



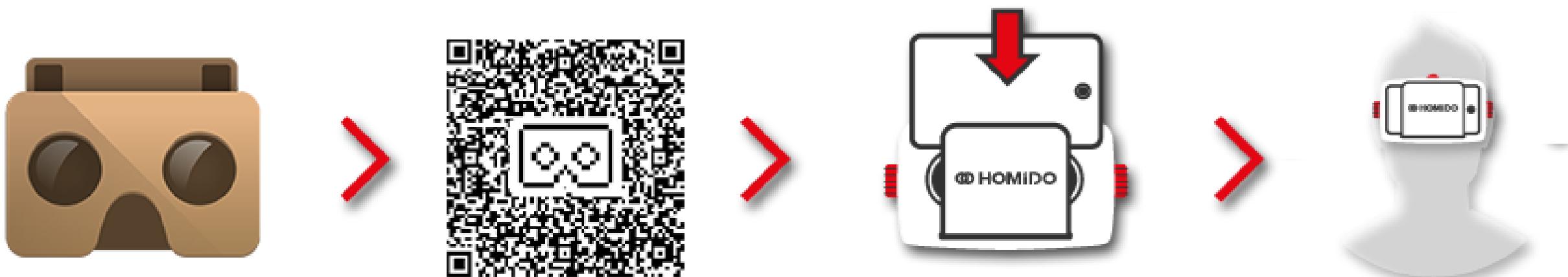
Lab 14-15

CPS592 – Visual Computing and Mixed Reality

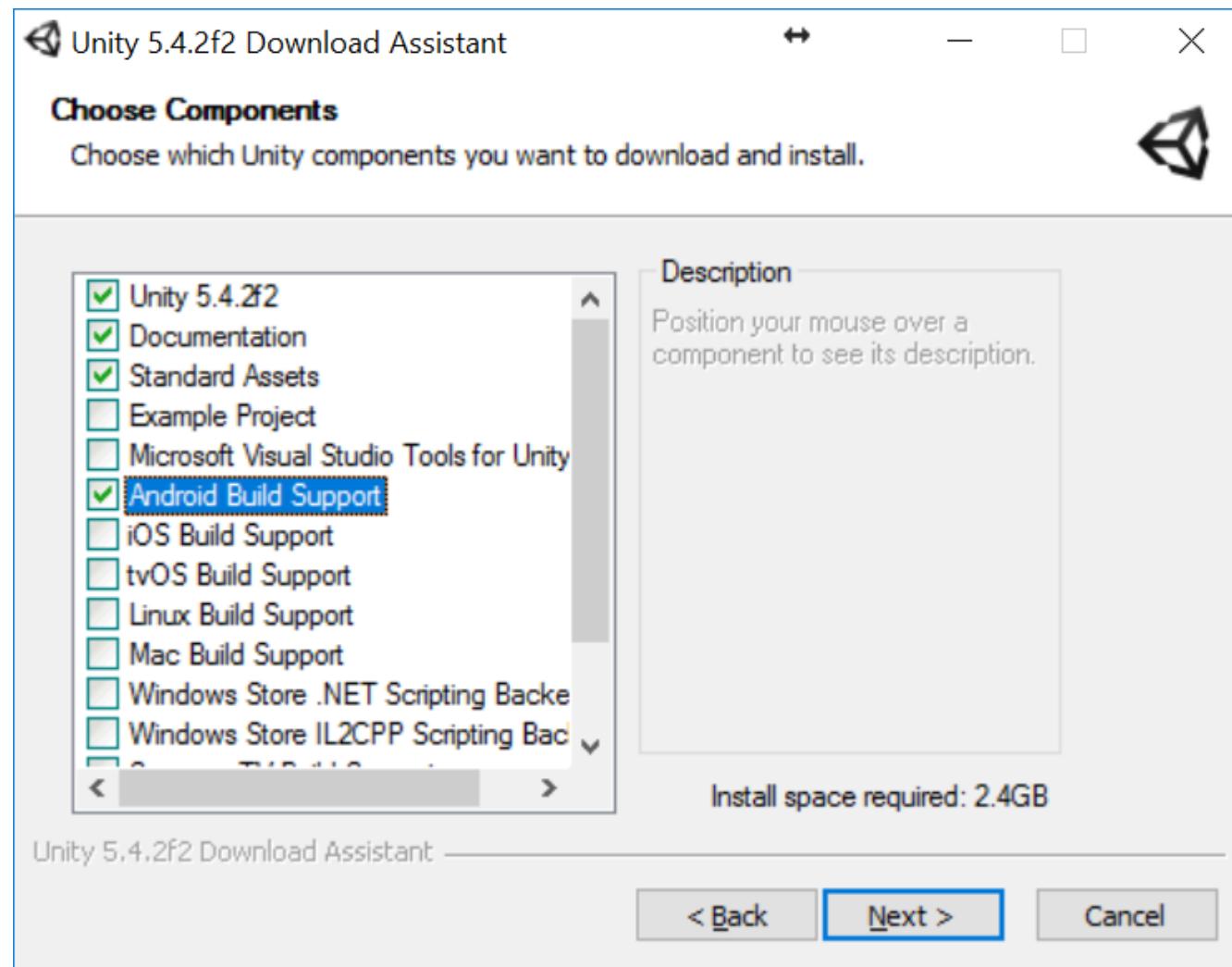
Objectives

- Create a VR project with Google Cardboard and Unity3D

How does Google Cardboard work?



