Unity

AR Core 이미지인식을 활용한 캐릭터 커스터마이징

AR 이미지인식 응용방법 [목록]

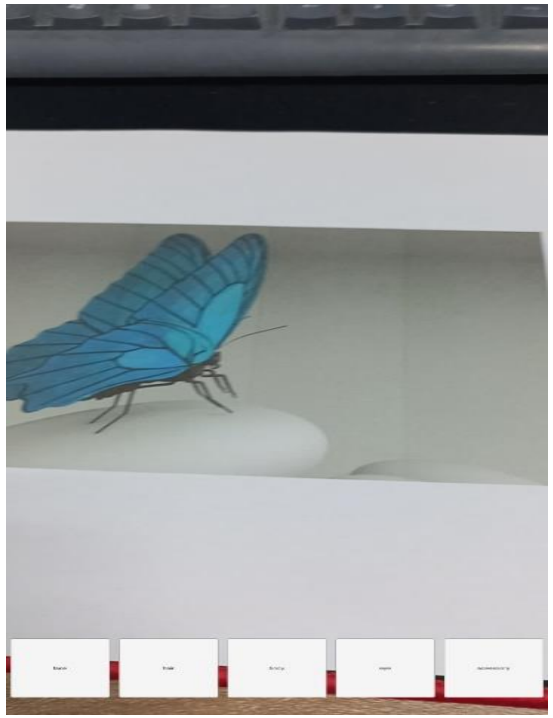
AR 이미지인식 응용방법 [학습목표]

▶ **학습목표 :** AR 이미지인식에 대해 학습하면서 이미지 위에 원하는 결과물을 만들어낼 수 있는 능력을 목표로 함.

-> AR카메라가 인식한 이미지와 학습된 이미지를 비교한다.

-> AR카메라가 인식한 이미지와 학습된 이미지를 비교하여 같을 때 저장된 모델링을 불러온다.

-> 안드로이드 APK 파일로 빌드해 어플을 동작 시킬 수 있다.



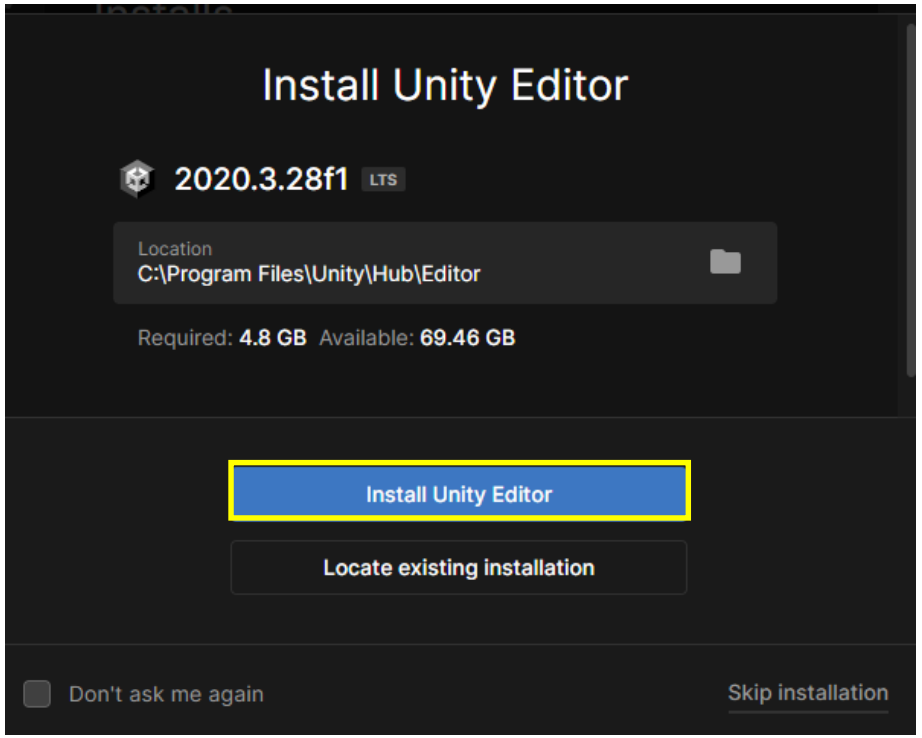
이미지인식을 활용해 학습된 이미지와 같은 경우의 결과값

AR 이미지인식 응용방법 [설치]

▶ 유니티(Unity) 설치

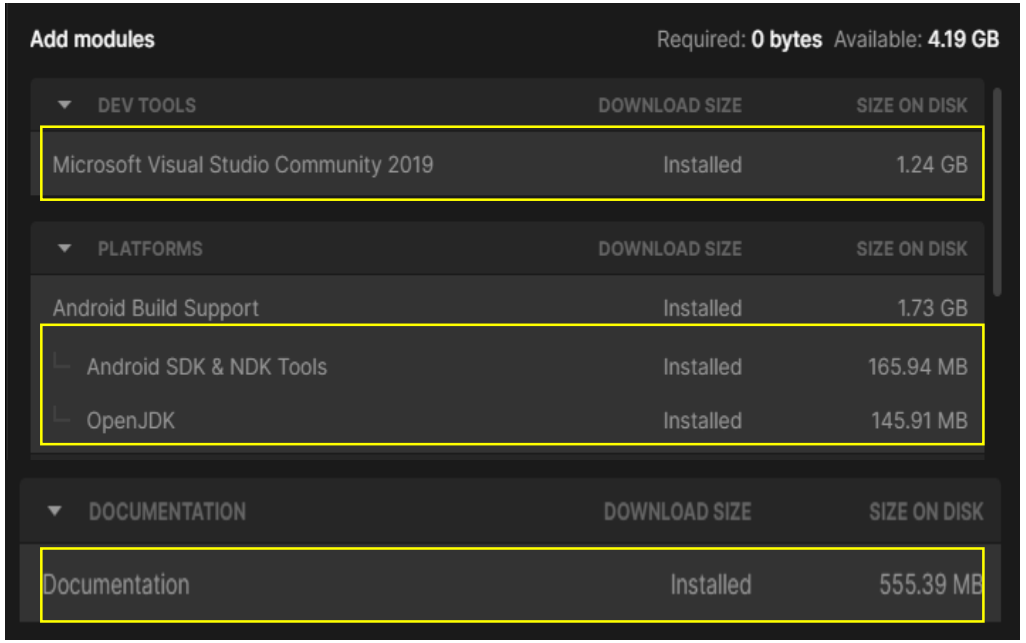
https://unity3d.com/kr/get-unity/download

