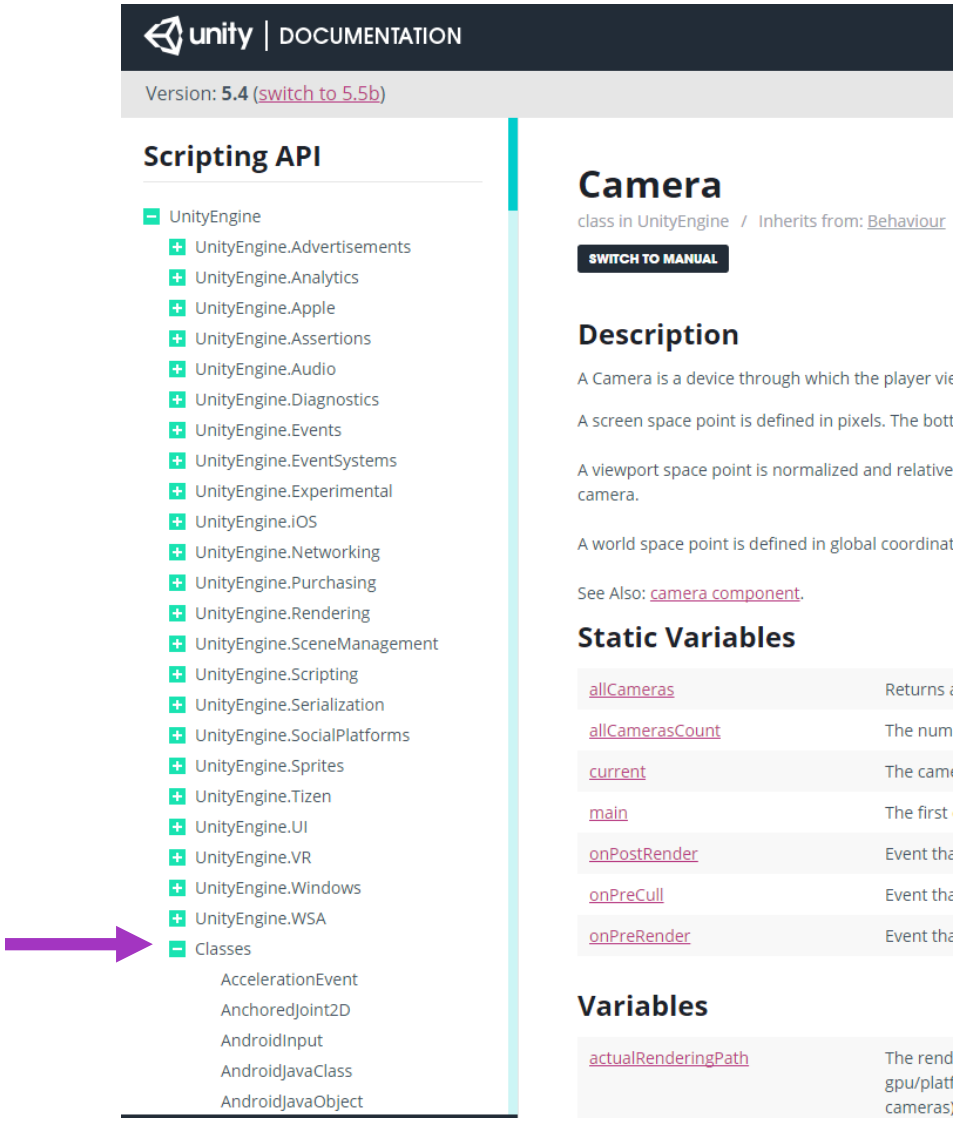

- Camera
- Color
- Collider
- Debug
- GameObject
- Light
- Material
- Mathf
- MeshCollider
- MeshRenderer
- MonoBehaviour
- PhysicMaterial
- Random
- …

C#

(C Sharp)

Loops!

For Loop

```
for (int i = 0; i < 10; i += 1) {
    Debug.Log("Counting: " + i);
}
```

INITIALIZATION CONDITION INCREMENT

```
for (int i = 0; i < 10; i += 1) {
    Debug.Log("Counting: " + i);
}
```

Loop Flow

1

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

1 → 2

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

2

3

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

5 ← 4

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

5

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

6

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

8 ← 7

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

8

```
for (int i = 0; i < 2; i += 1) {
    Debug.Log("Counting: " + i);
}
```

LOOP OVER

More Loops

- Unity tutorial

Instantiate??

Object.Instantiate

public static Object **Instantiate**(Object **original**);
public static Object **Instantiate**(Object **original**, Transform **parent**);
public static Object **Instantiate**(Object **original**, Transform **parent**, bool **worldPositionStays**);
public static Object **Instantiate**(Object **original**, Vector3 **position**, Quaternion **rotation**);
public static Object **Instantiate**(Object **original**, Vector3 **position**, Quaternion **rotation**, Transform **parent**);

Parameters

original	An existing object that you want to make a copy of.
position	Position for the new object (default Vector3.zero).
rotation	Orientation of the new object (default Quaternion.identity).
parent	The transform the object will be parented to.
worldPositionStays	If when assigning the parent the original world position should be maintained.

Returns

Object A clone of the original object.

https://docs.unity3d.com/ScriptReference/Object.Instantiate.html

Casting & Manipulating

```
// Spawning and casting
Vector3 spawnPoint = new Vector3(1f, 0f, 0f);
Quaternion spawnRotation = Quaternion.identity;
GameObject clone = (GameObject) Instantiate(Prefab, spawnPoint, spawnRotation, transform);

// Now we have a GameObject, rather than an Object. We can use any of the methods
// available on a GameObject:

// Apply a random scale
Vector3 randomScale = new Vector3(1f, Random.Range(1f, 3f), 1f);
clone.transform.localScale = randomScale;
```

Arrays

```
int[] HighScores;
```

ARRAY TYPE

Ways to Create an Array

```
// Empty integer array
int[] HighScores;

// Empty integer array with four element
int[] HighScores = new int[4];

// Integer array with specific values
int[] HighScores = { 10, 12, 15, 20 };
```

Resources

- Ray Wenderlich – Video on arrays
- Unity tutorial on arrays
- Blog post: data structures in Unity and when to use them
- Unity tutorial on Lists and Dictionaries