Install Unity3D



Start Unity3D

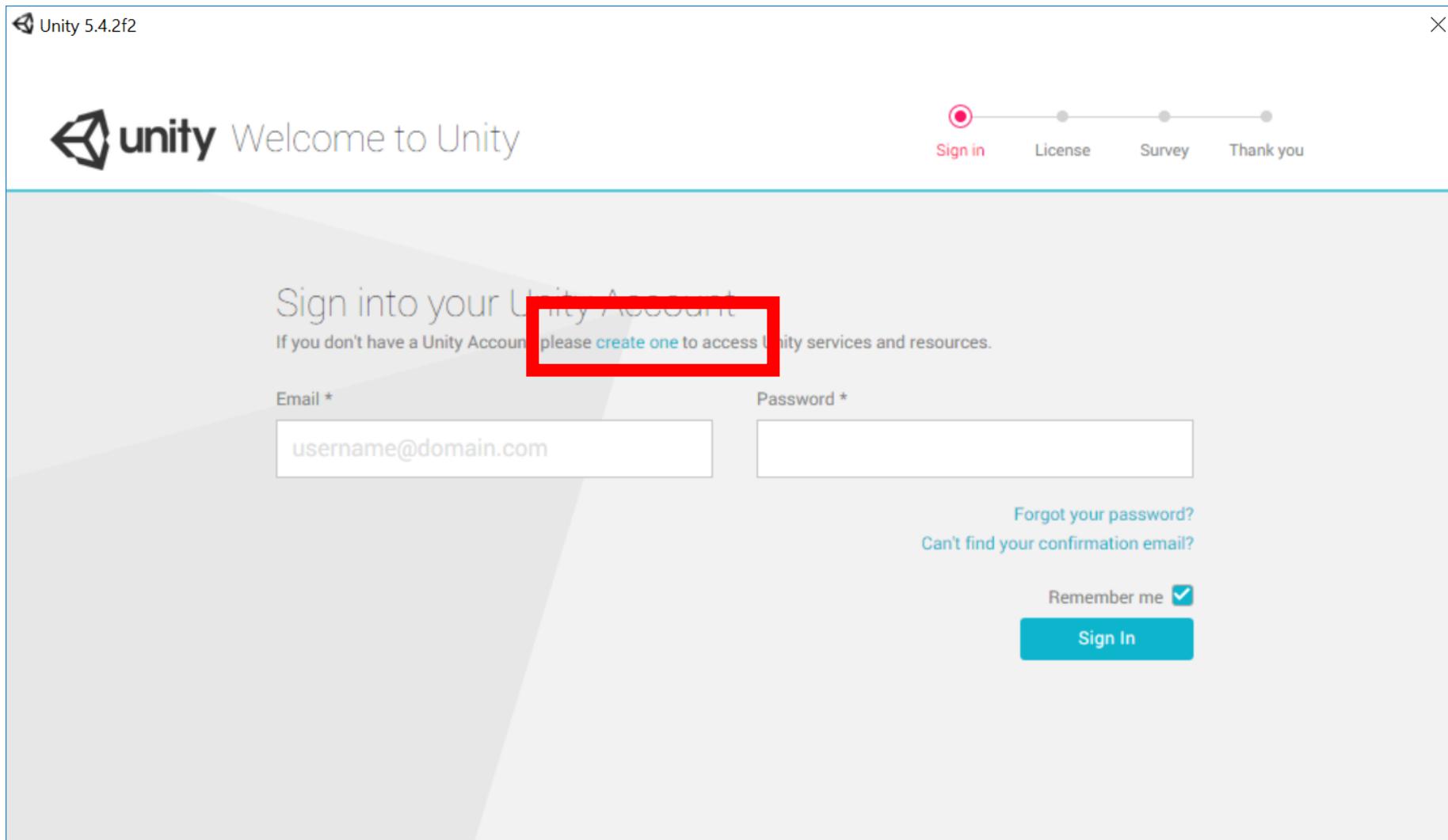


Unity

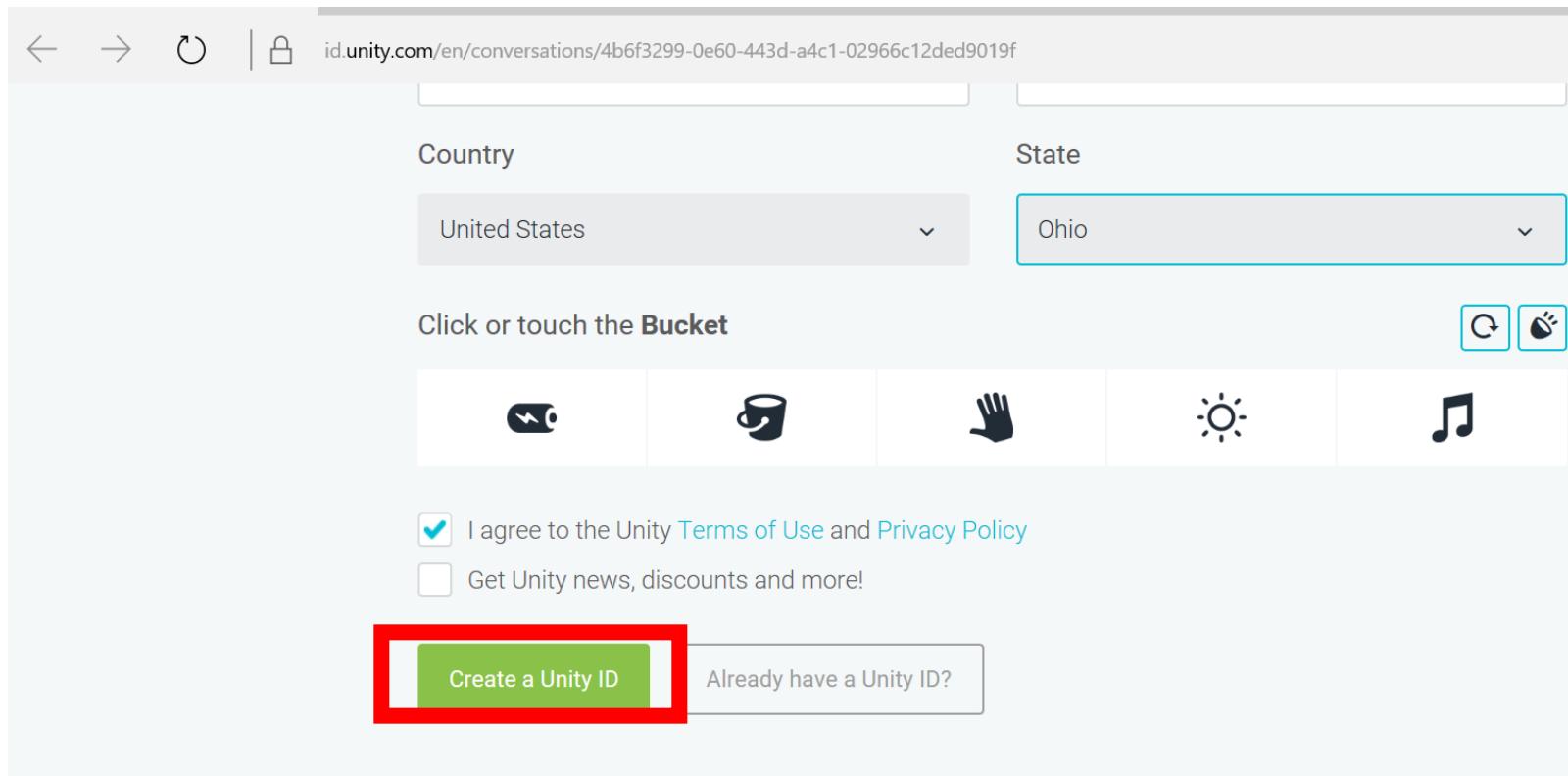
Desktop app



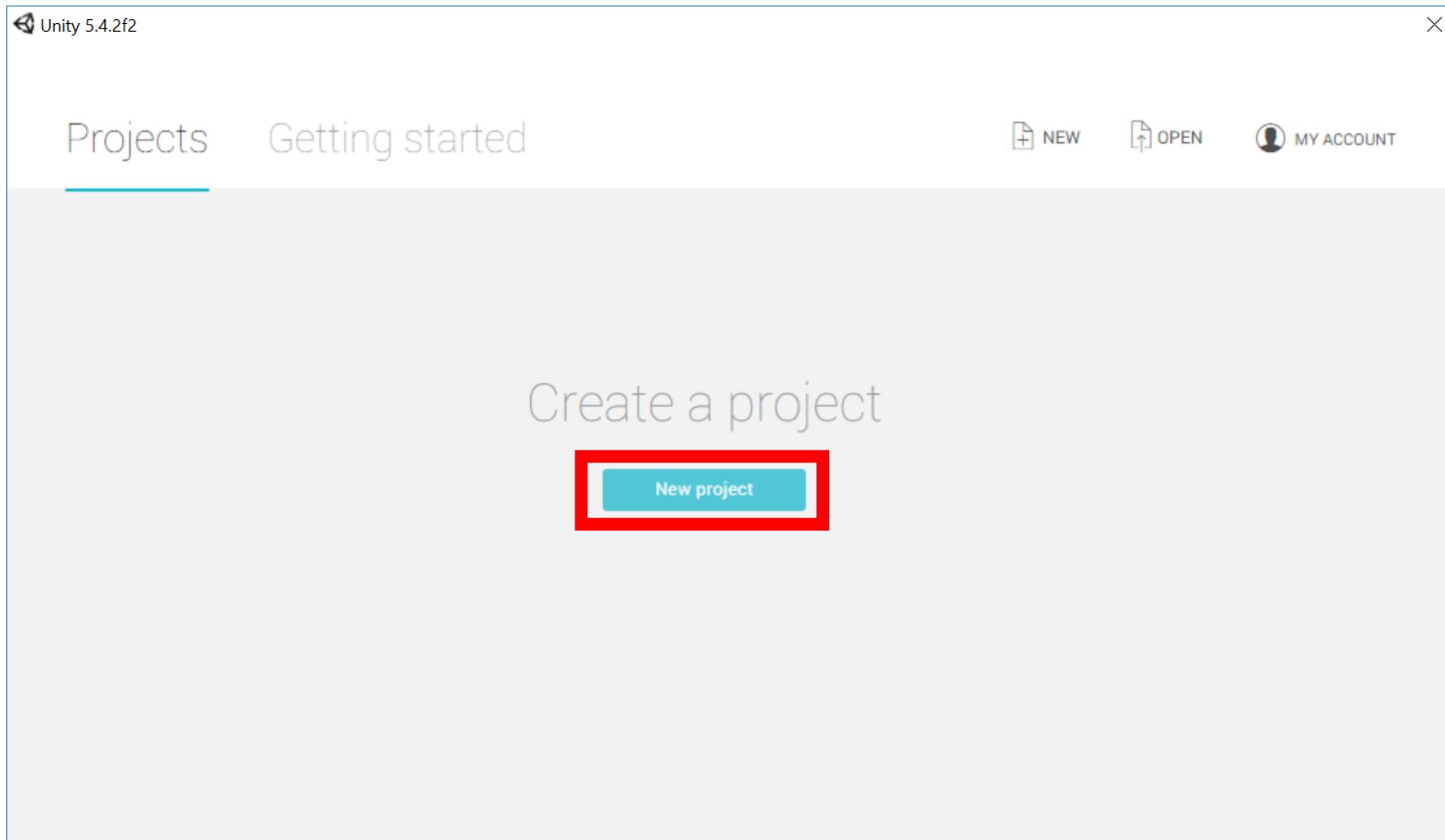
Register Unity3D account



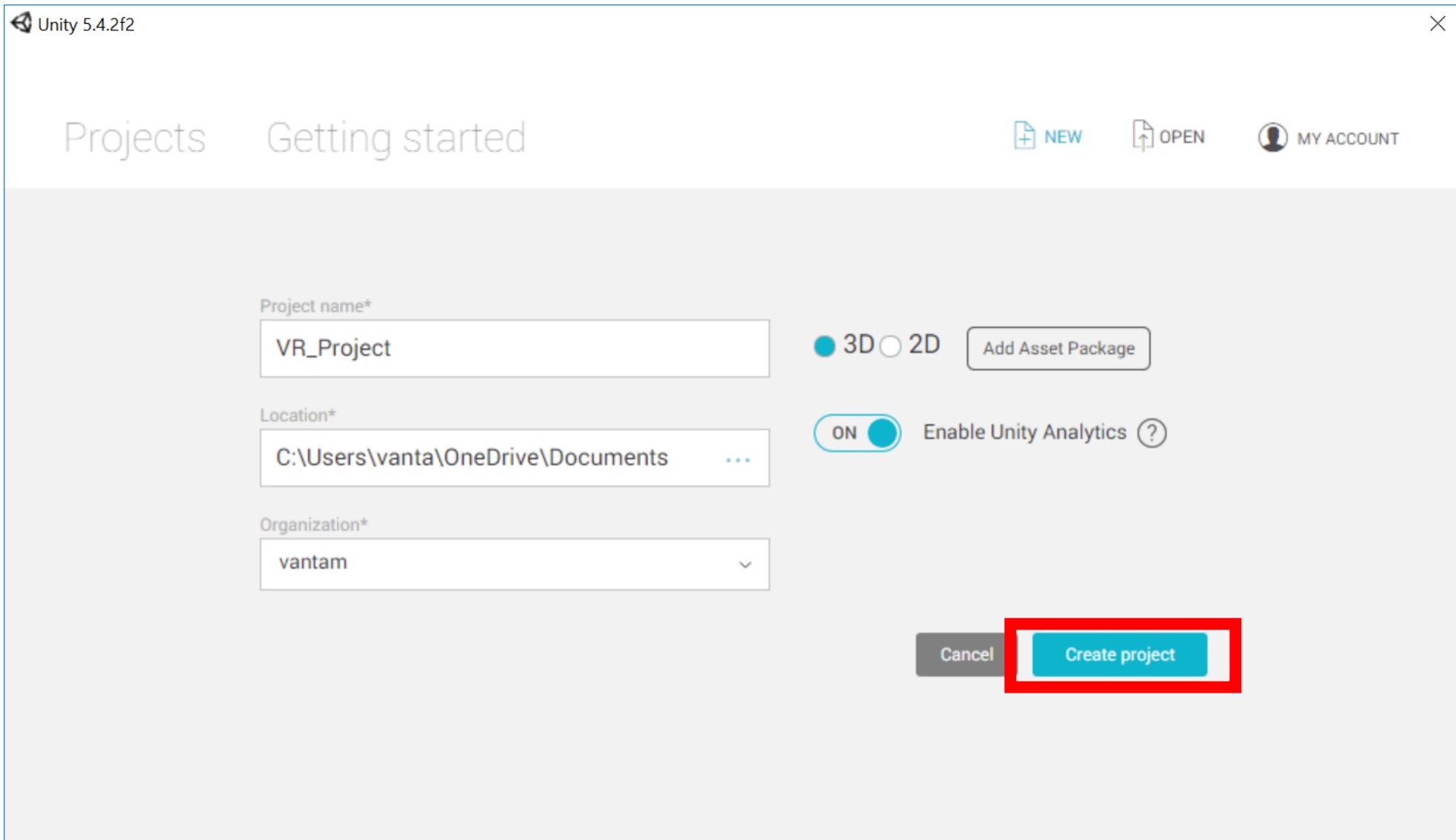
Register Unity3D account



Create a new Unity3D project



Create a new Unity3D project



Download Google VR SDK for Unity

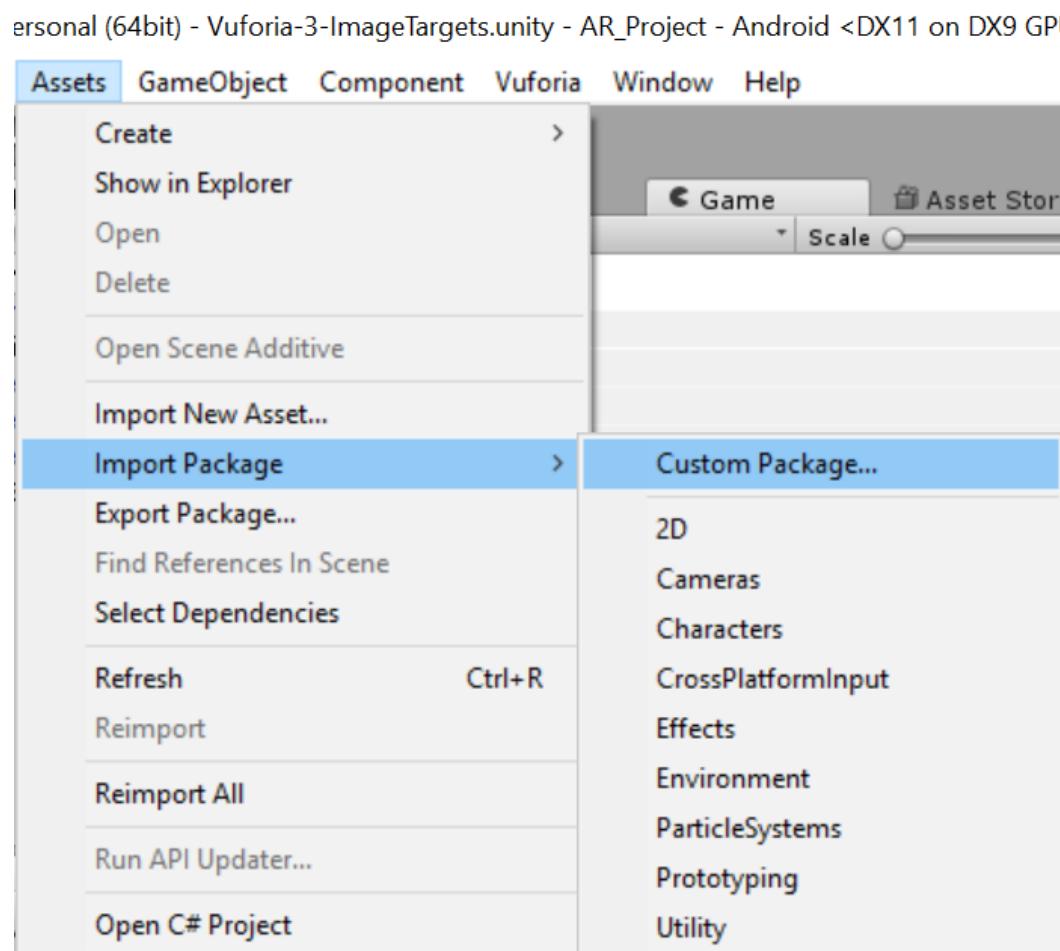
- <https://github.com/googlevr/gvr-unity-sdk/raw/master/GoogleVRForUnity.unitypackage>

The screenshot shows a web browser displaying the Google VR Documentation website at <https://developers.google.com/vr/unity/download>. The page has a teal header with tabs for Google VR, Daydream, Cardboard, Documentation (which is selected), and Publishing. A search bar is on the right. Below the header, there's a navigation bar with Documentation, GUIDES (selected), and REFERENCE. On the left, a sidebar menu includes Overview, Get Started, VR View, Spatial Audio, Samples and Tutorials, Downloads (Android, NDK, iOS, Unity, Unreal), and Help. The main content area is titled "Download and Samples" and features a five-star rating icon. It contains a section for "Google VR SDK for Unity" with a description about cloning the GitHub repository and a command-line code block:

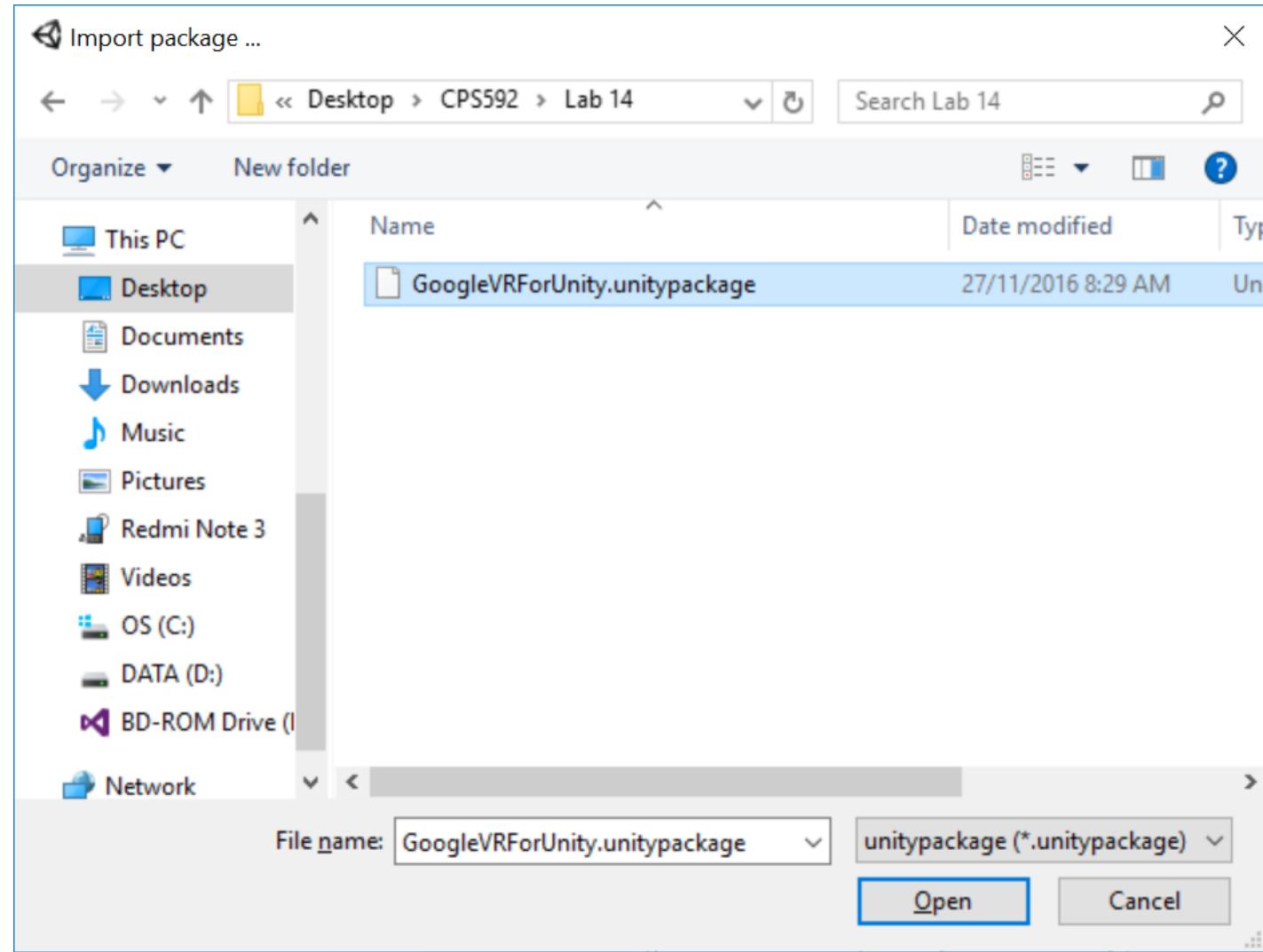
```
git clone https://github.com/googlevr/gvr-unity-sdk.git
```

It also mentions downloading the Unity package or the entire repository directly. At the bottom, it says to continue by reading the Getting Started guides for Android and iOS. The footer says "Google VR SDK samples for Unity".

Import the downloaded unitypackage



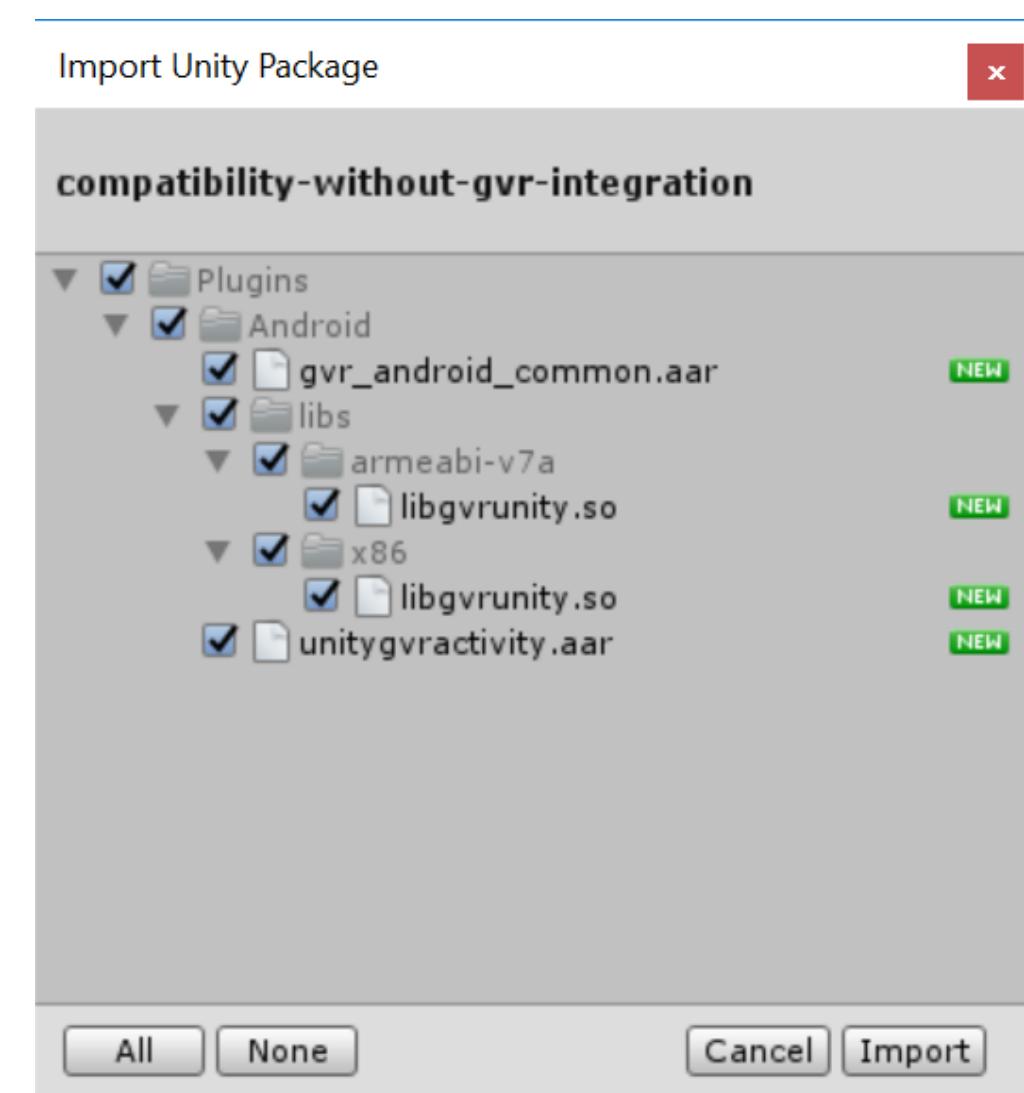
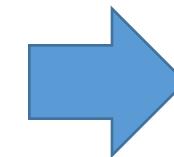
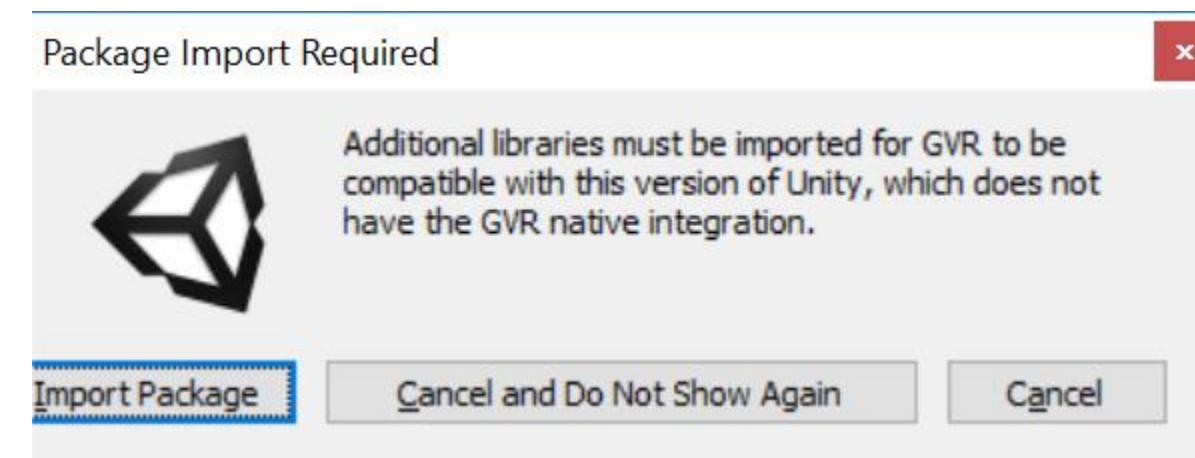
Import GoogleVRForUnity.unitypackage