- **Unity Hub**다운로드 – Unity Hub 실행



- **2020.3.28f1**  클릭

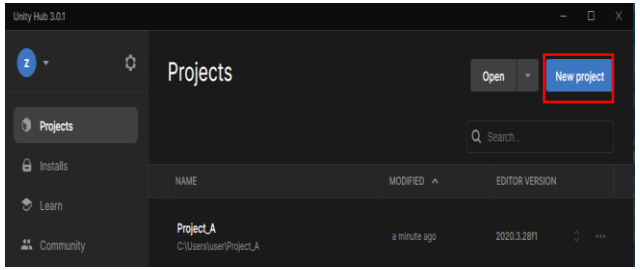
▶ 추가 모듈 설치 체크리스트



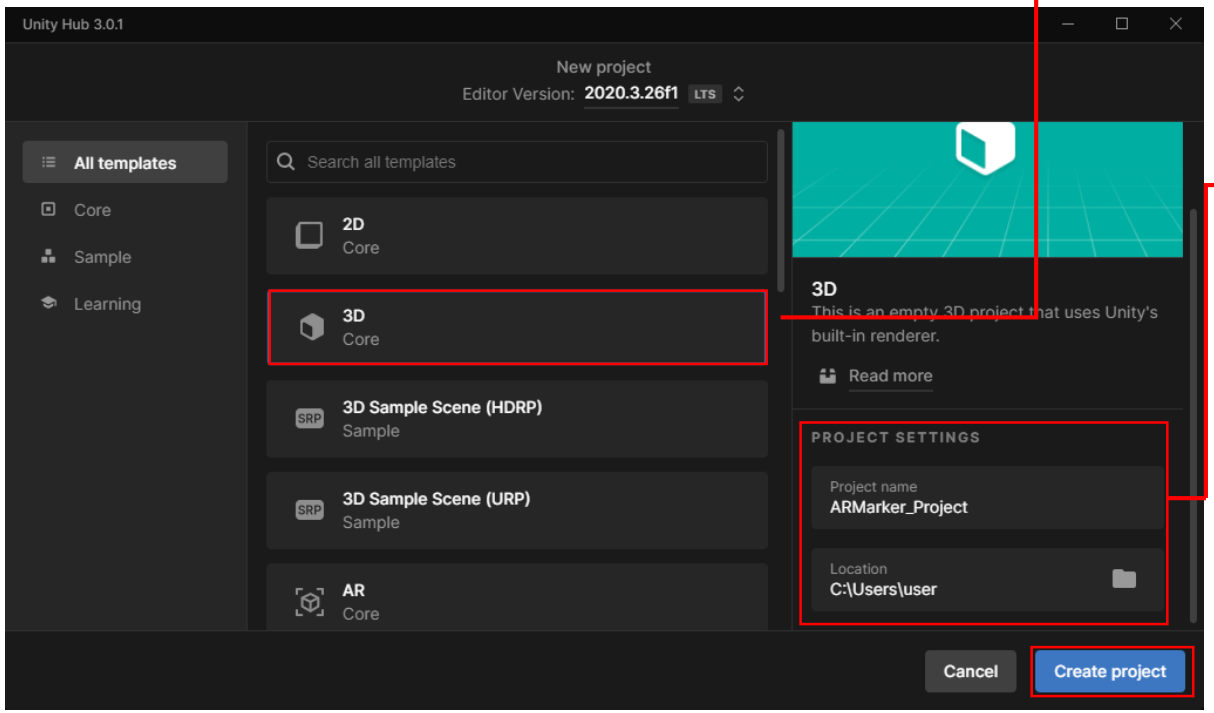
- DEV TOOLS
  - **Microsoft Visual Studio Community 2019**
- DOCUMENTATION
  - **Documentation**
- PLATFORMS
  Android Build Support
  - **Android SDK & NDK Tools**
  - **OpenJDK**

AR 이미지인식 응용방법 [프로젝트 생성]

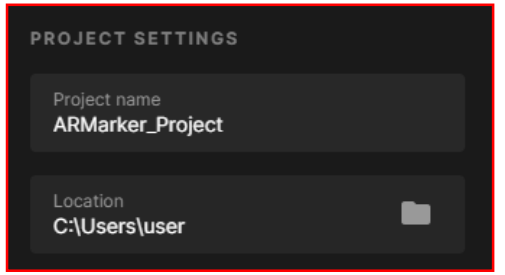
▶ 유니티(Unity) 프로젝트 생성



New project 클릭



▶ 3D 선택 후 PROJECT SETTINGS 에서
Project name 및 Location(파일경로) 설정

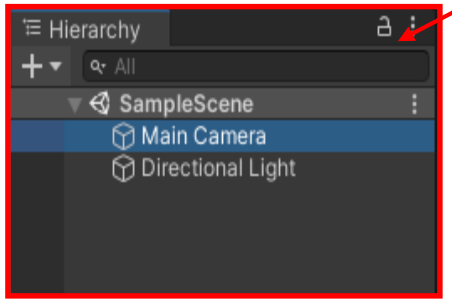


▶ Create project 클릭

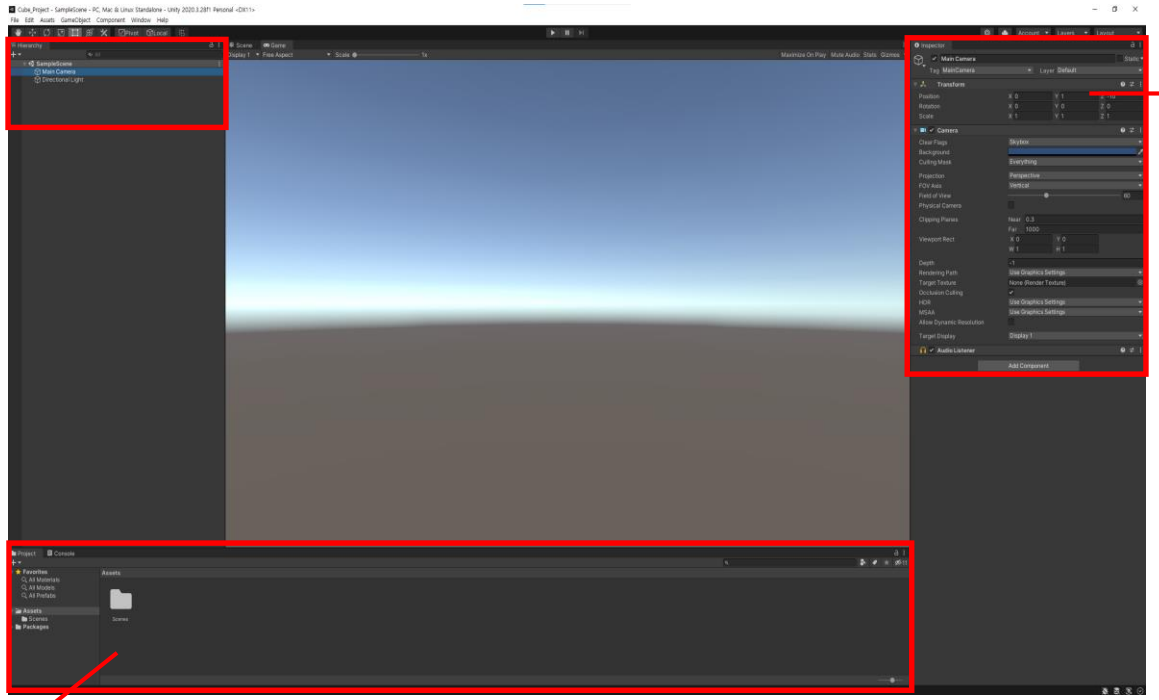
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity)

