Introduction to iOS Development

Session 2 - Augmented Reality

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SceneKit
ARKit
Implementing in Xcode

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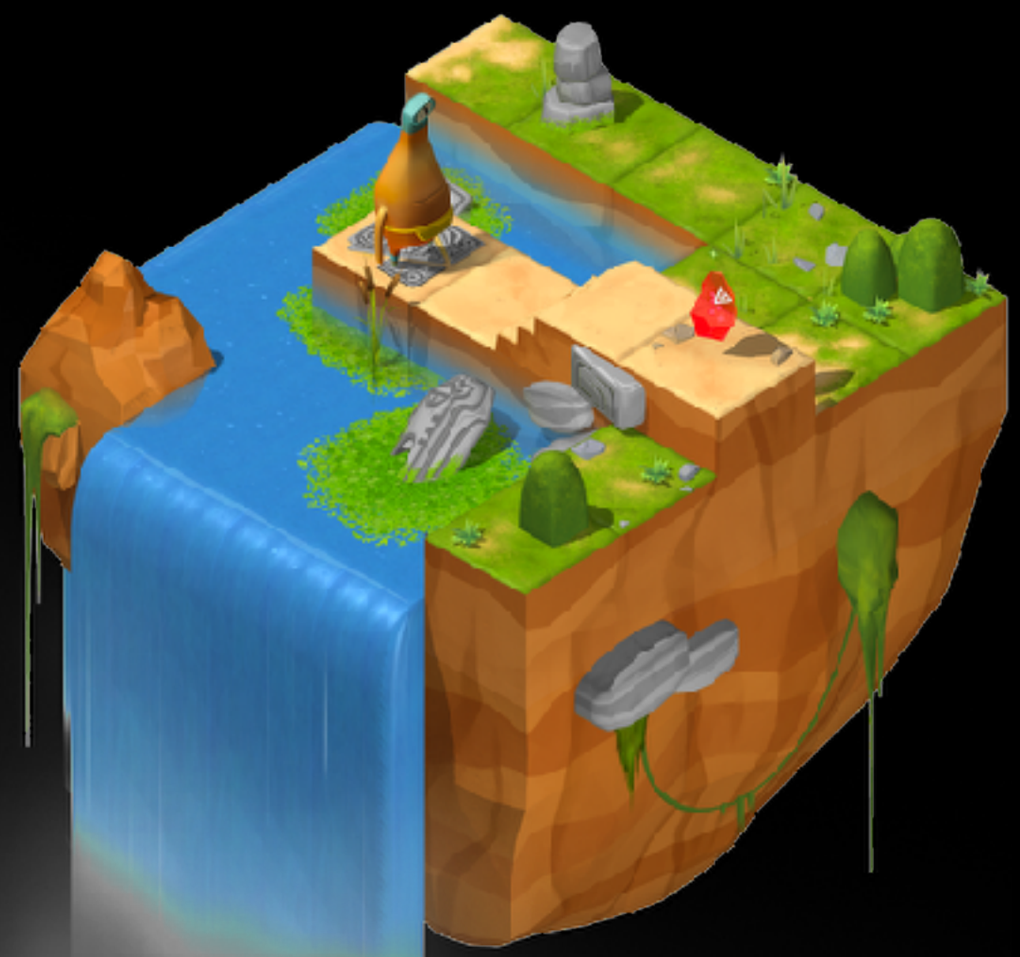
SceneKit

- 3D Rendering Engine
- Facade



Apple Inc, 2017

Usage

```
let scene = SCNScene()
```

Usage

```
let scene = SCNScene()
let sceneView = SCNView()
```

Usage

```
let scene = SCNScene()
let sceneView = SCNView()
sceneView.scene = scene
```

Shapes

```
let sphere = SCNSphere(radius: 10)
```

Shapes

```
let sphere = SCNSphere(radius: 10)
let box = SCNBox(width: 10,
                 height: 10,
                 length: 10,
                 chamferRadius: 1)
```

Shapes

```
let sphere = SCNSphere(radius: 10)
let box = SCNBox(width: 10,
                 height: 10,
                 length: 10,
                 chamferRadius: 1)
let cone = SCNCone(topRadius: 0,
                   bottomRadius: 10,
                   height: 50)
```

Nodes

- Represents position and transform in 3D coordinate space
- Attach geometry, lights, cameras etc.

Nodes

```
let sphereNode = SCNSphere(geometry: sphere)
```

Nodes

```
let sphereNode = SCNSphere(geometry: sphere)
sceneView.scene.rootNode.addChildNode(sphereNode)
```

Positioning Shapes

```
//x, y, z
sphereNode.position = SCNVector3(0,0,0)
```

Positioning Shapes

```
//x, y, z
sphereNode.position = SCNVector3(0,0,0)
//pitch, yaw, roll
sphereNode.eulerAngles = SCNVector3(0,0,0)
```

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ARKit

- Augmented Reality Framework
- Utilises device's camera to track devices movement through maximum six degrees of freedom (traditional and rotational)
- Introduced in iOS 11
- Requires a device with an A9 Chip or Later (iPhone 6S)