Import GoogleVRForUnity.unitypackage

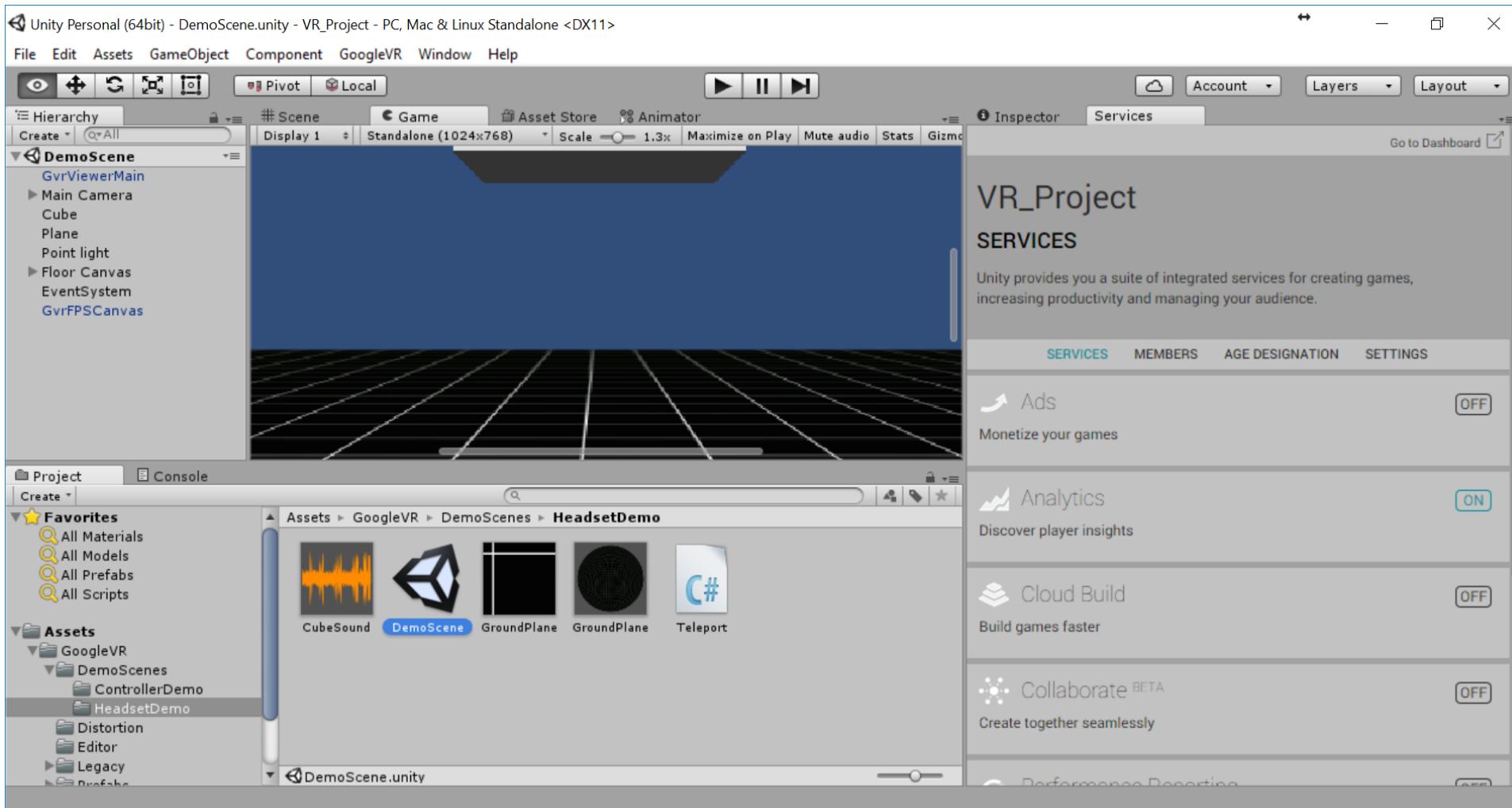


Import GoogleVRForUnity.unitypackage

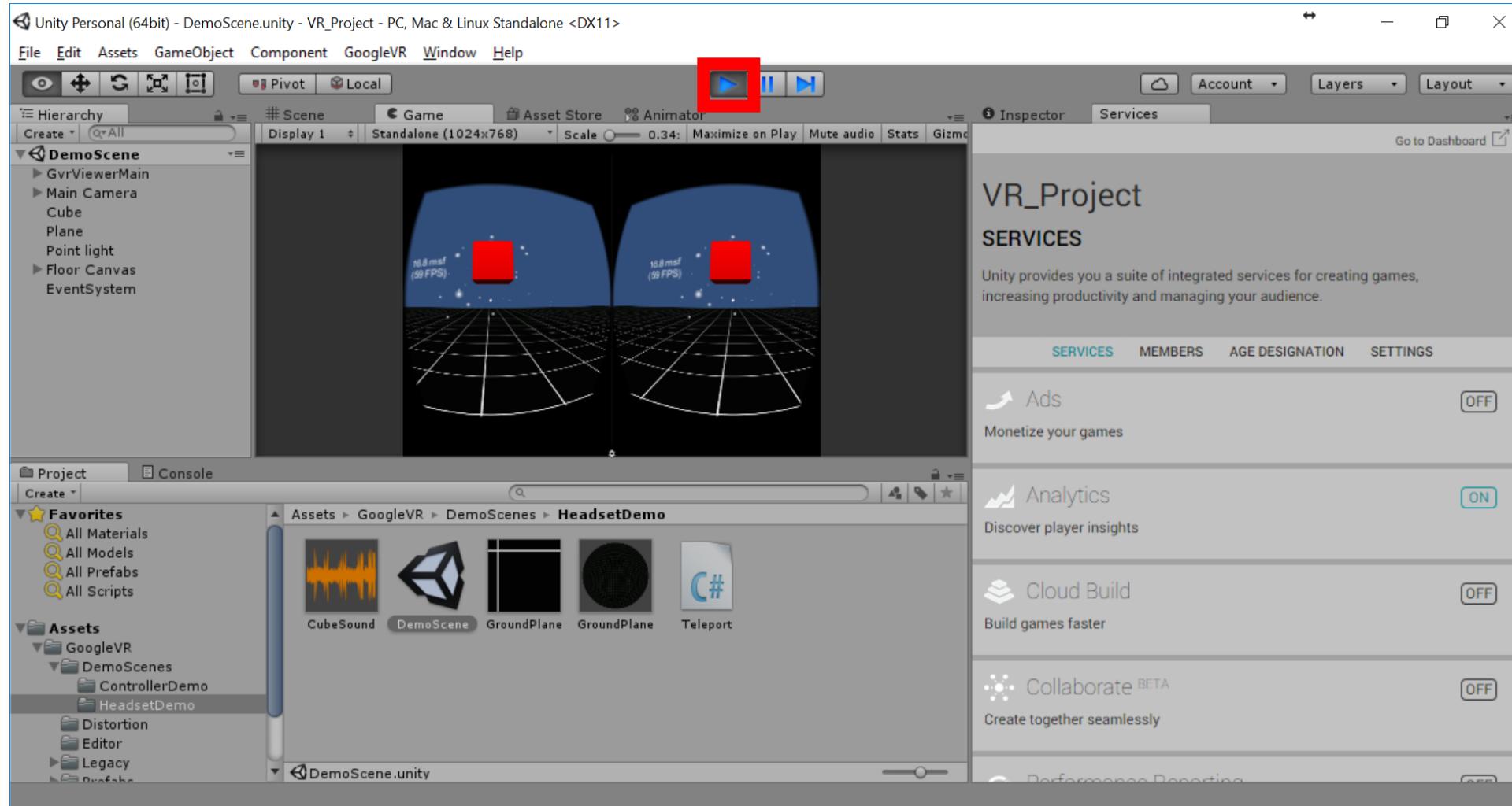


Open DemoScene

- Assets\GoogleVR\DemoScenes\HeadsetDemo

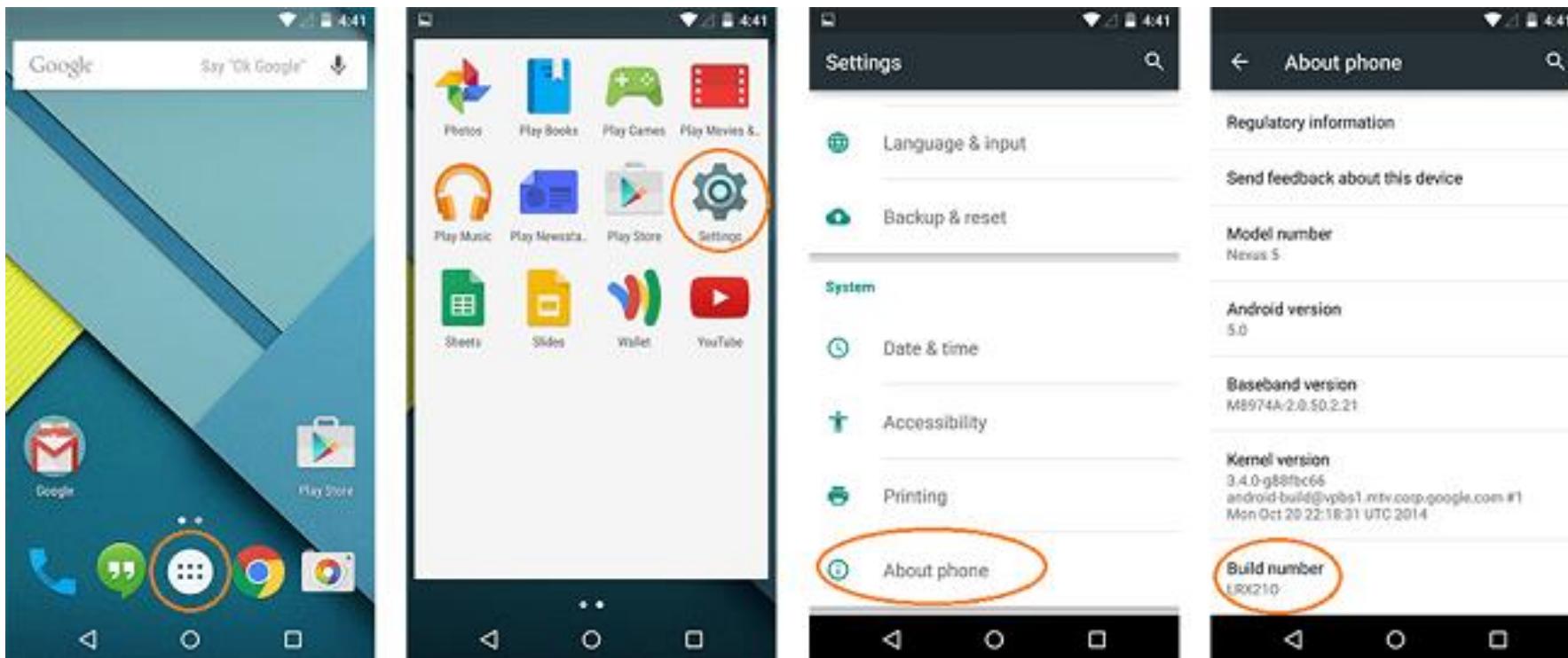


Play the scene



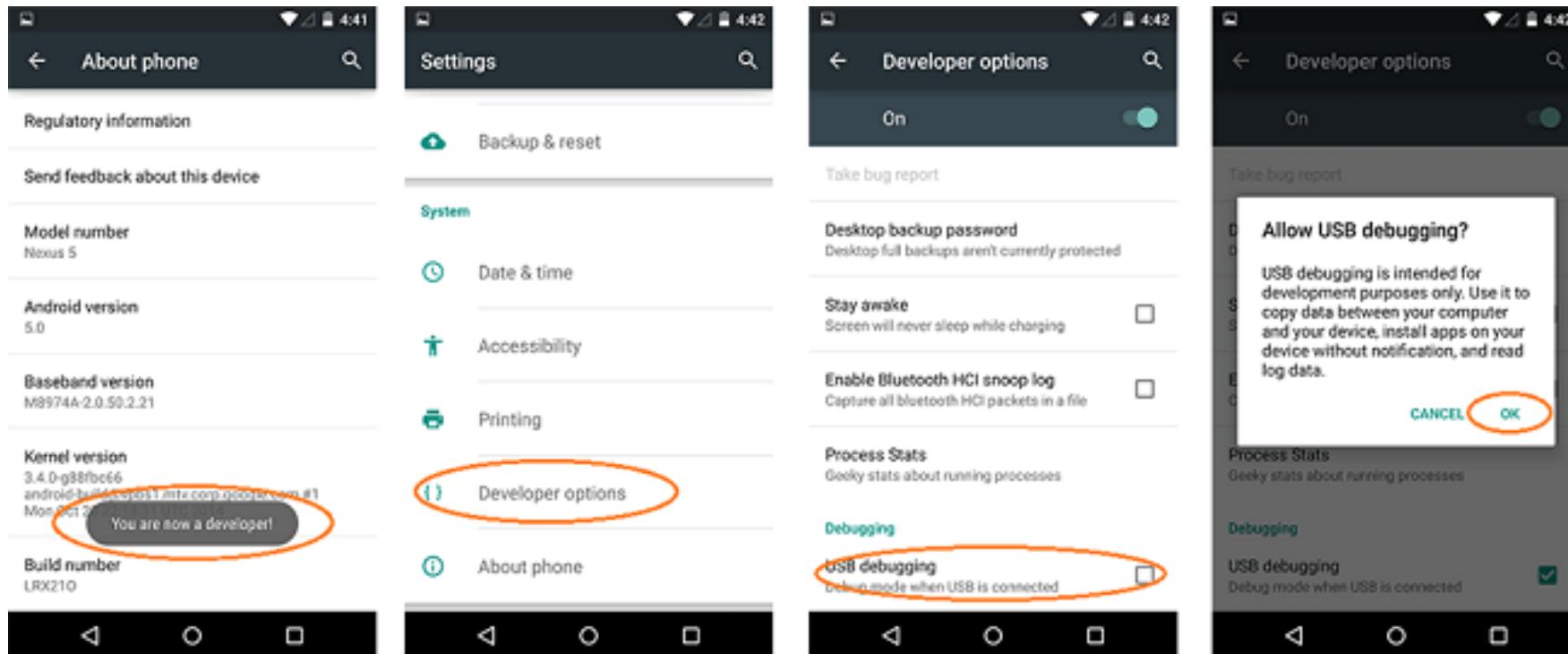
Activate the developer mode on Android Phone/Tablet

- Step 1. Go to Settings menu, tap "**About Phone**" option. Scroll to find "**Build number**" and tap it 7 times until the "**You are now a developer**" note pops up.



Activate the developer mode on Android Phone/Tablet

- Step 2. Go back to the previous screen, and tap the "**Developer Options**". Check the box next to "**USB debugging**". At last, press OK to enable USB debugging mode.



Download Android SDK

https://dl.google.com/android/android-sdk_r24.4.1-windows.zip

The screenshot shows a web browser displaying the Android Studio developer website at <https://developer.android.com/studio/index.html#downloads>. The page is titled "Get just the command line tools". It provides instructions for users who do not need Android Studio and can download the basic Android command line tools. A table lists the available packages for different platforms: Windows, Mac OS X, and Linux. The Windows row is highlighted with a red box around the "installer_r24.4.1-windows.exe" link and its details. The table columns are "Platform", "SDK tools package", "Size", and "SHA-1 checksum".

| Platform | SDK tools package | Size | SHA-1 checksum |
|----------|---|-----------------------------|-------------------------------|
| Windows | installer_r24.4.1-windows.exe | 144 MB (151659917 bytes) | f9b59d72413649d31e633207e31f |
| Windows | android-sdk_r24.4.1-windows.zip No installer | 190 MB (199701062 bytes) | 66b6a6433053c152b22bf8cab19c |
| Mac OS X | android-sdk_r24.4.1-macosx.zip | 98 MB (102781947 bytes) | 85a9ccb0b1f9e6f1f616335c5f07 |
| Linux | android-sdk_r24.4.1-linux.tgz | 311 MB (326412652 bytes) | 725bb360f0f7d04eaccff5a2d57ab |

See the [SDK tools release notes](#).