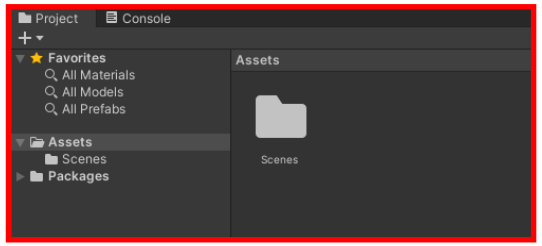
- **Hierarchy(하이어라키) 창**



배치한 오브젝트 이름을 목록에 표시, 오브젝트 사이의 계층구조 표시 및 편집

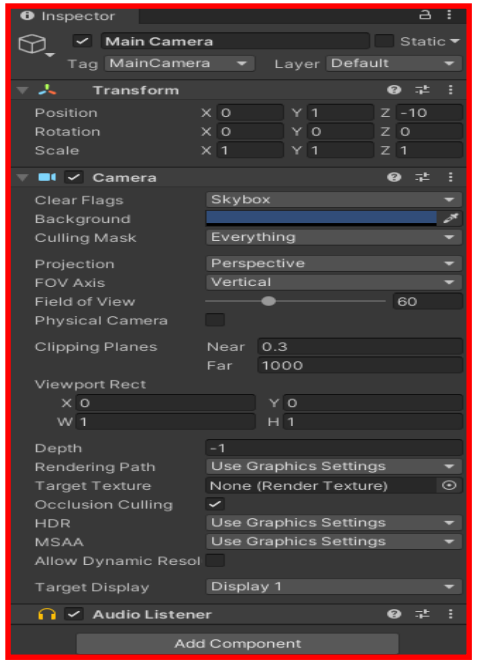


- **Project 창**



게임에서 사용하는 **리소스 관리**, 이미지나 음원 등 리소스를 드래그 앤 드롭하면 게임 리소스로 추가

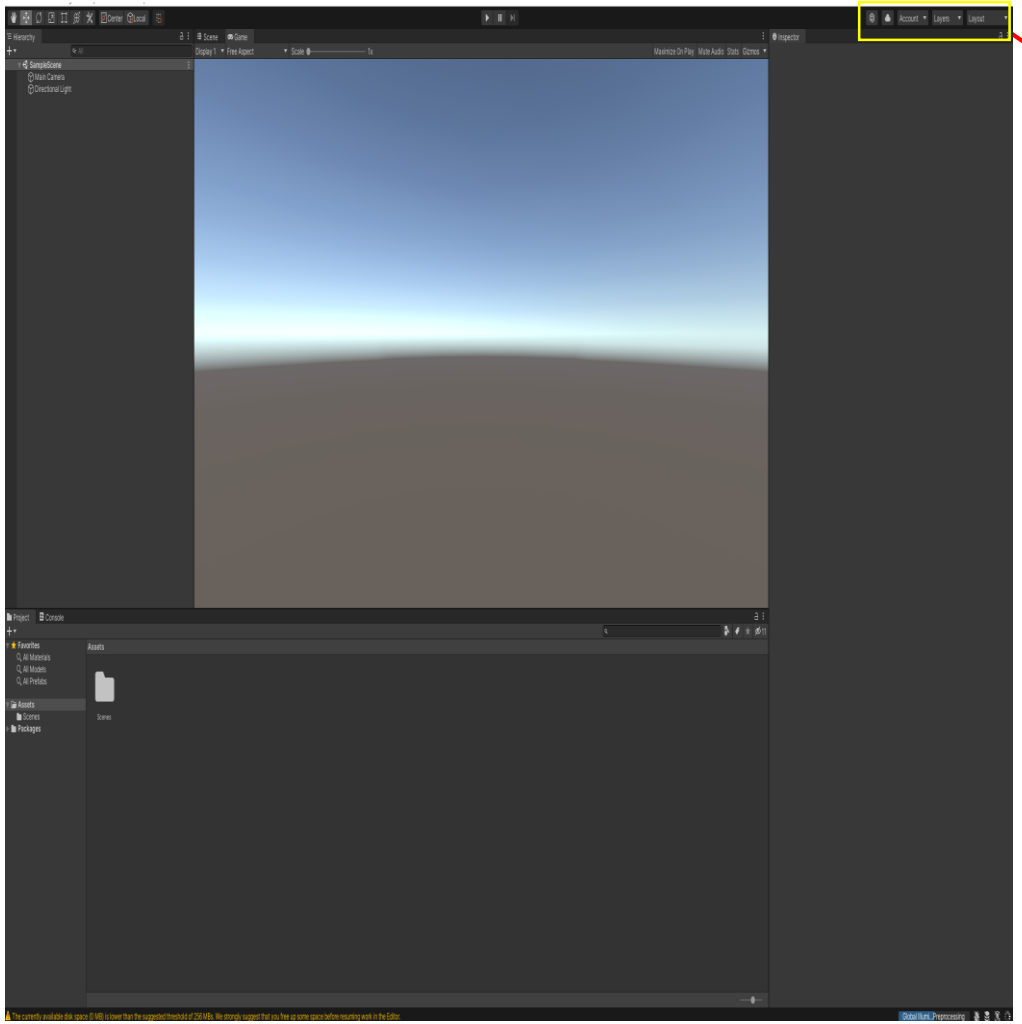
- **Inspector 창**



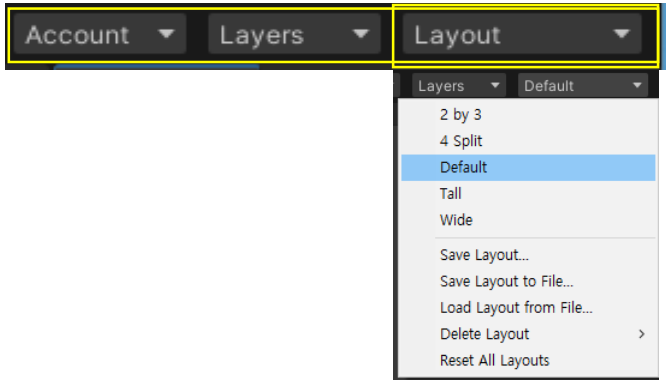
오브젝트의 **상세 정보** 표시, 오브젝트의 좌표, 회전, 크기(스케일), 색, 모양 등 설정

AR 이미지인식 응용방법 [개발]

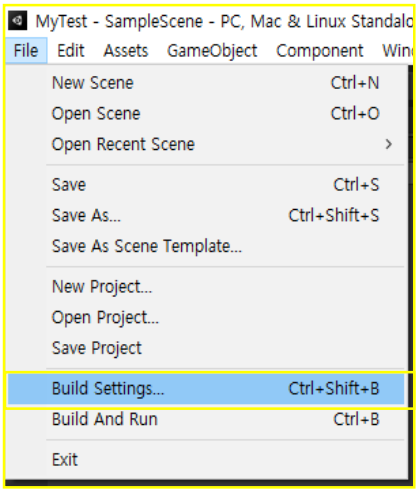
▶ 유니티(Unity) 설정

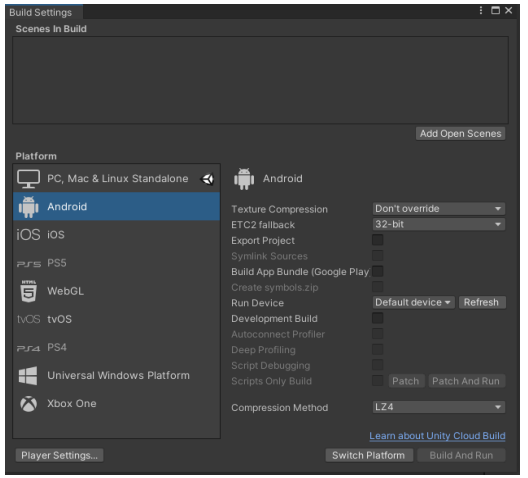


▶ 우측 상단 마지막에 있는 Layout클릭 -> Default 선택



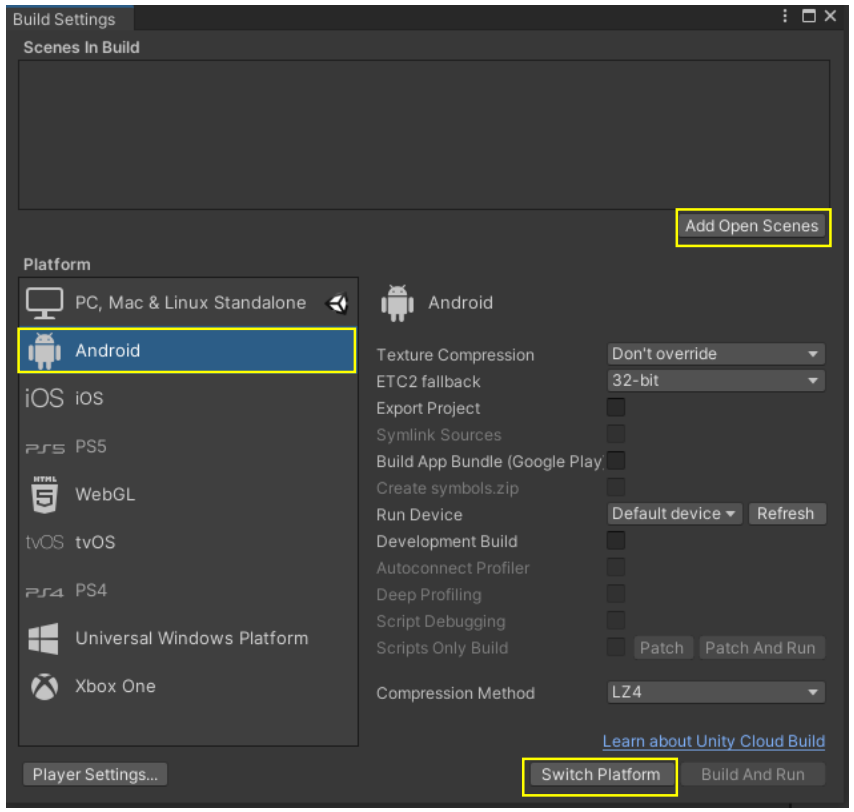
▶ 좌측 상단 메뉴 중 File – Build Settings... 선택





AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ 안드로이드 개발 환경 준비

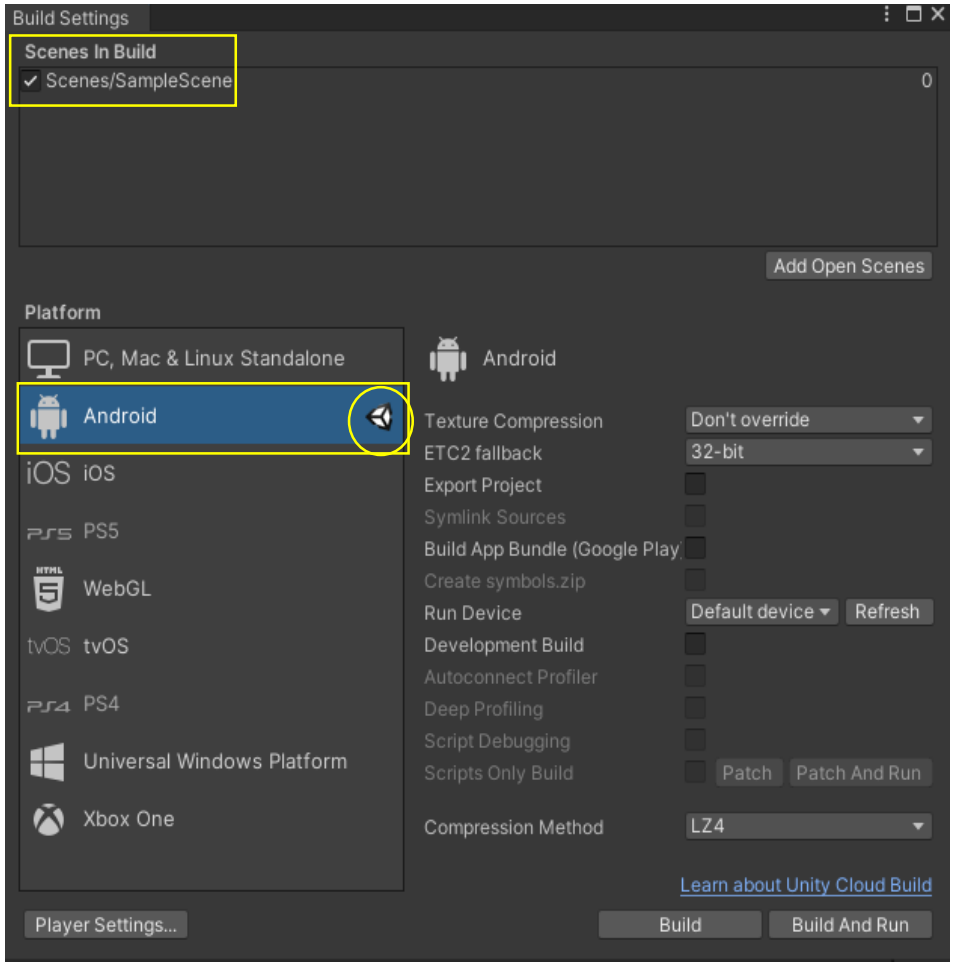


Add Open Scenes 클릭

└ Android 클릭

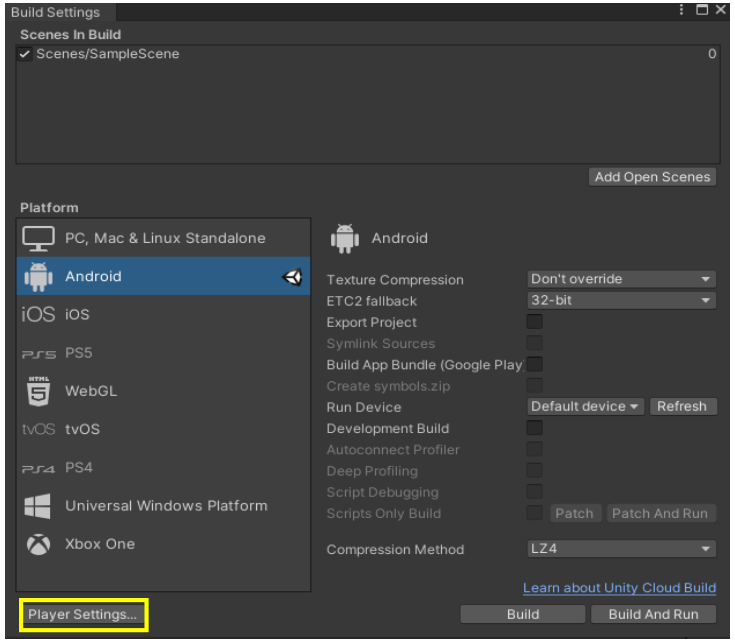
└ Switch Platform 클릭

- Scenes In Build / ✓ Scenes/SampleScene 확인, **Android** 오른쪽 마크 확인



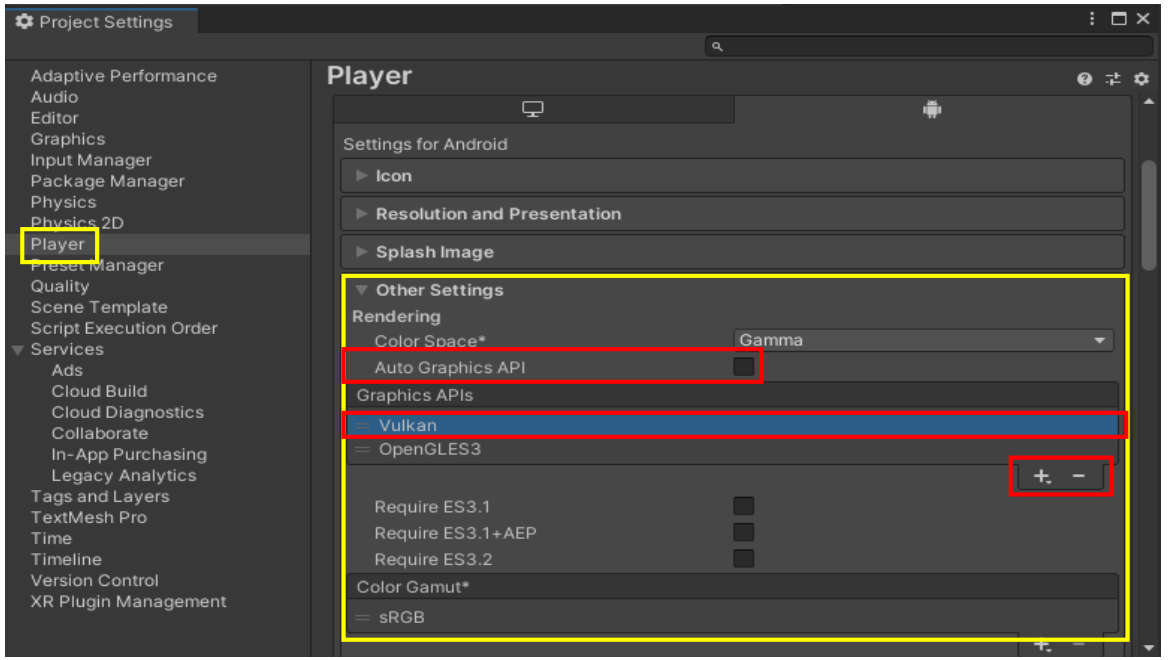
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Player Settings



