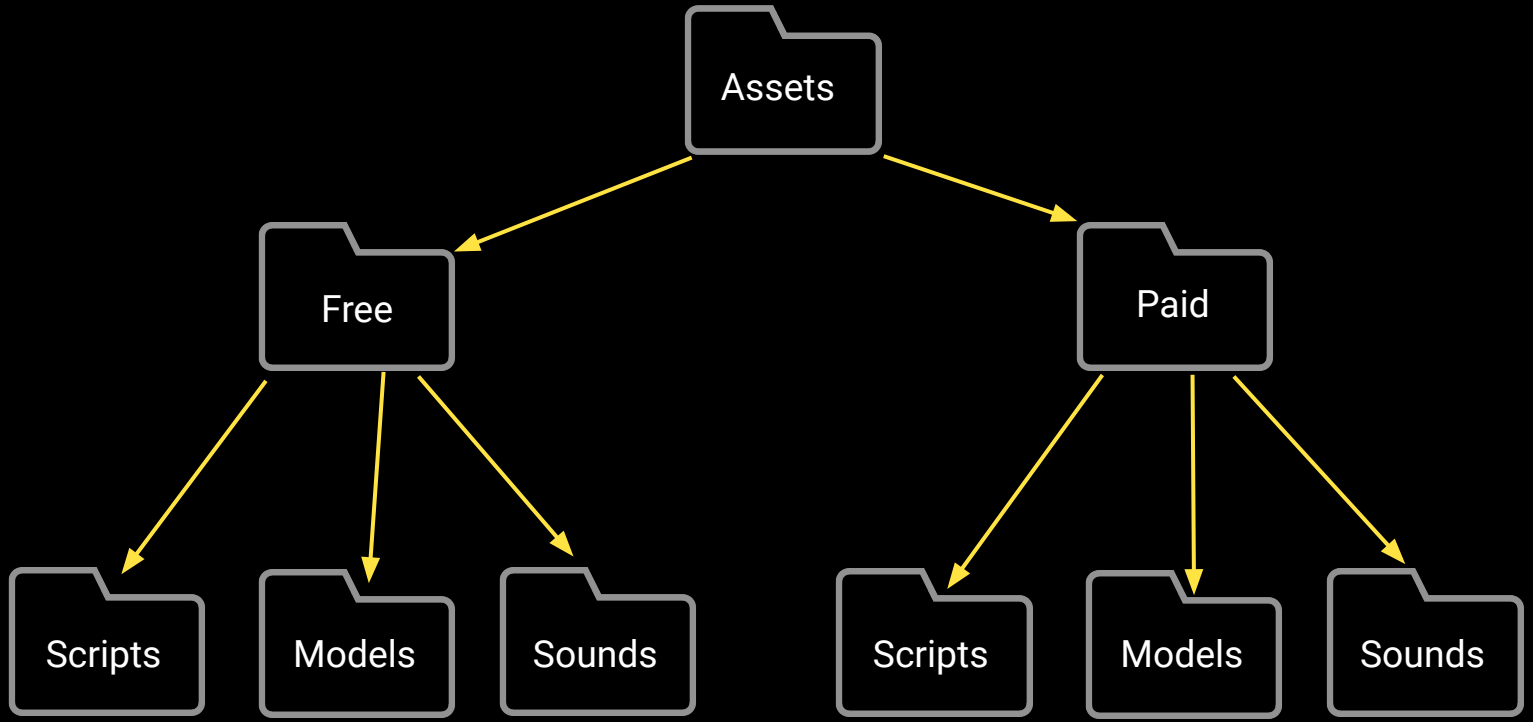
License


Assets
Free
Paid
Scripts
Models
Sounds
Scripts
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Sounds