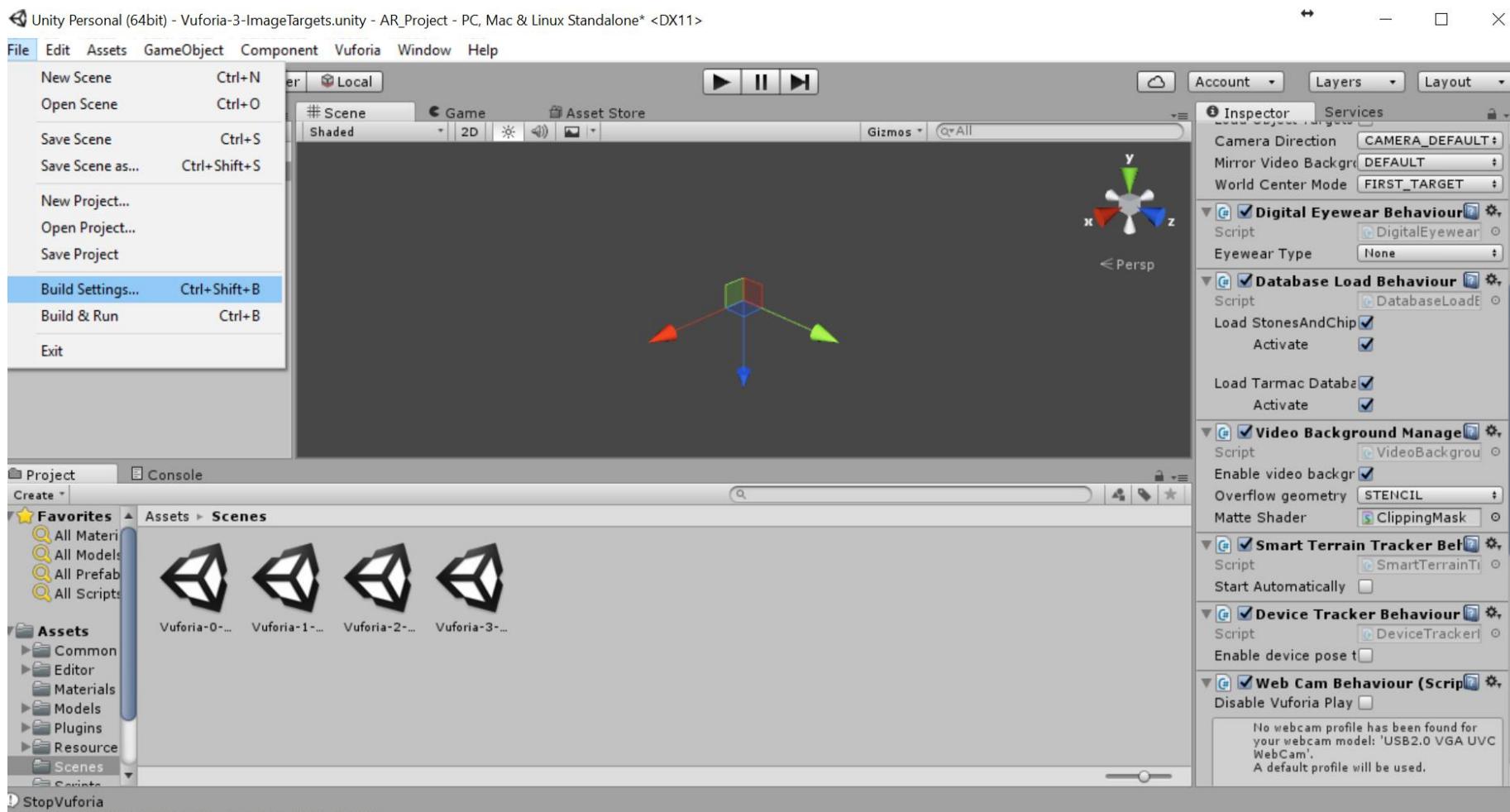
Unzip Android SDK

- Unzip android-sdk_r24.4.1-windows.zip

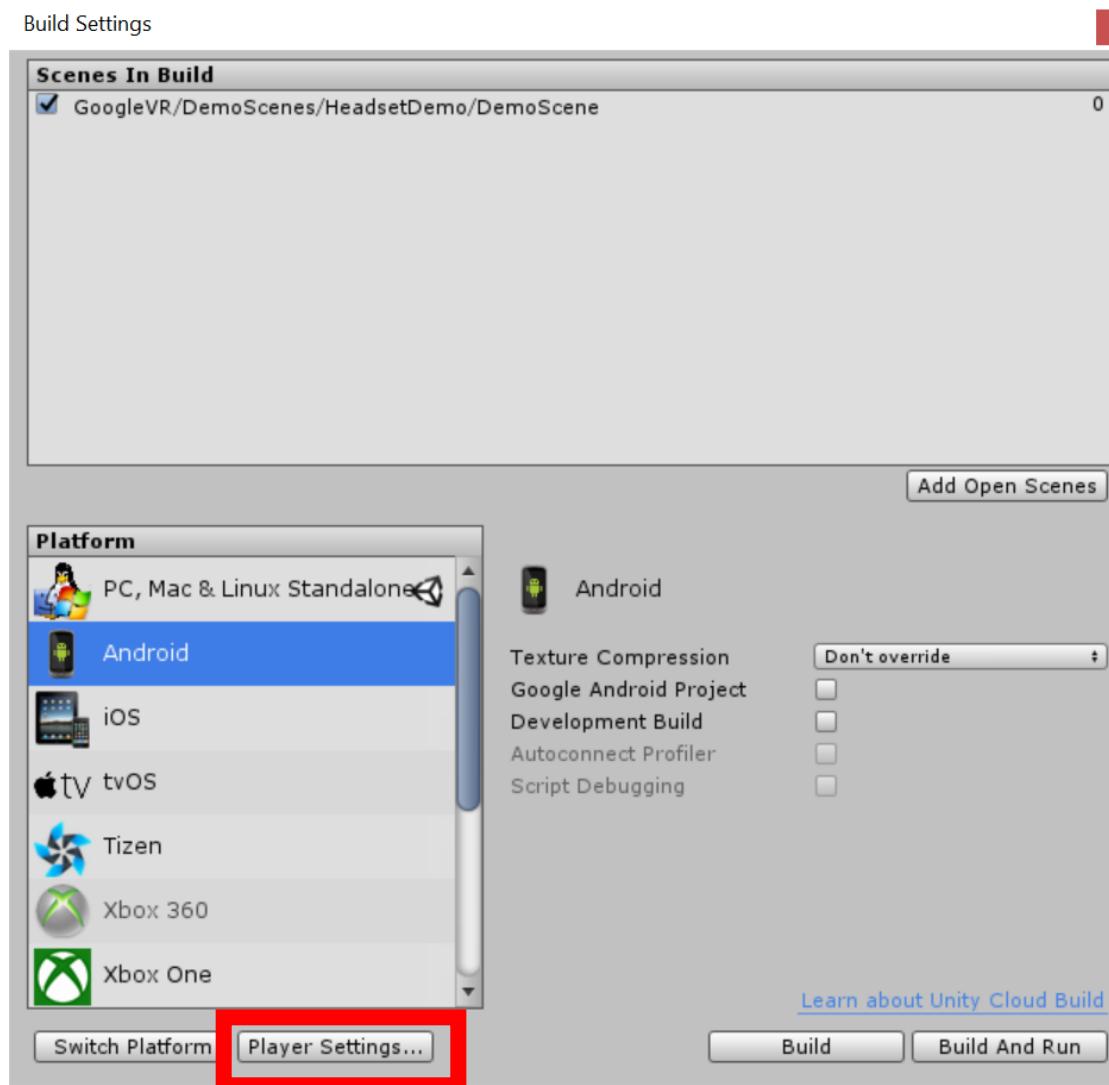
Connect Android phone/tablet with laptop



