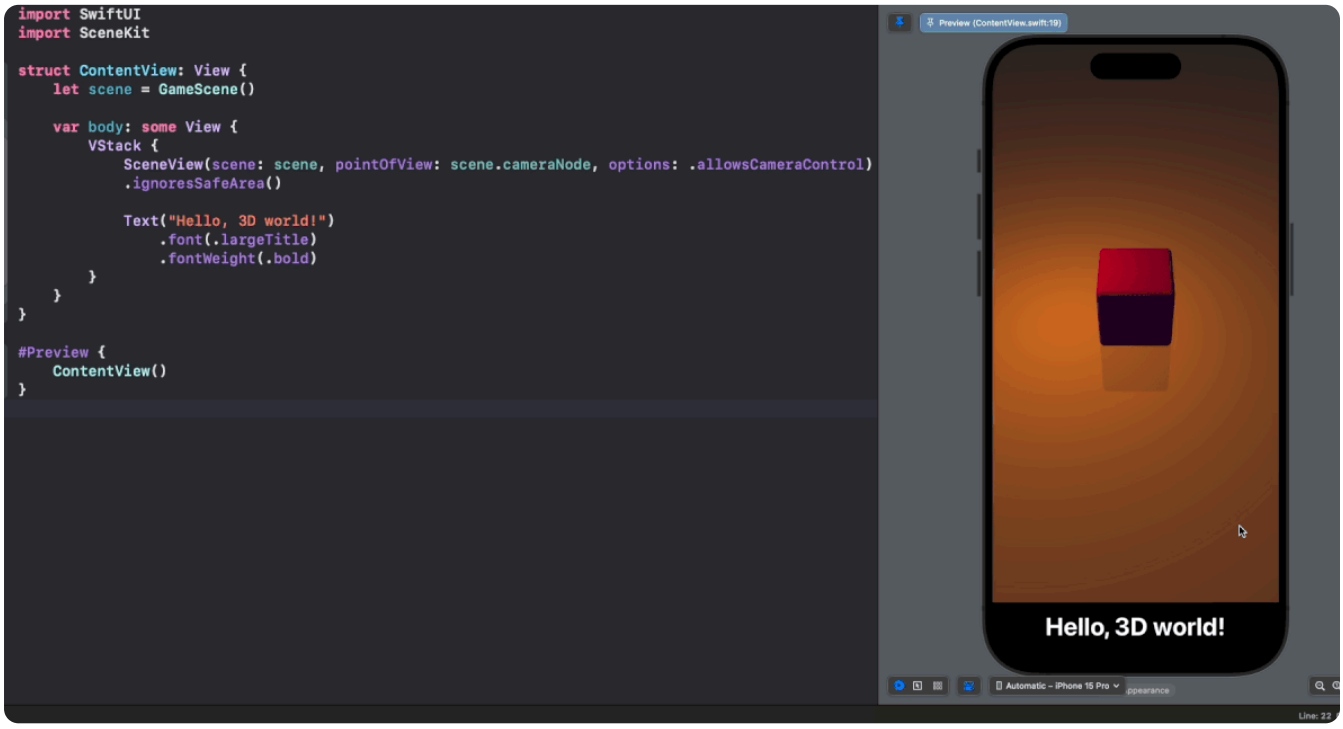

Building a 3D Scene with SceneKit and SwiftUI

Caleb Wells
iOS Engineer | Transforming Ideas into Apps
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Step 1: Set Up the 3D Scene

In this tutorial, we'll start by creating a 3D scene using SceneKit. Open Xcode and create a new Swift file named GameScene.swift. Write the following code:

```
import SceneKit

class GameScene: SCNScene {
    var cameraNode = SCNNode()

    required init?(coder aDecoder: NSCoder) {
        fatalError("init(coder:) has not been implemented")
    }

    override init() {
        super.init()

        background.contents = UIColor.black

        setupCamera()
```

```
        addFloor()
        addCube()
        addLights()
    }

    func setupCamera() {
        let camera = SCNCamera()
        cameraNode.camera = camera
        cameraNode.position = SCNVector3(0, 5, 5)
        cameraNode.eulerAngles = SCNVector3(-Float.pi / 4, 0, 0)

        rootNode.addChildNode(cameraNode)
    }

    func addFloor() {
        let floor = SCNNode(geometry: SCNFloor())
        floor.geometry?.firstMaterial?.diffuse.contents = UIColor.gray

        rootNode.addChildNode(floor)
    }

    func addCube() {
        let cube = SCNNode(geometry: SCNBox(width: 1, height: 1, length: 1
        cube.geometry?.firstMaterial?.diffuse.contents = UIColor.purple
        cube.position = SCNVector3(0, 0.52, 0)

        rootNode.addChildNode(cube)
    }

    func addLights() {
        // Add ambient light.
        let ambientLightNode = SCNNode()
        let ambientLight = SCNLight()

        ambientLight.type = .ambient
        ambientLight.color = UIColor.white
        ambientLight.intensity = 72

        ambientLightNode.light = ambientLight

        rootNode.addChildNode(ambientLightNode)

        // Add spot light.
        let spotLightNode = SCNNode()
        let spotLight = SCNLight()

        spotLight.type = .spot
        spotLight.color = UIColor.orange
        spotLight.intensity = 2700
        spotLight.spotInnerAngle = 20
```

```
        spotLight.spotOuterAngle = 272
        spotLight.castsShadow = true

        spotLightNode.light = spotLight
        spotLightNode.position = SCNVector3(-1, 2, 0)
        spotLightNode.eulerAngles = SCNVector3(-Float.pi / 2, 0, 0)

        rootNode.addChildNode(spotLightNode)
    }
}
```

This code creates the GameScene class with a 3D environment including a floor, a cube, and ambient and spot lights. Customize the camera position, light attributes, and other elements to tailor your unique 3D setting.

Step 2: Integrate GameScene into ContentView

Now that we've made our 3D scene, let's integrate it into a SwiftUI View. Open the Swift file named ContentView.swift and rewrite it to match the following code:

```
import SwiftUI
import SceneKit

struct ContentView: View {
    let scene = GameScene()

    var body: some View {
        VStack {
            SceneView(scene: scene, pointOfView: scene.cameraNode, options
            .ignoresSafeArea()

            Text("Hello, 3D world!")
                .font(.largeTitle)
                .fontWeight(.bold)
        }
    }
}

#Preview {
    ContentView()
}
```

And there you have it, a 3D scene in SwiftUI! Feel free to experiment further and make the 3D scene uniquely yours.

P. S.

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Pun intended? :)

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