클릭

Player 선택 후 Other Settings 를 클릭해 항목 펼치기



- 

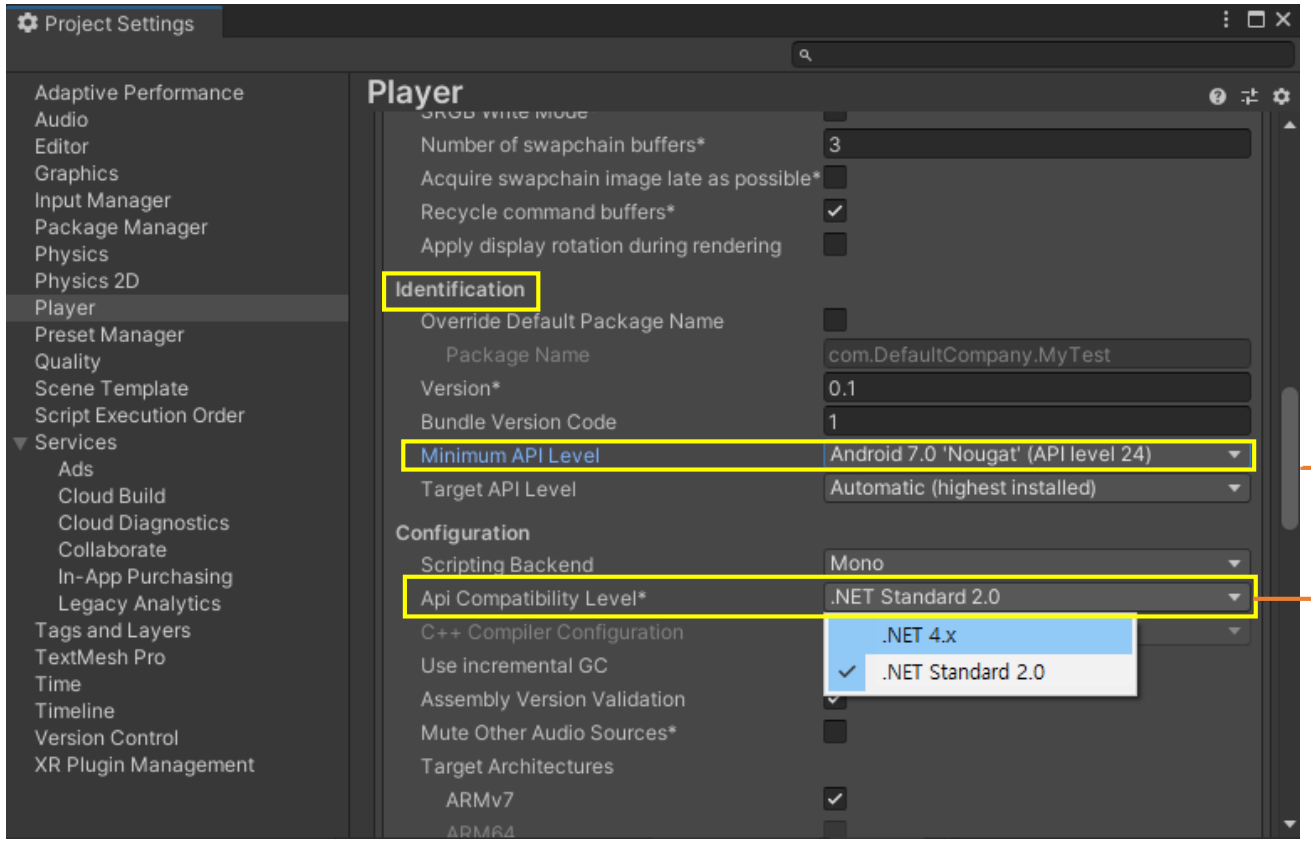
체크해제

- 

클릭  버튼을 클릭해 Vulkan 삭제

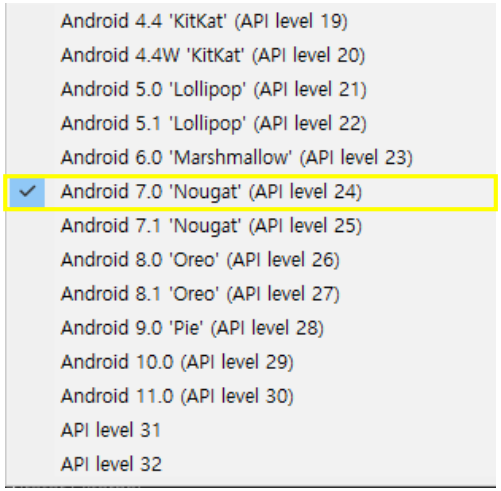
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Player Settings

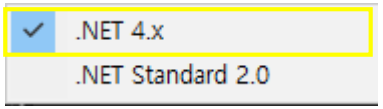


Identification 의 Minimum API Level 에서

Android7.0'Nougat'(API level24)선택

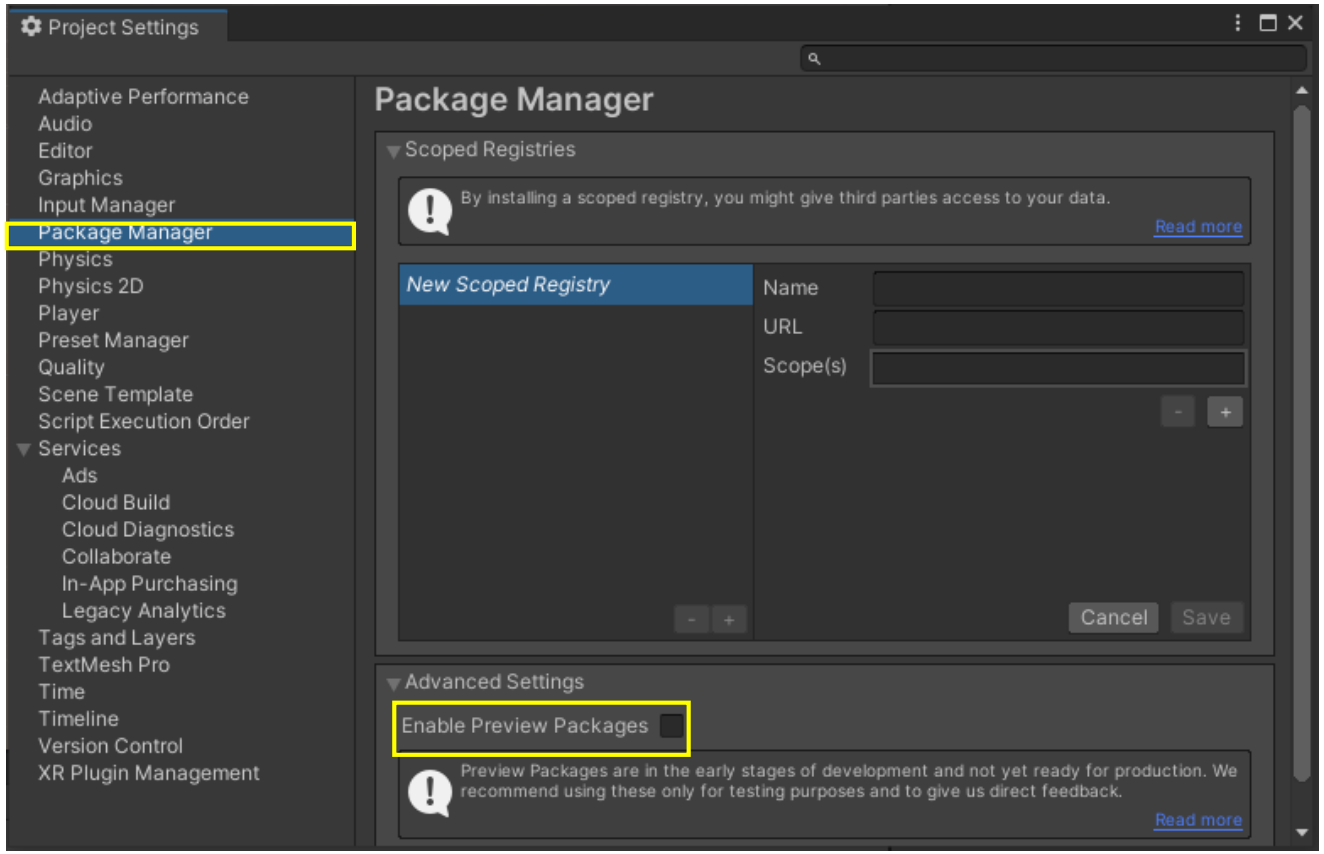


Api Compatibility Level* .Net 4.x 선택



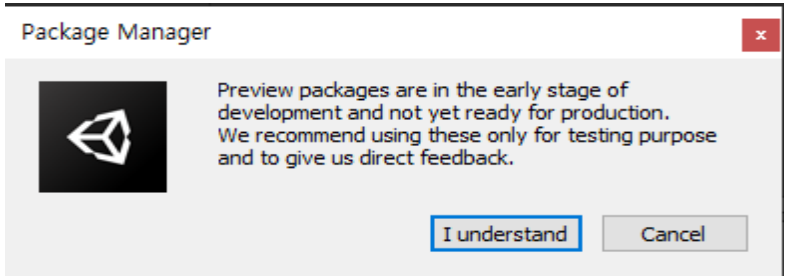
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager