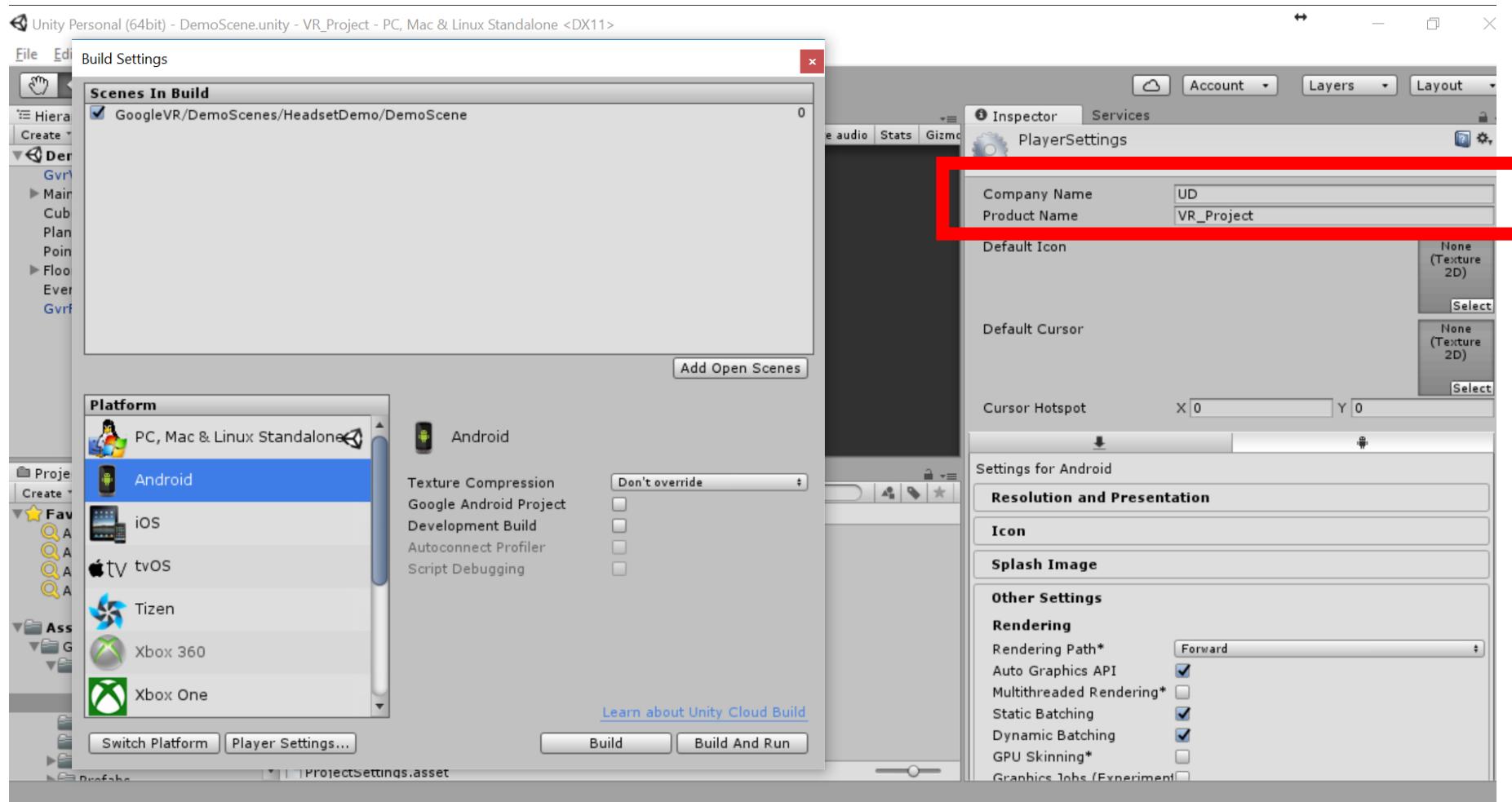
Choose the build setting



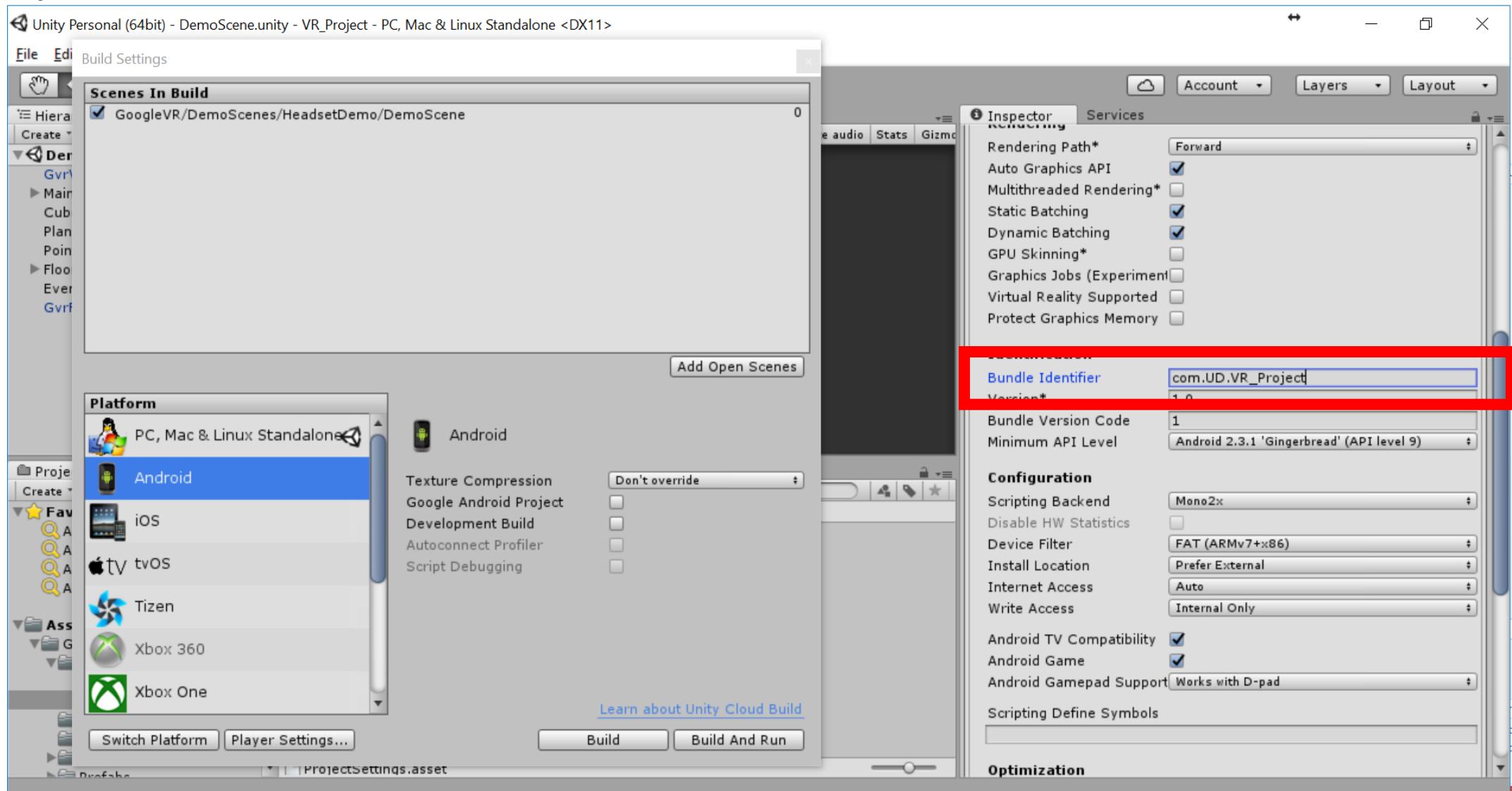
Choose the Player Settings



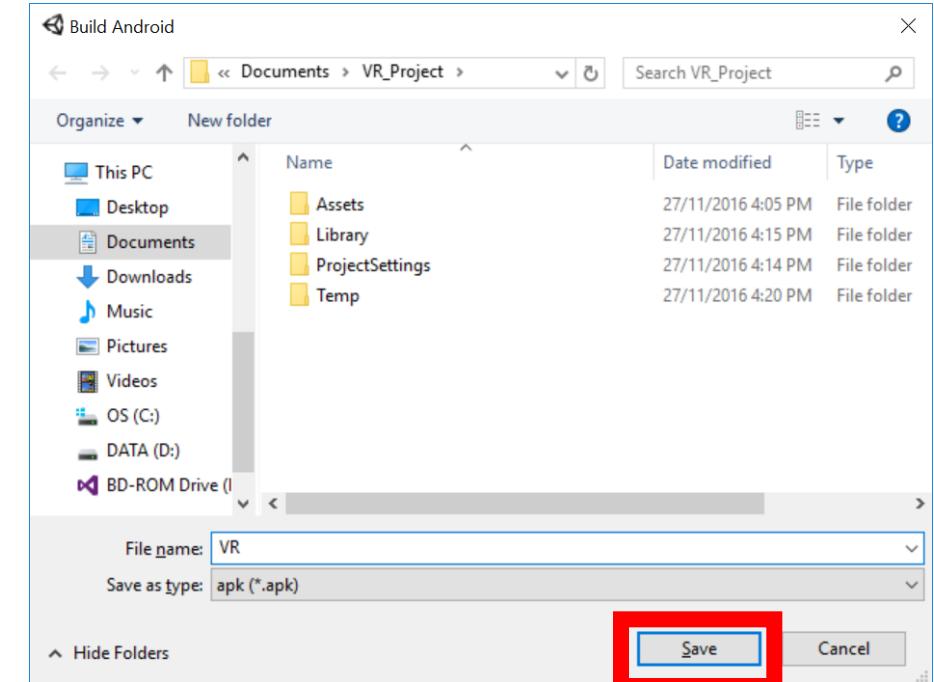
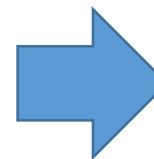
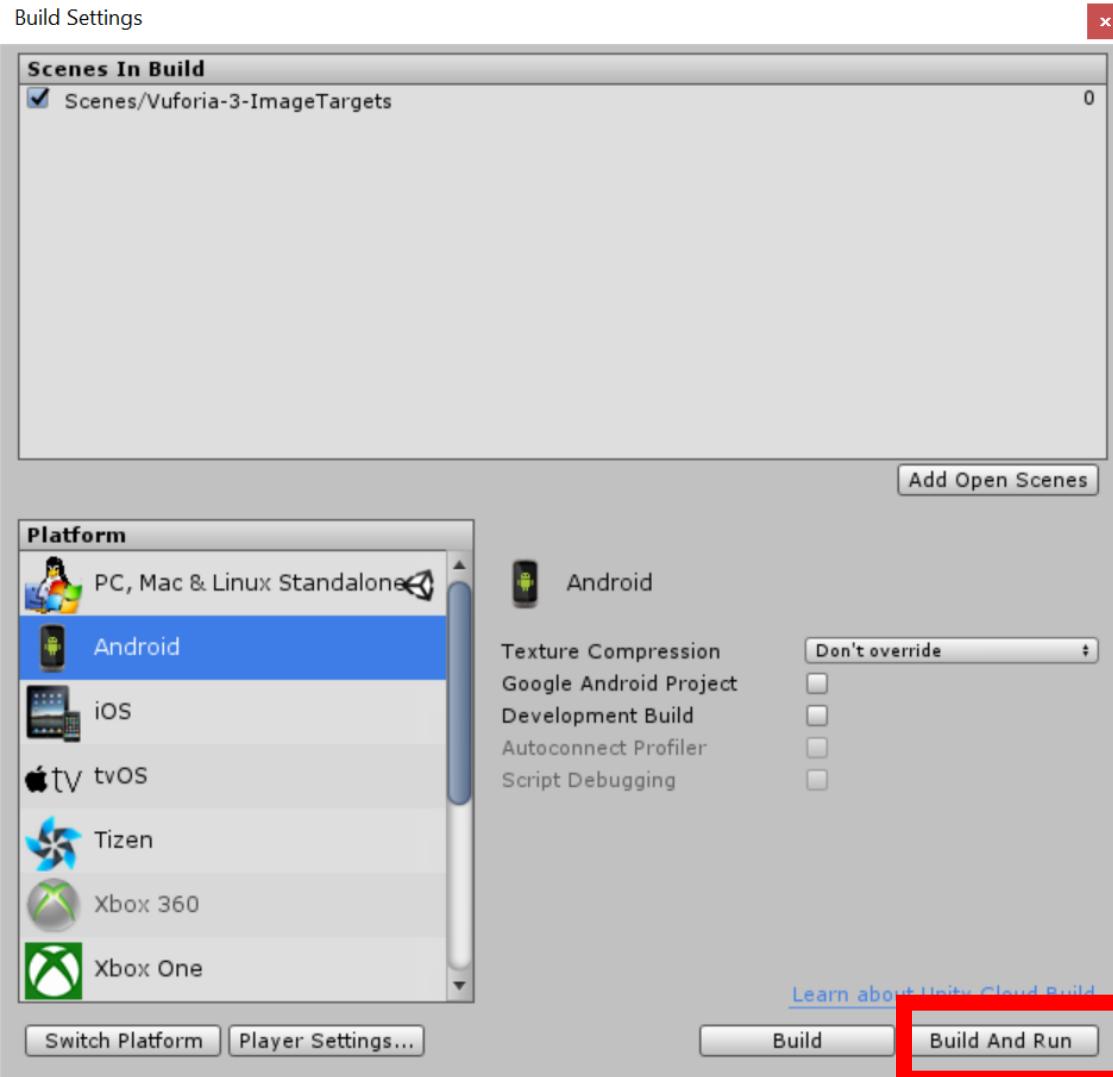
Input Company Name and Product Name



Input Bundle Identifier

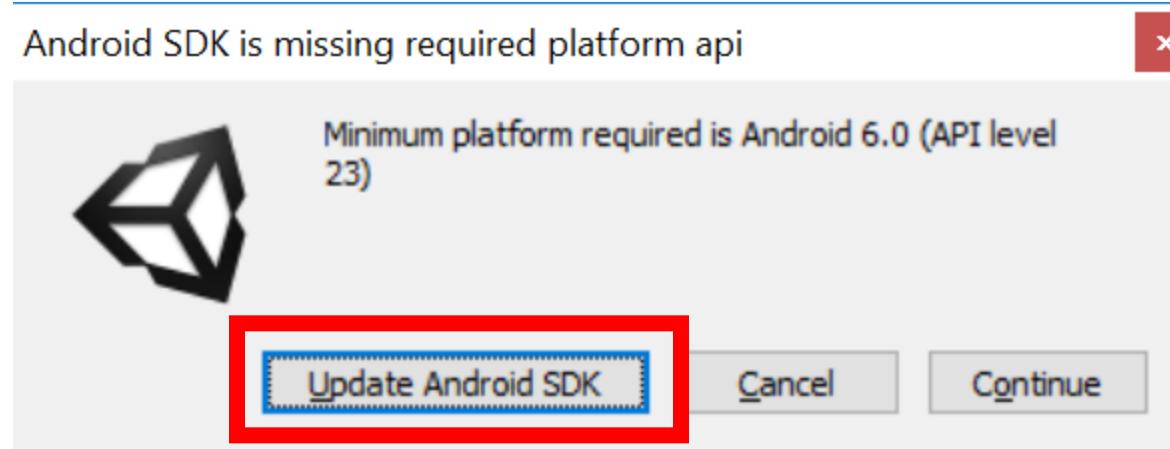
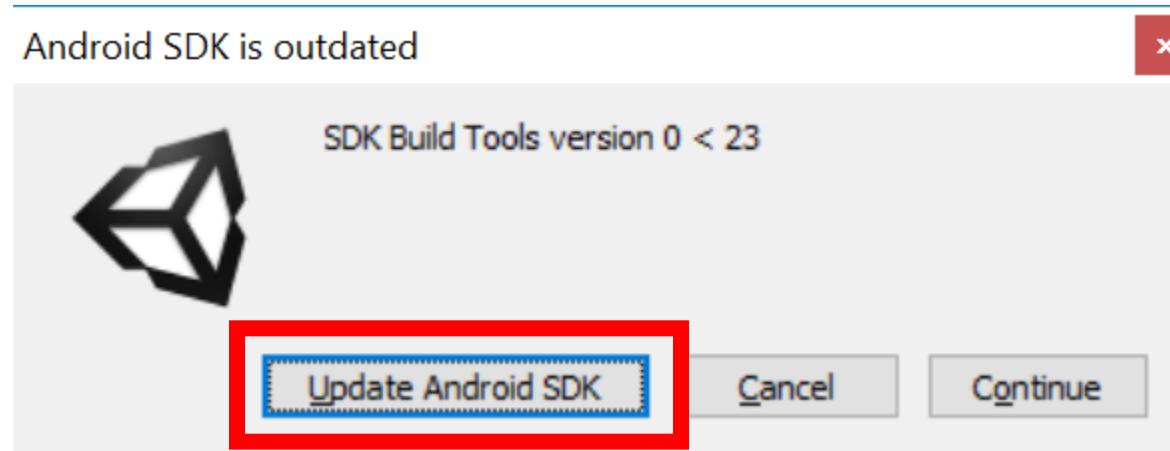


Choose the build setting

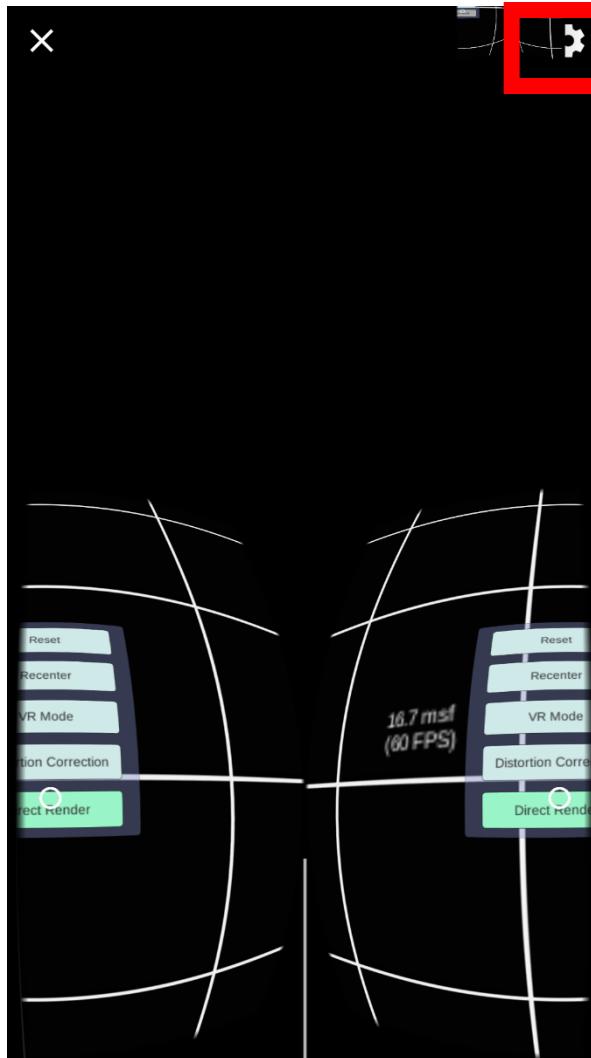


**The next step is to point to the
Android SDK folder**

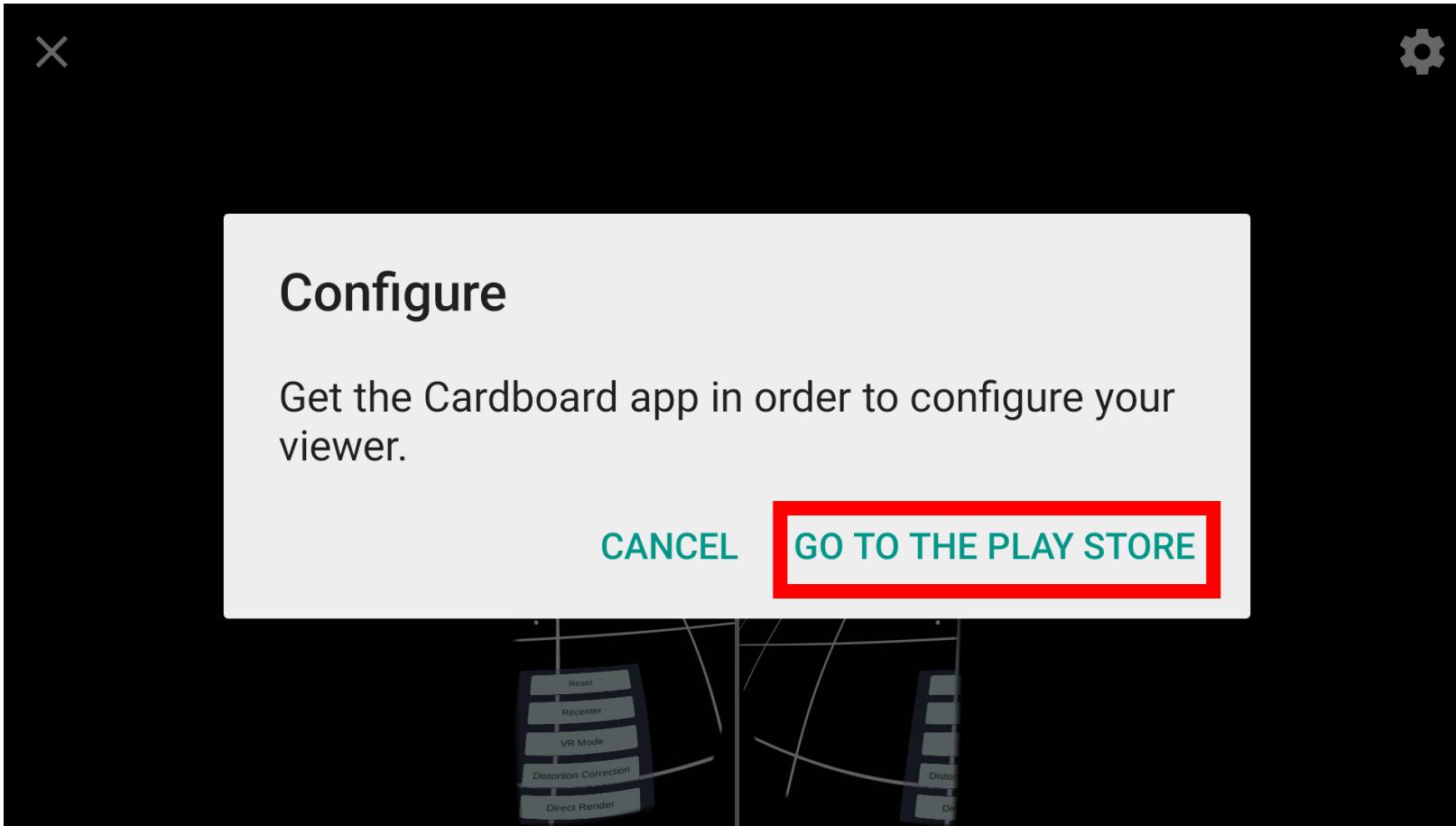
Update Android SDK



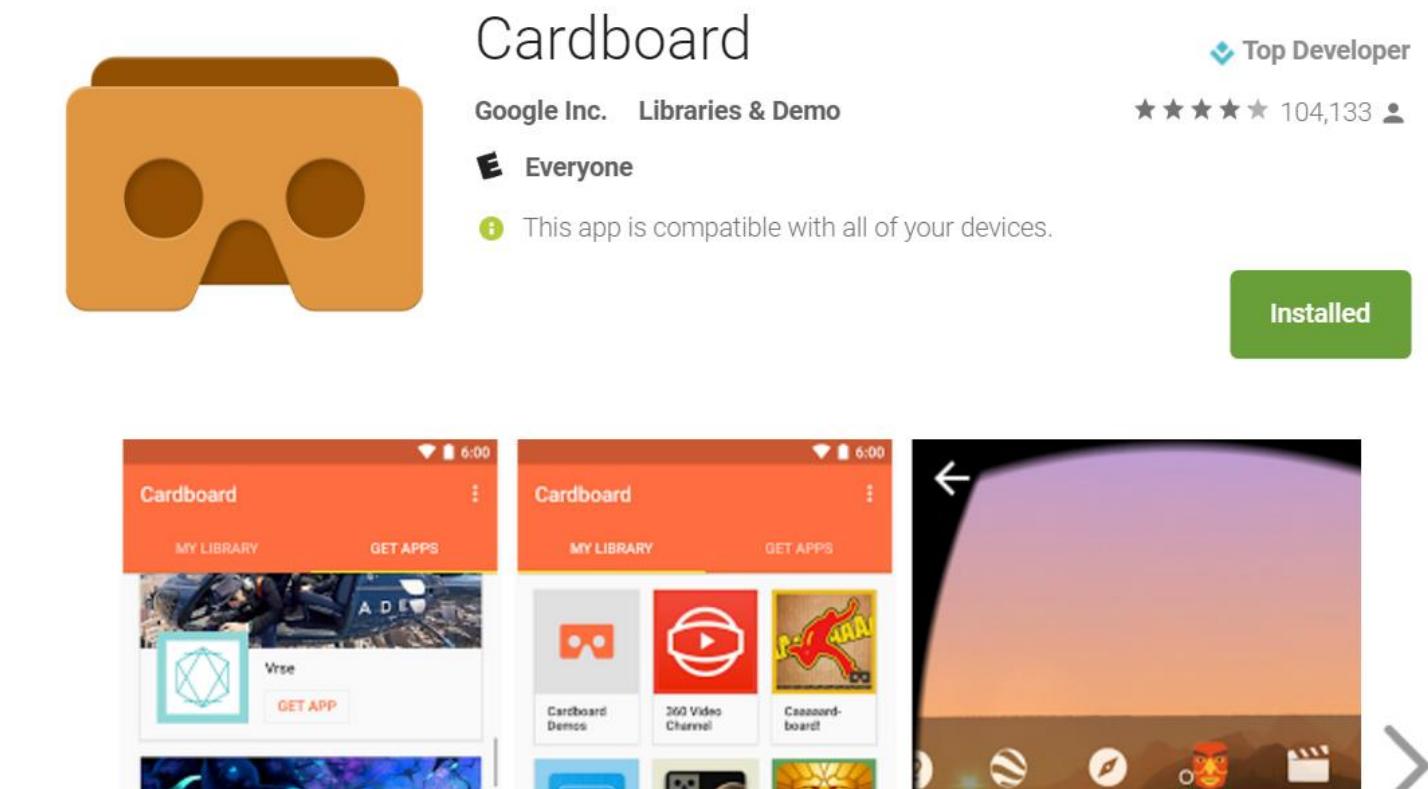
What do you see?



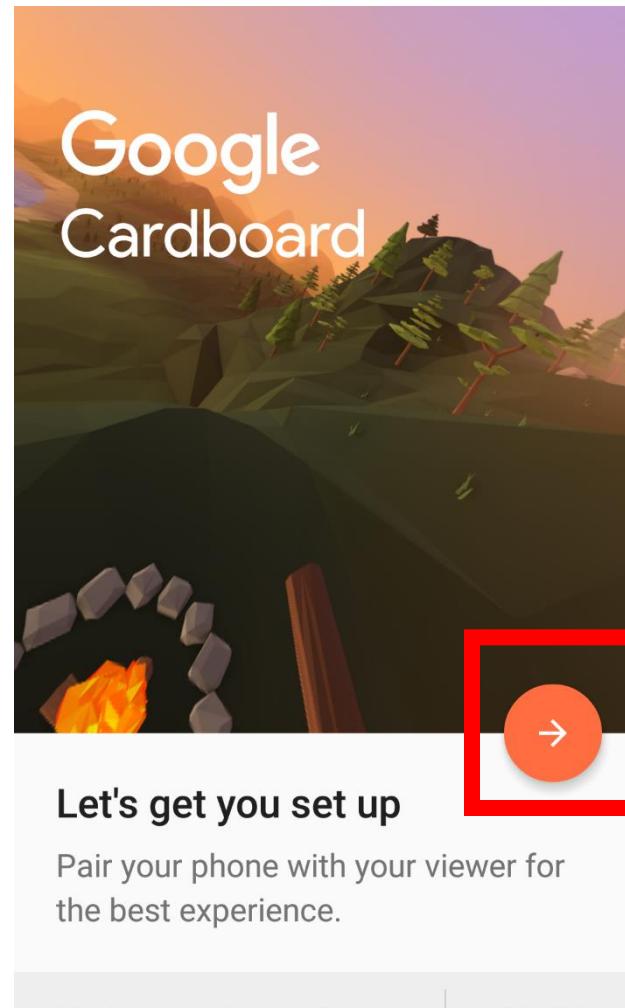
Install Cardboard app on Android device



Install Cardboard app on Android device



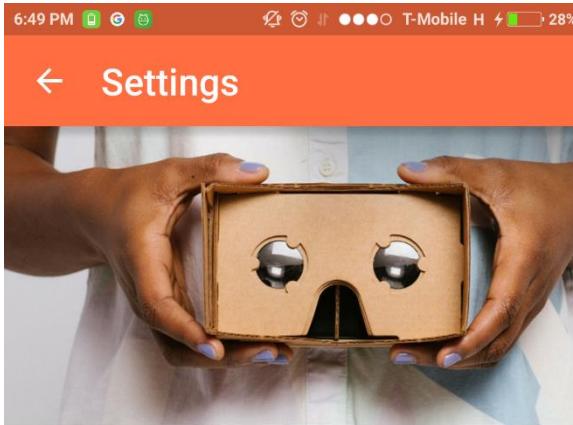
Setting up Google Cardboard



Cardboard symbol



Configured with the viewer



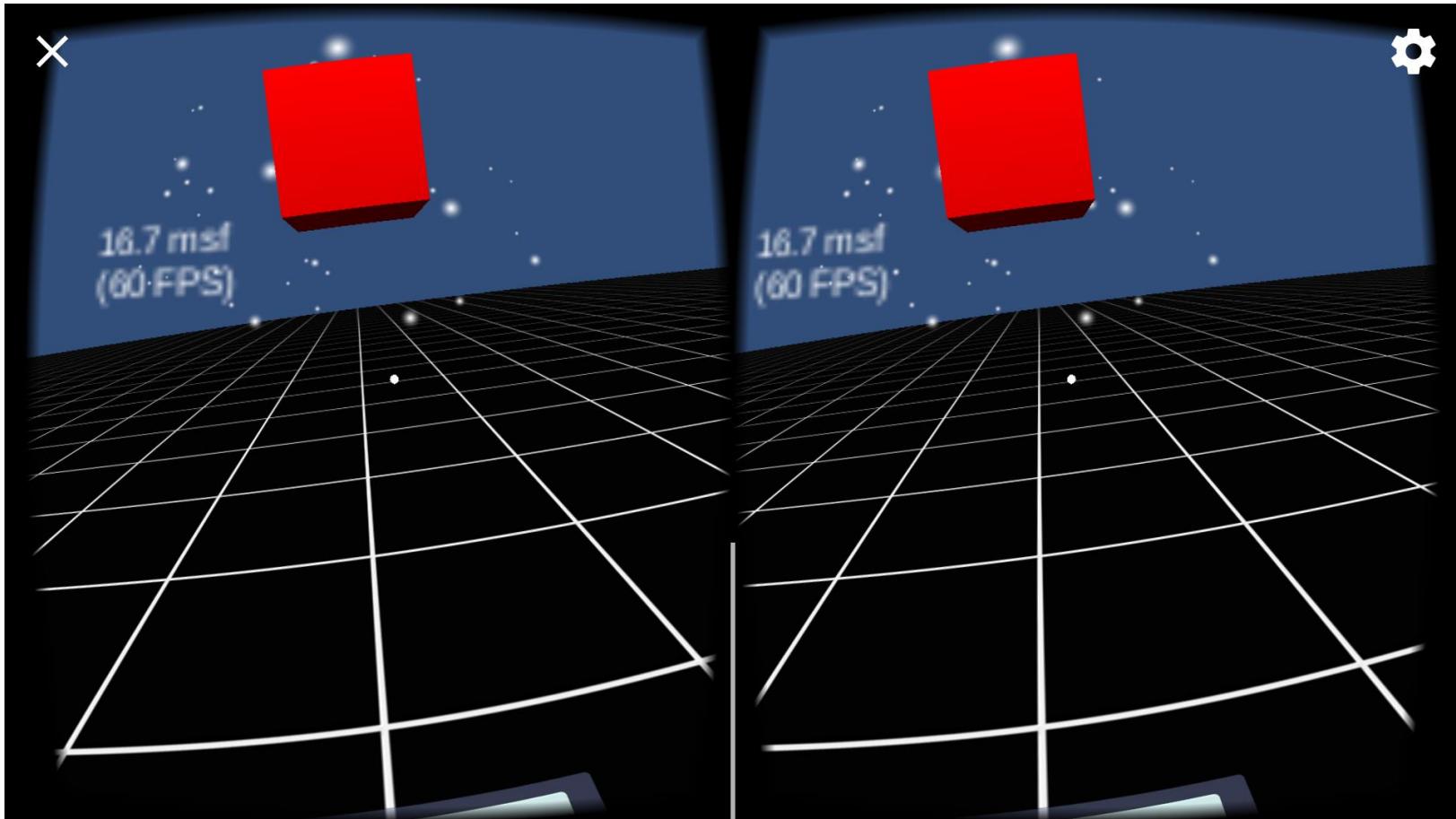
Your phone is configured for the
following viewer:

Homido VR Headset

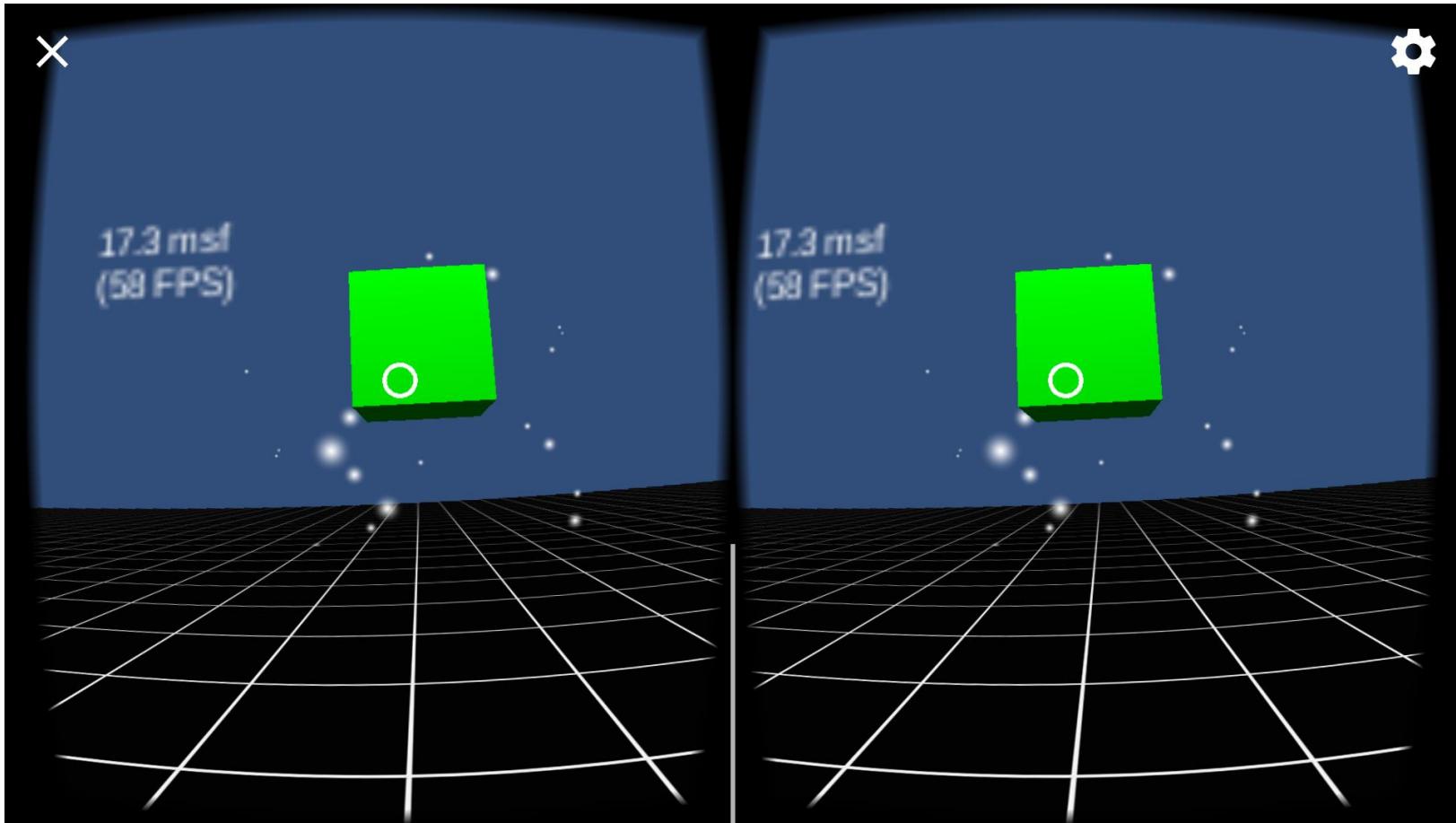
from Homido.com

[SWITCH VIEWER](#)