1. Package Manager 클릭

2. Enable Preview Packages 체크

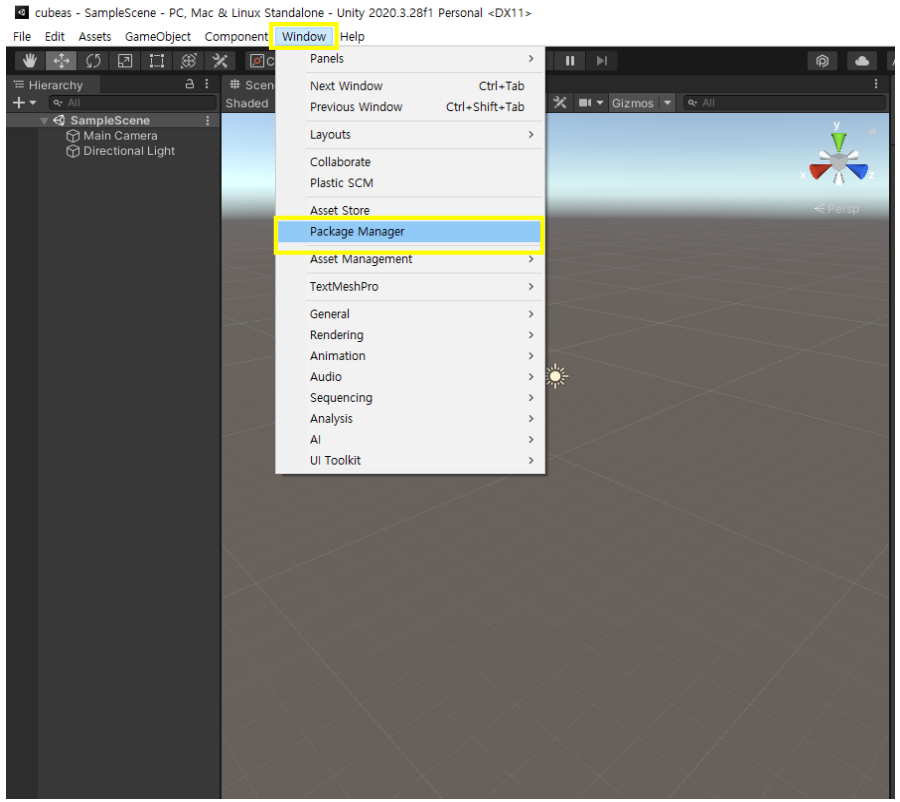


3. I understand 클릭

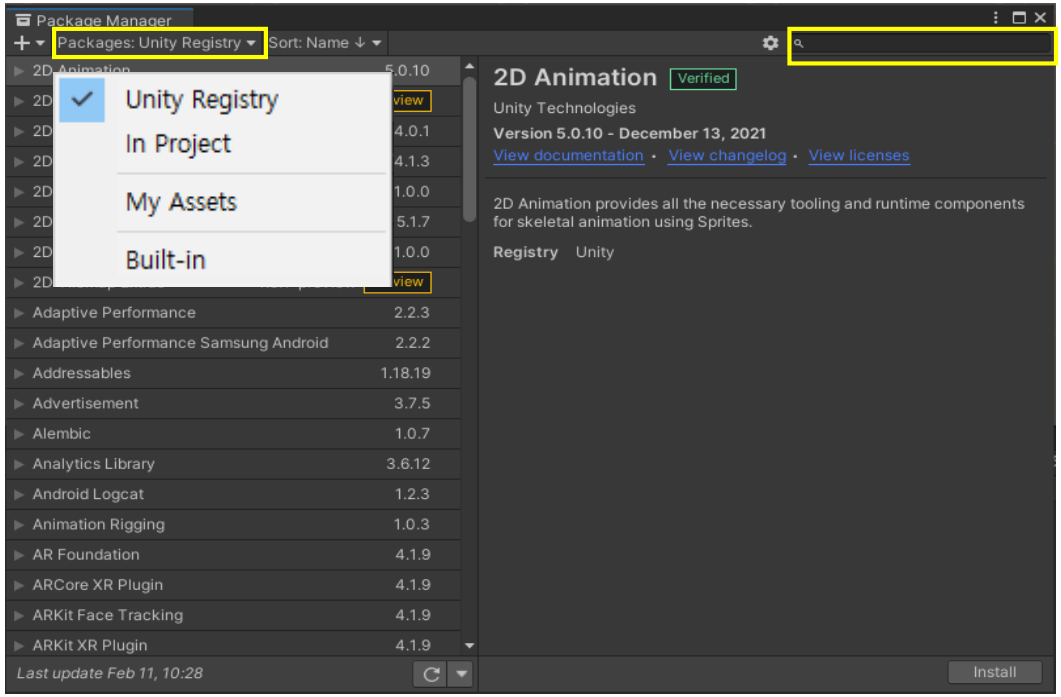
Player Settings, **Build Settings** 창 종료!

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager



▶ 상단 메뉴 **Window – Package Manager** 클릭

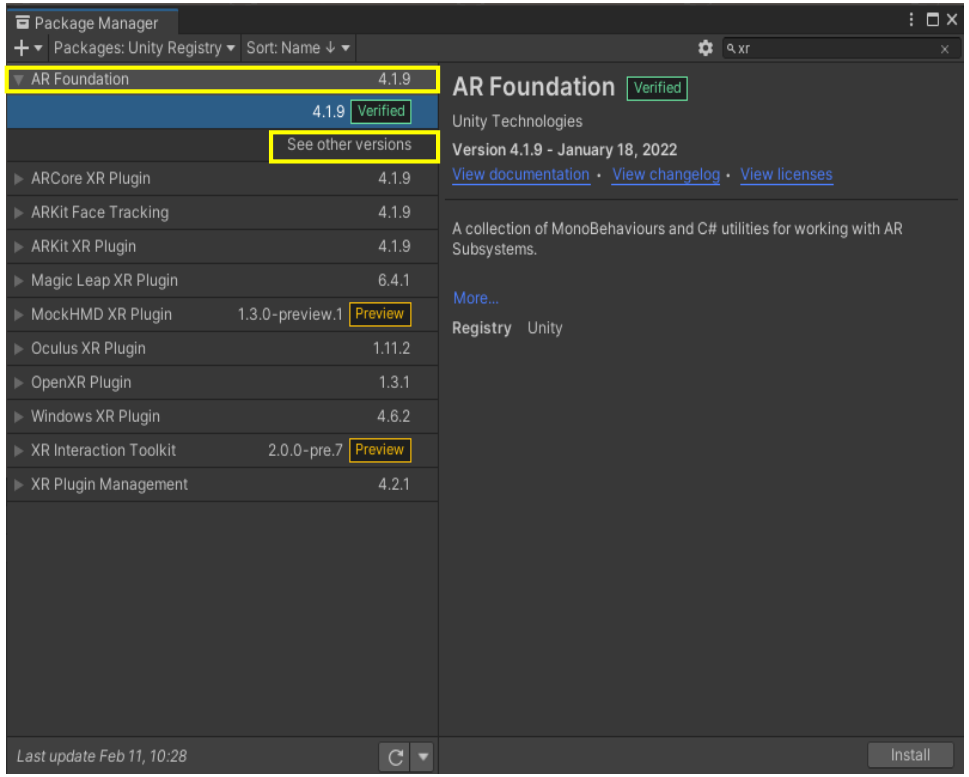


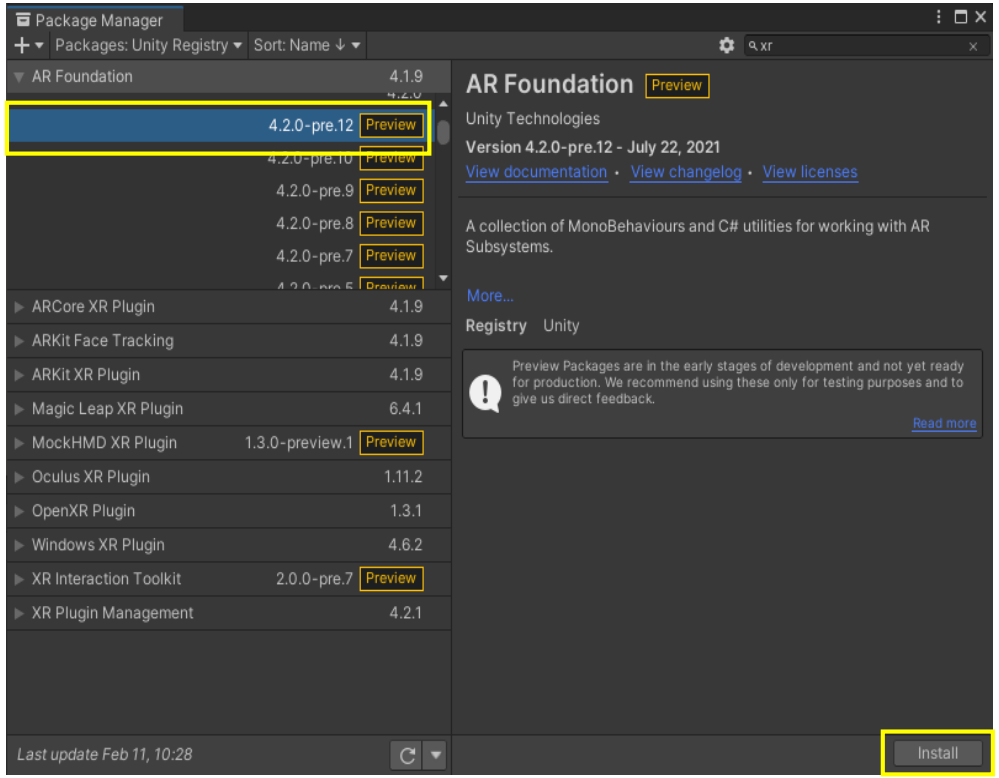
1. Packages: Unity Registry **Unity Registry** 선택