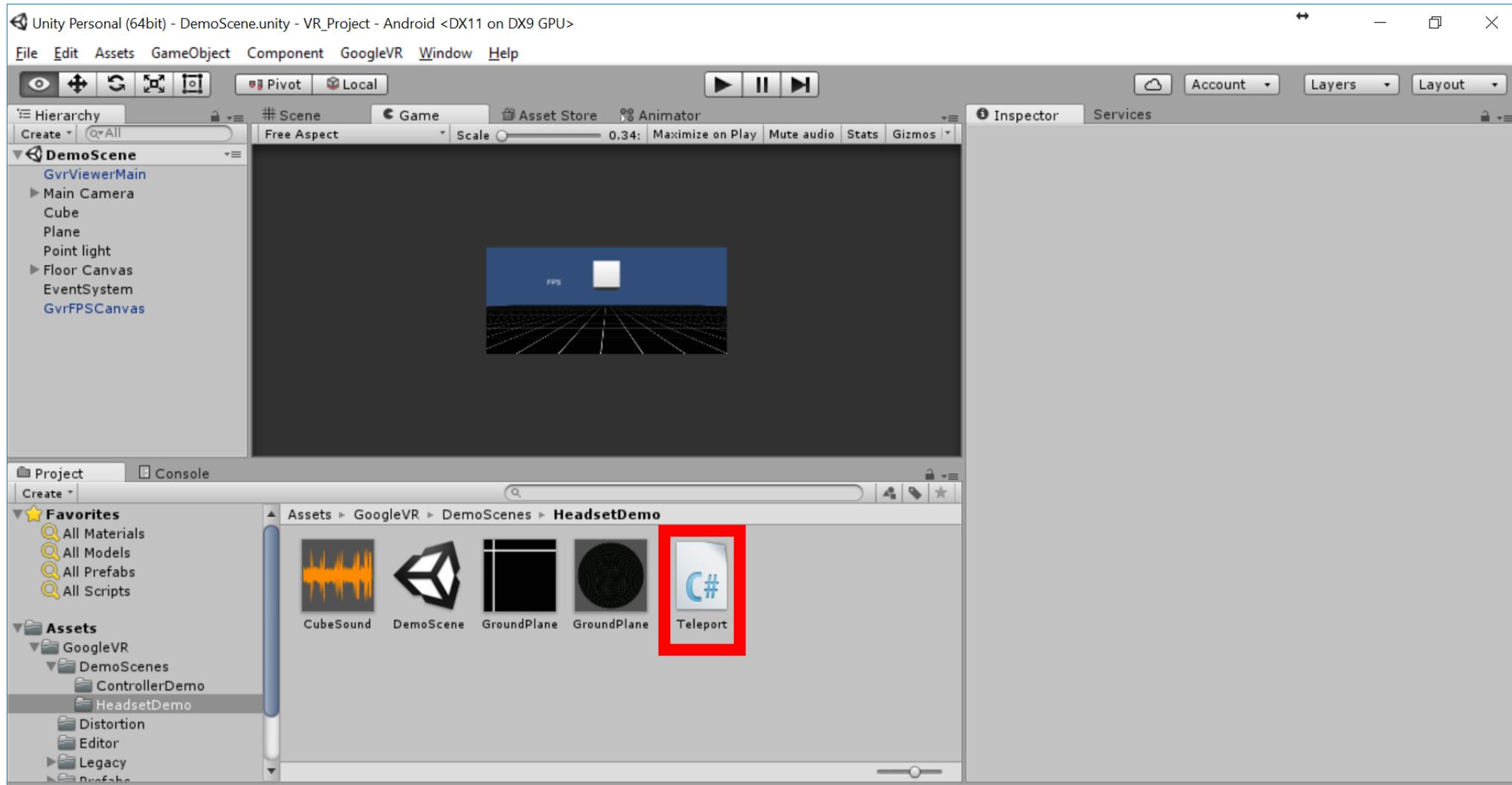
Run the VR app again



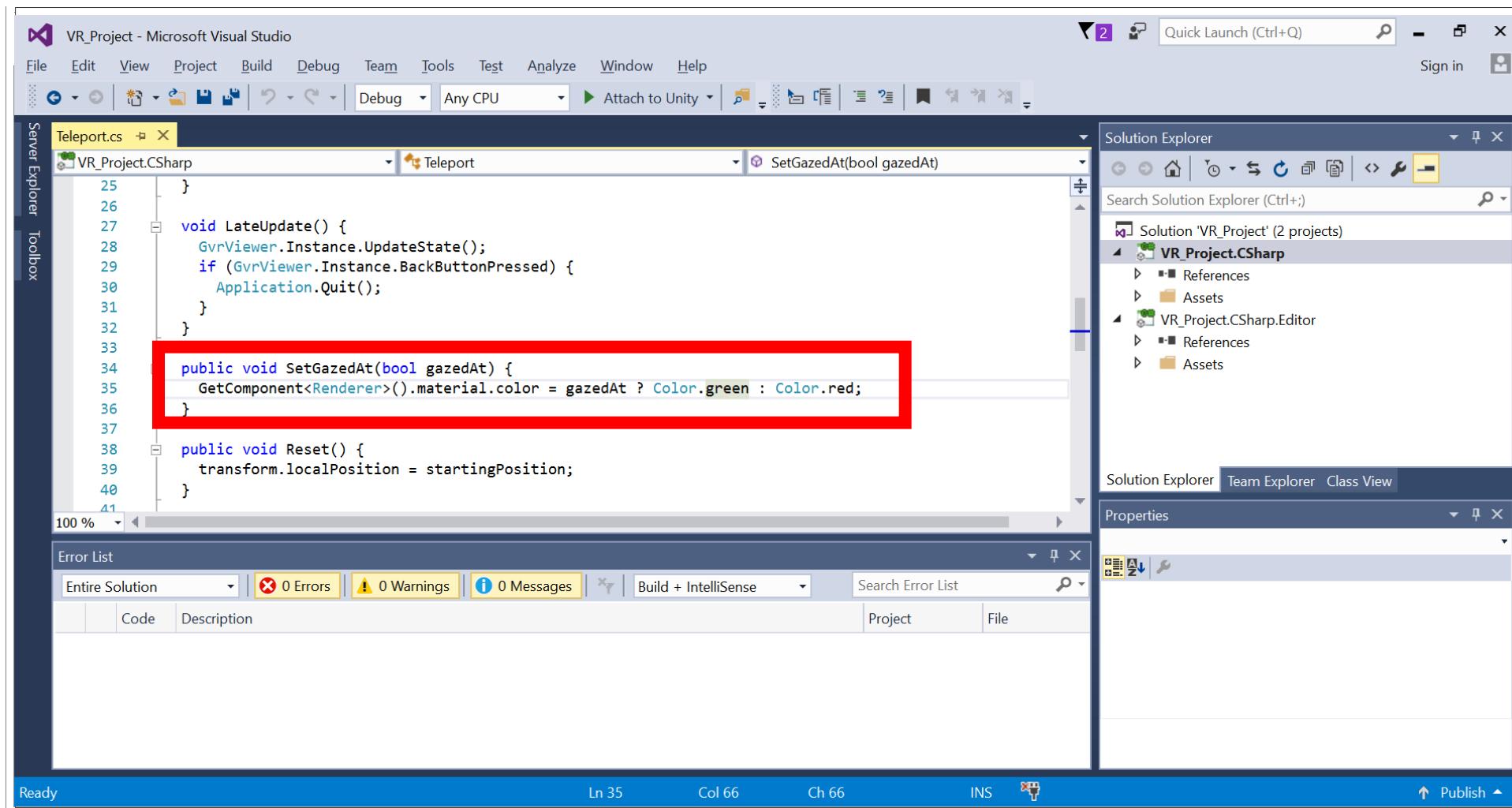
Change the viewpoint to the cube



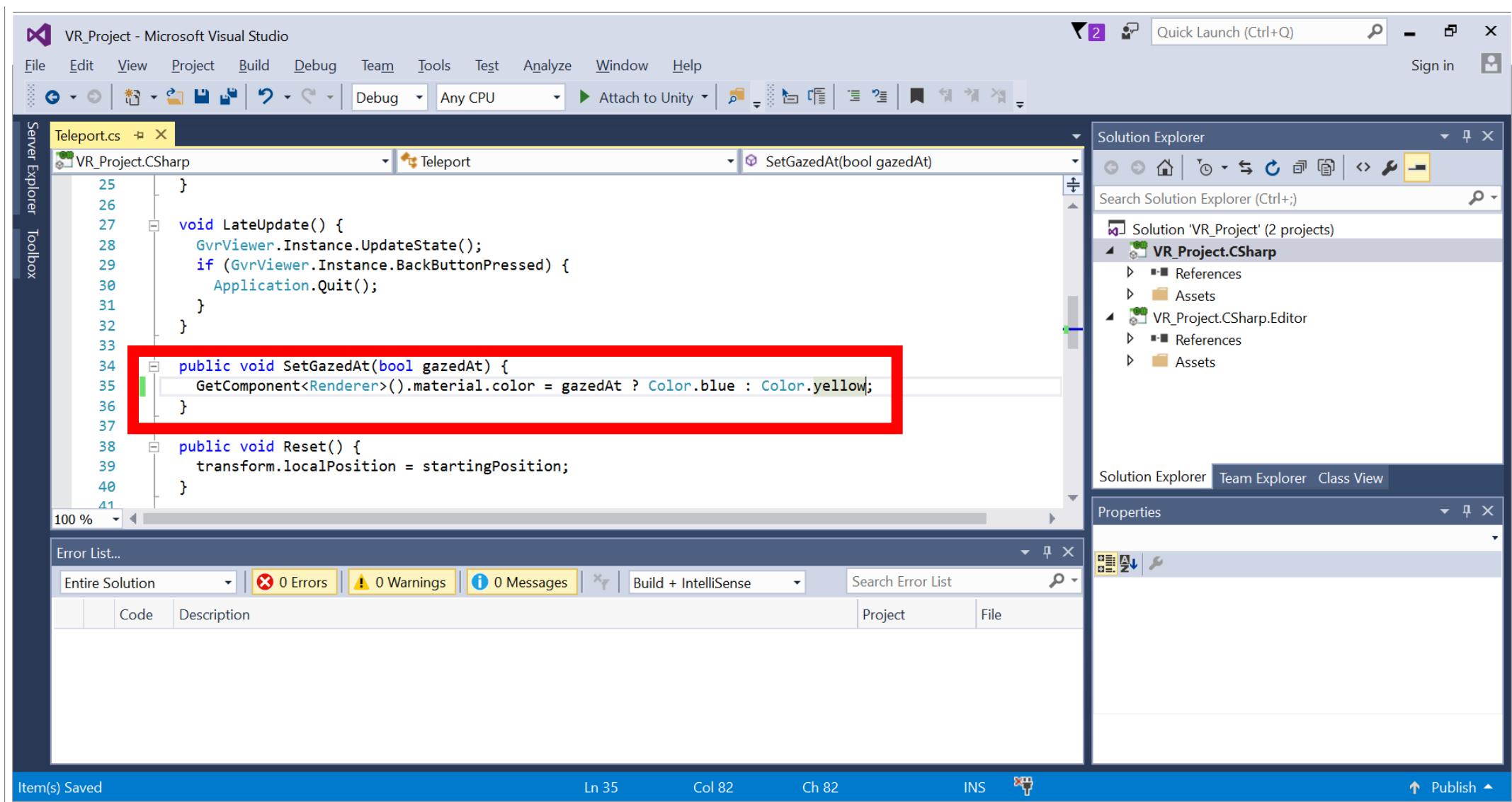
How to change the cube's color?



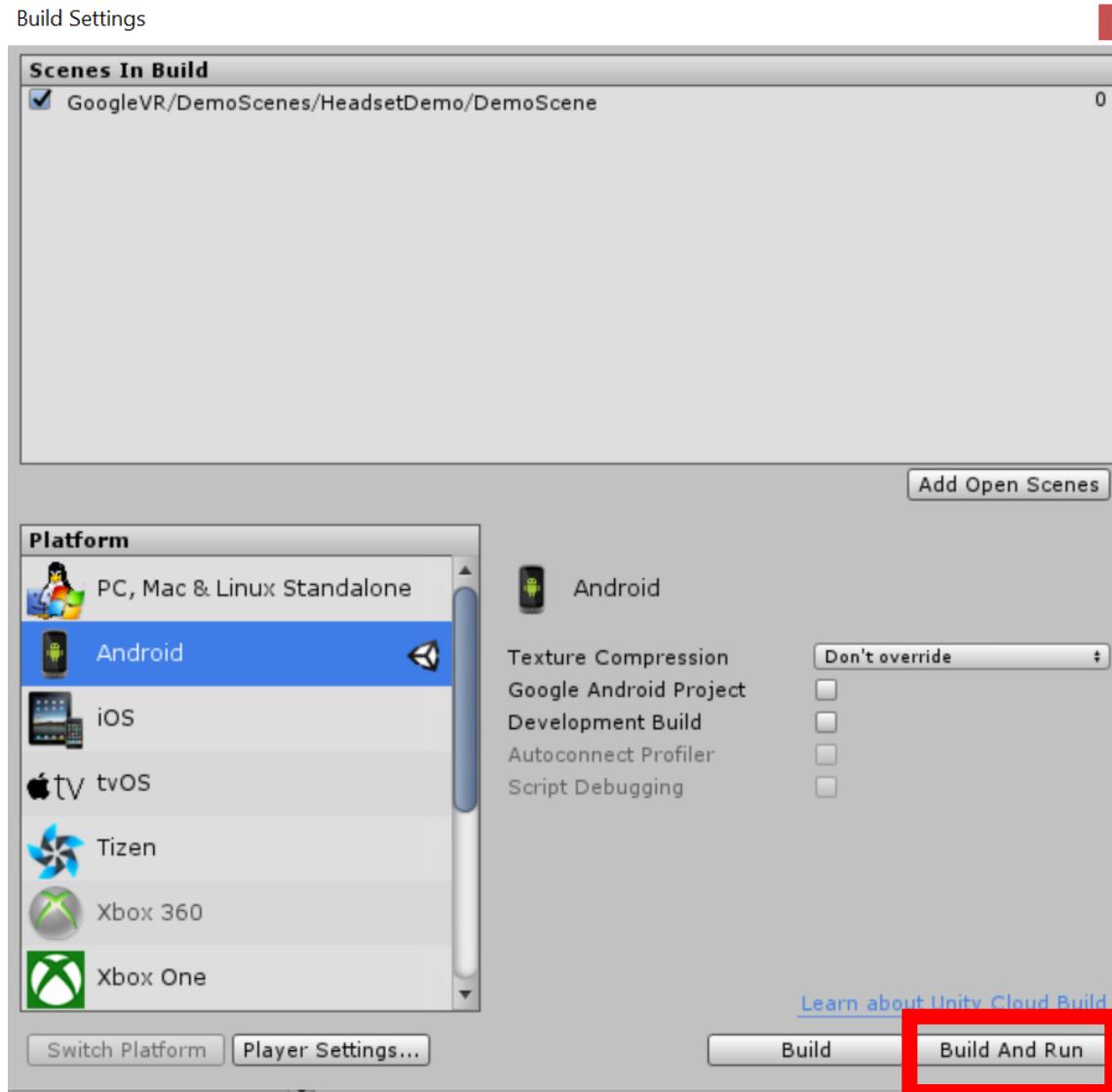
Locate to the line of changing the cube's color



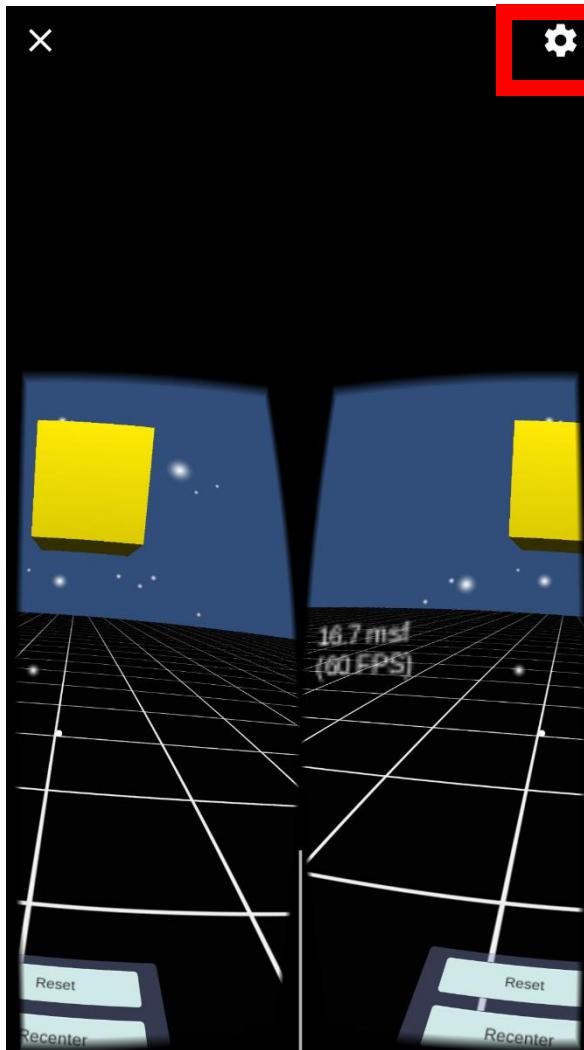
Change the code



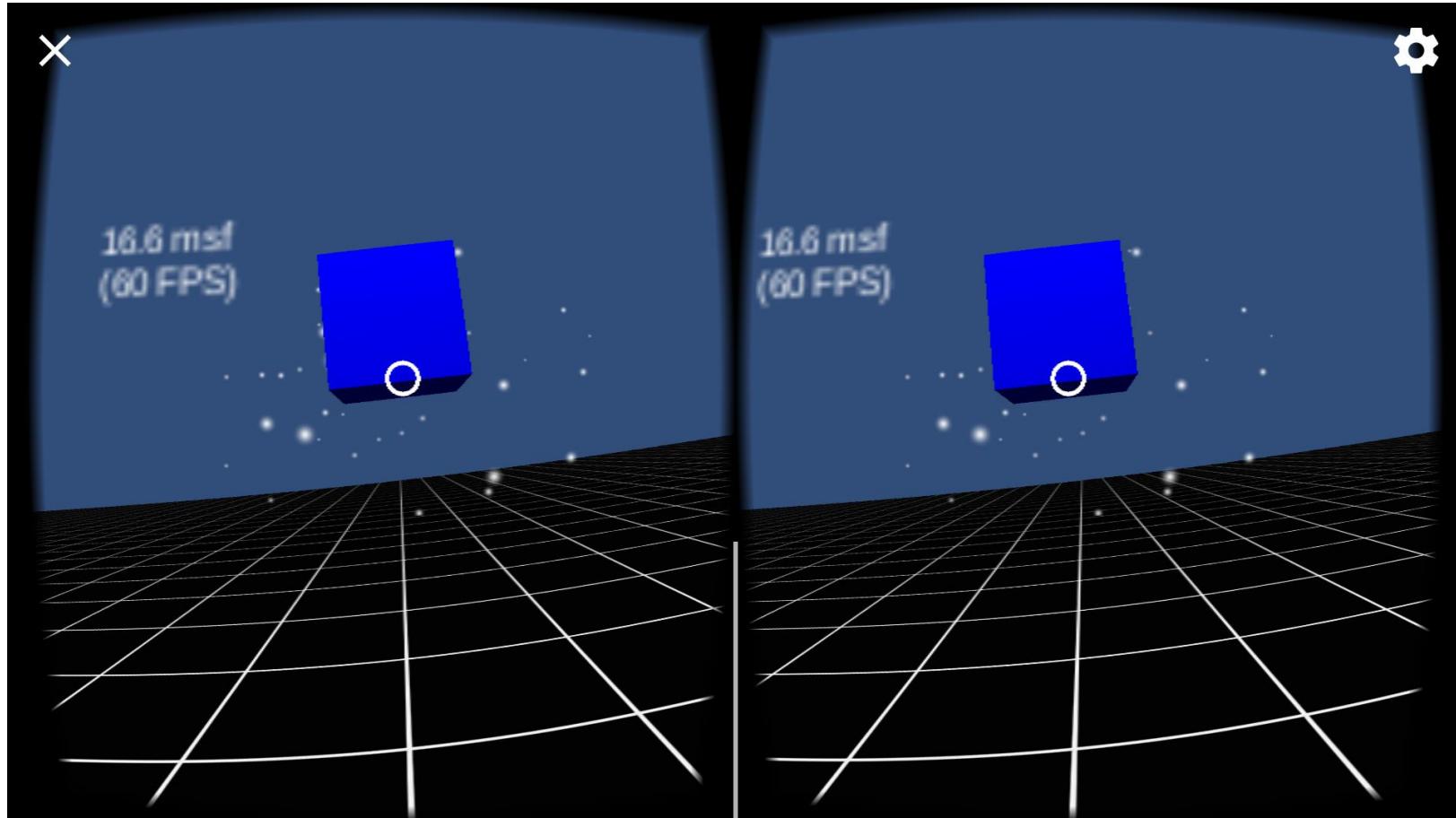
Build the app again



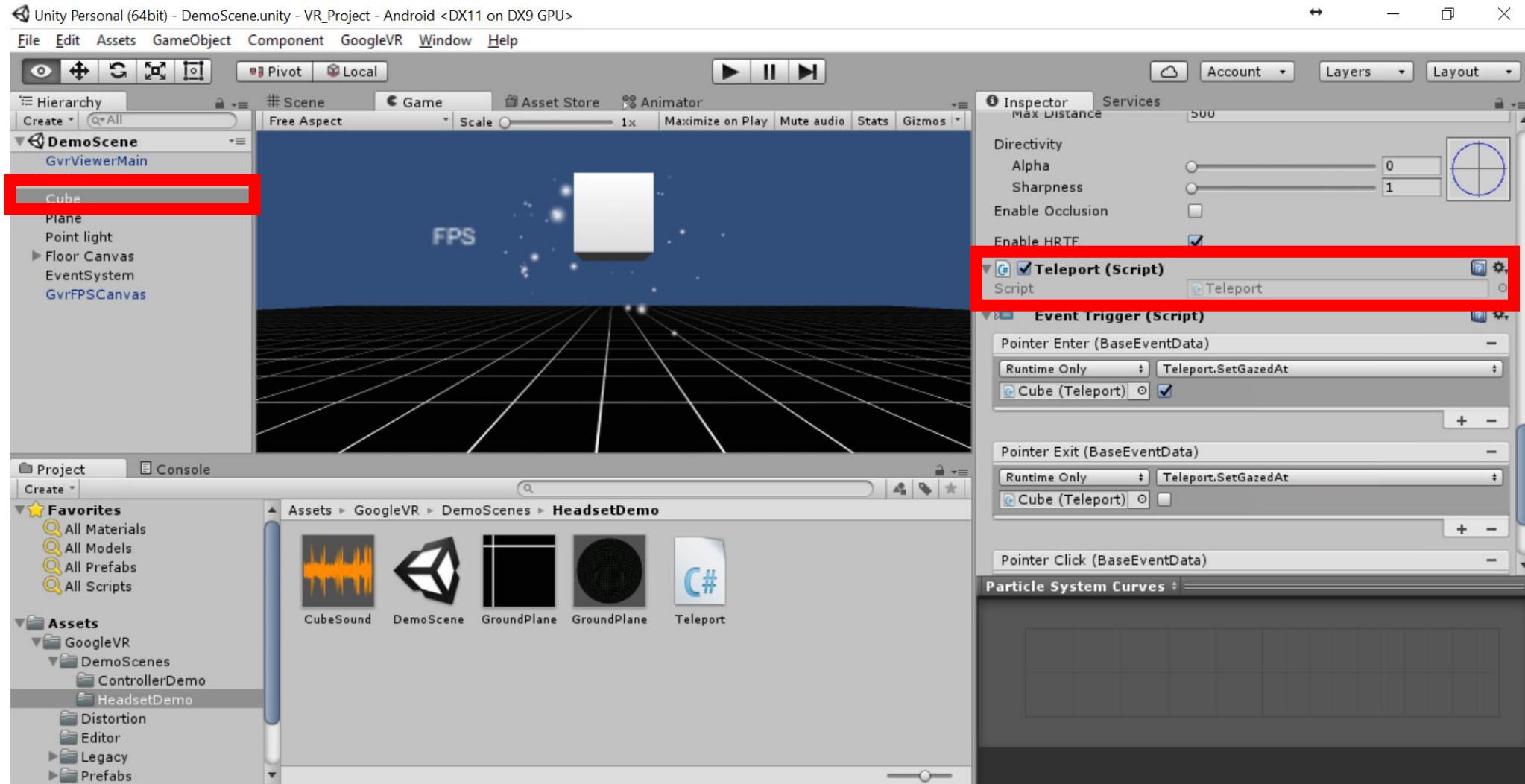
What do you see?



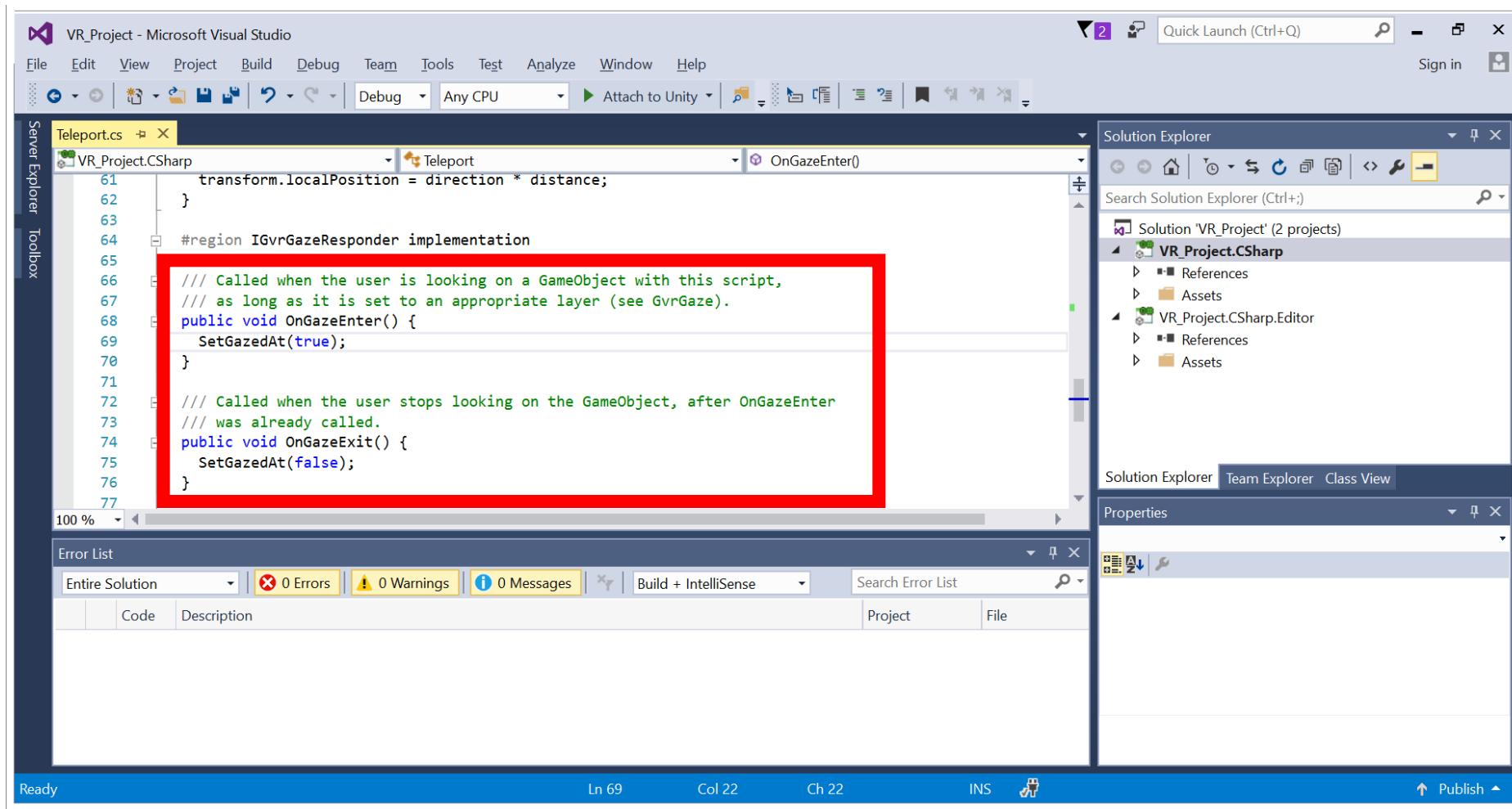
Change the viewpoint to the cube



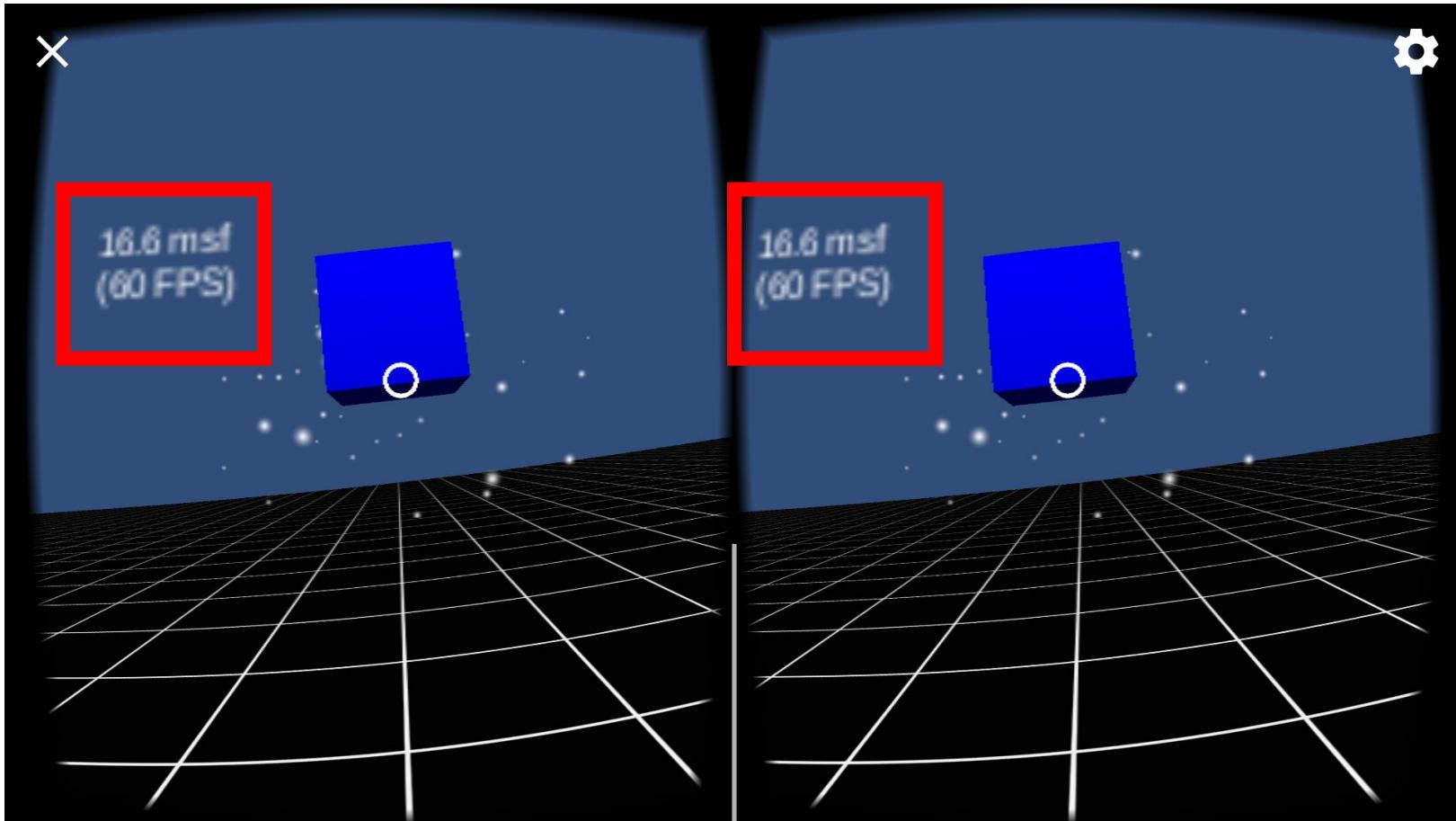
How the cube works?



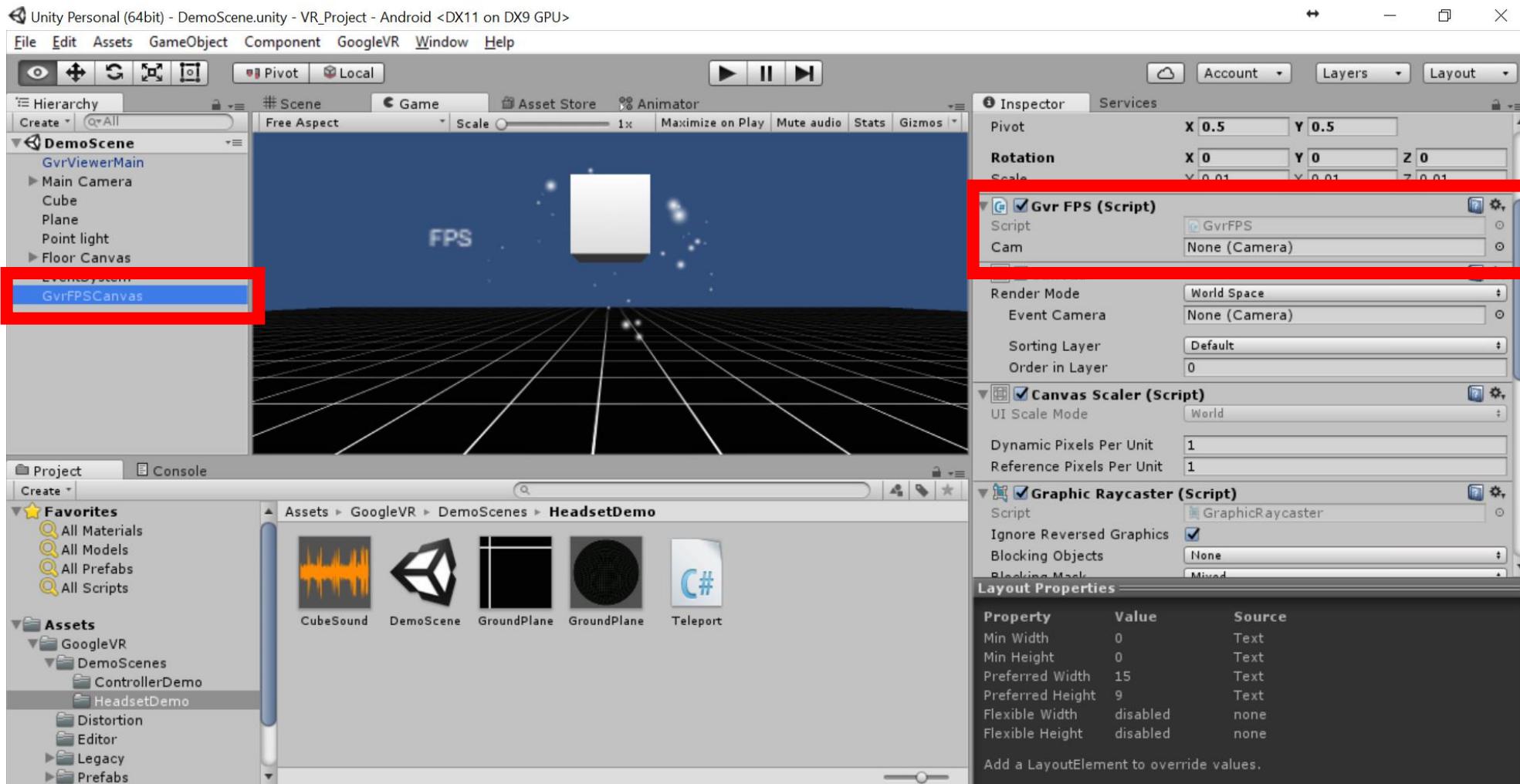
How the cube works?



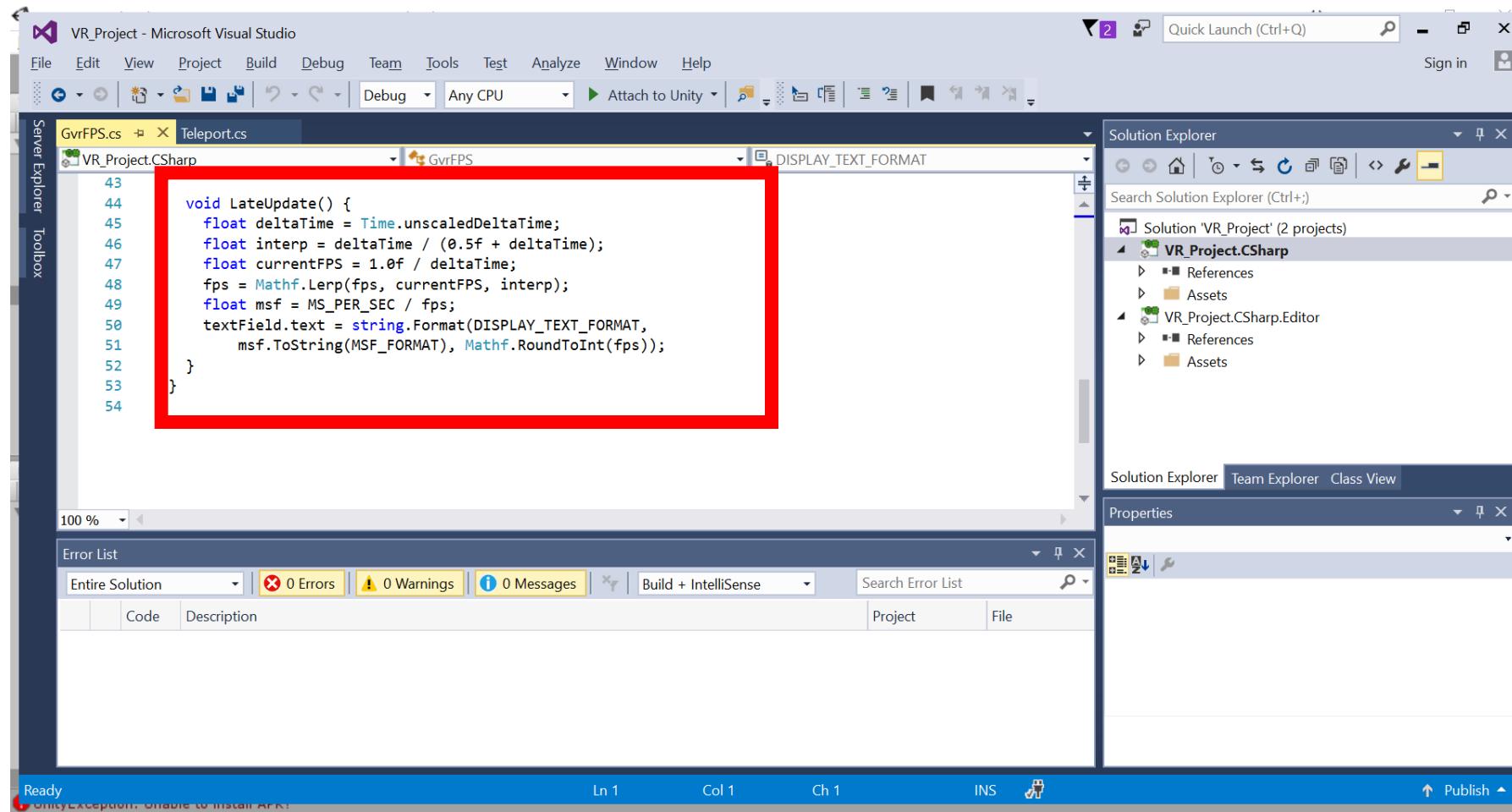
How about FPS information



There is a component: GvrFPSCanvas



The code to show FPS information



Go back to the running app and look down to see the menu



Q: How to select the menu item?

A: Just touch

It's time to try a cardboard



Q&A