2. 우측 검색창에 **XR** 입력

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager





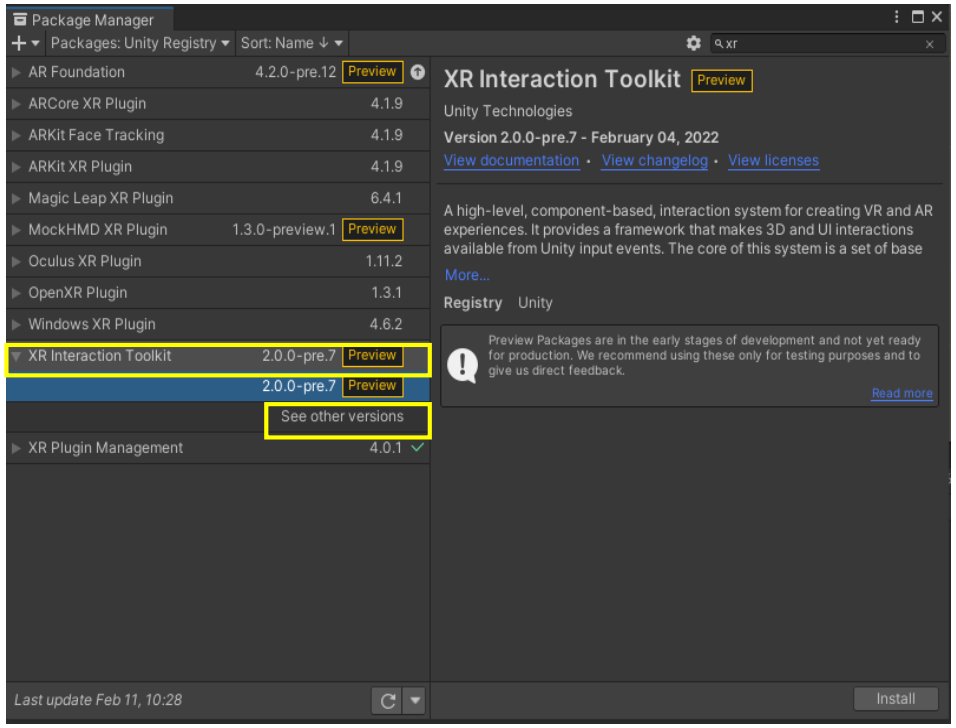
- AR Foundation 왼쪽 화살표 클릭 후

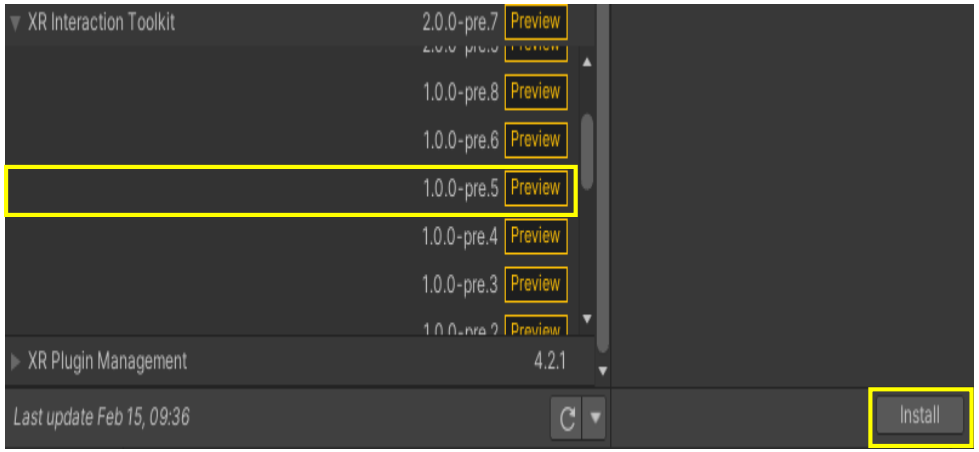
  See other versions 클릭

- 4.2.0-pre.12 Preview 클릭 후 Install

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager

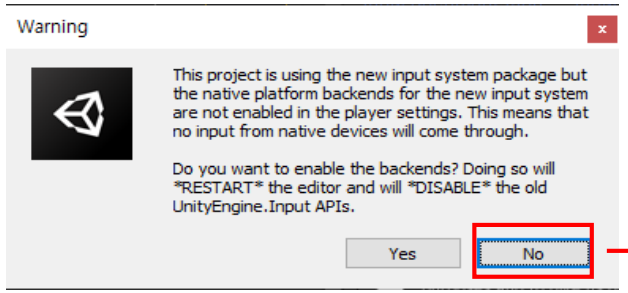




- XR Interaction Toolkit 왼쪽 화살표 클릭

See other versions 클릭

- 1.0.0-pre.5 Preview 클릭 후 Install

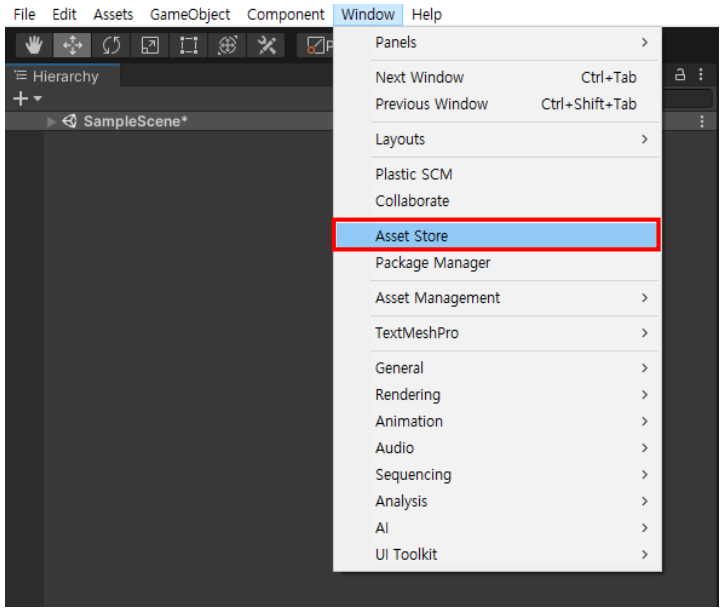


No

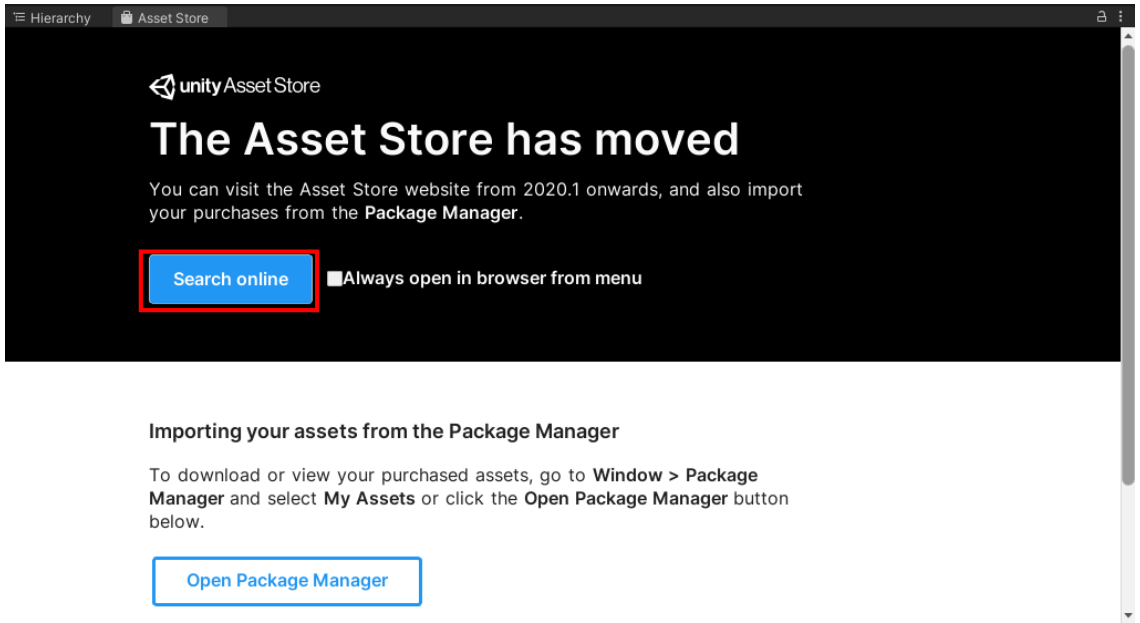
Package Manager 종료!

AR 이미지인식 응용방법 [개발]

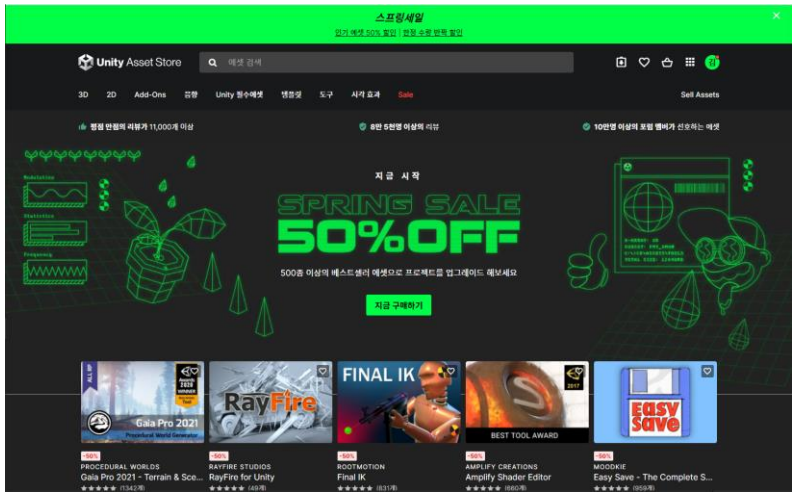
▶ 유니티(Unity) 설정 _ Package Manager



Asset Store 클릭



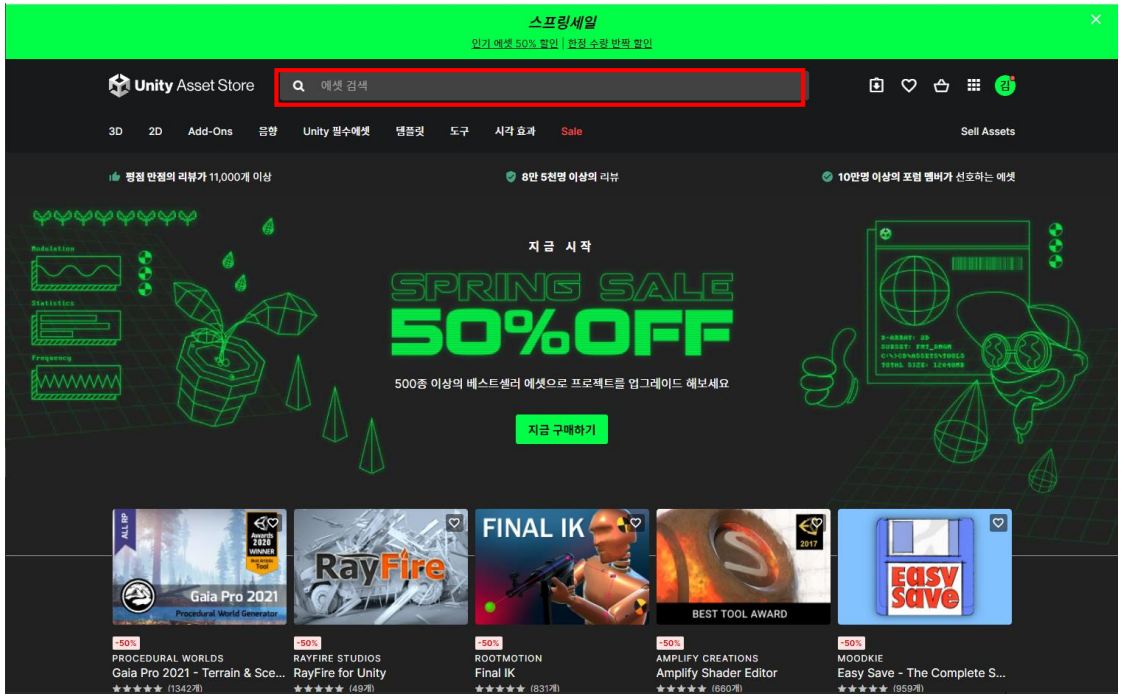
Search online 클릭



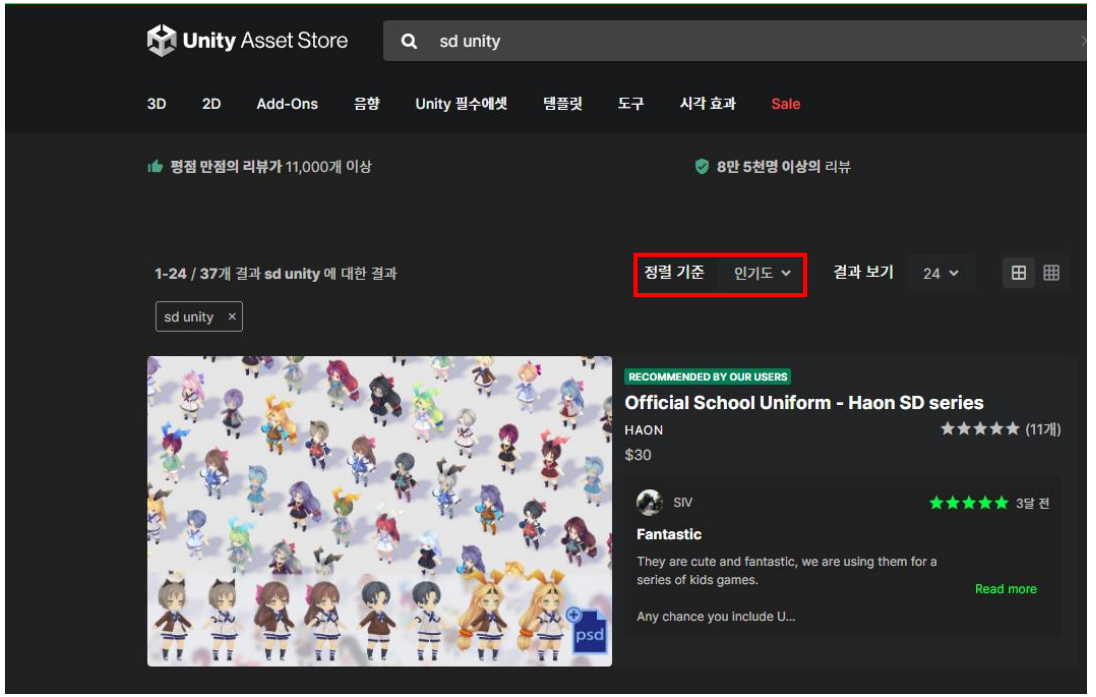
Asset Store 오픈

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager



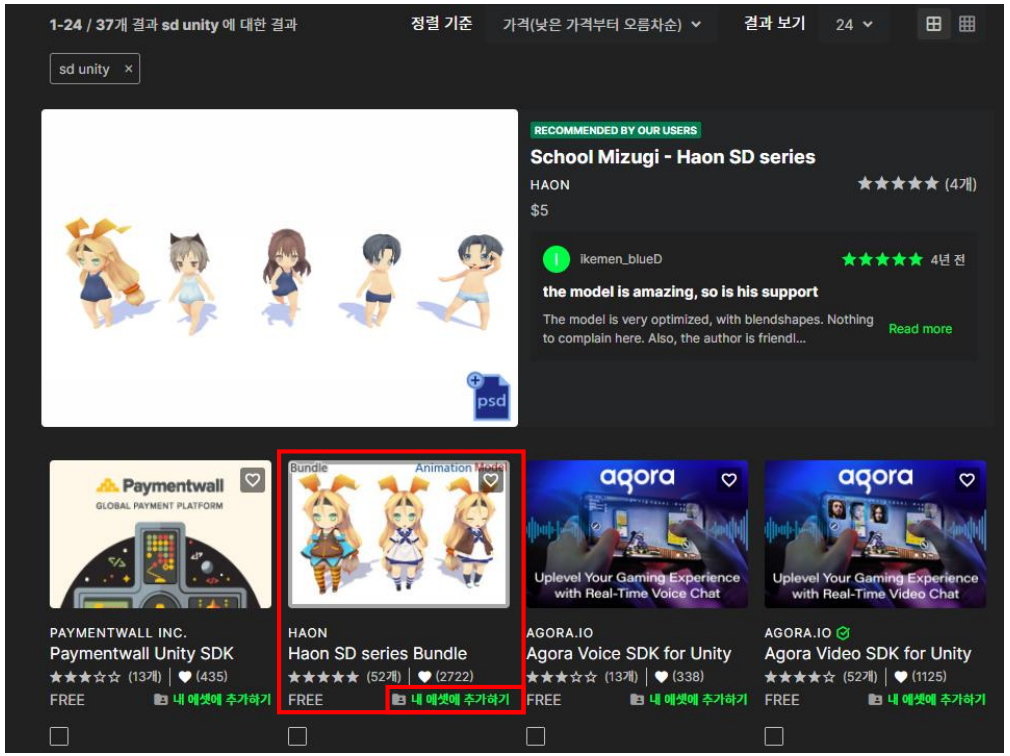
에셋 검색에 “sd unity” 입력 후 Enter



정렬 기준 – 가격(낮은 가격부터 오름차순) 선택

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager



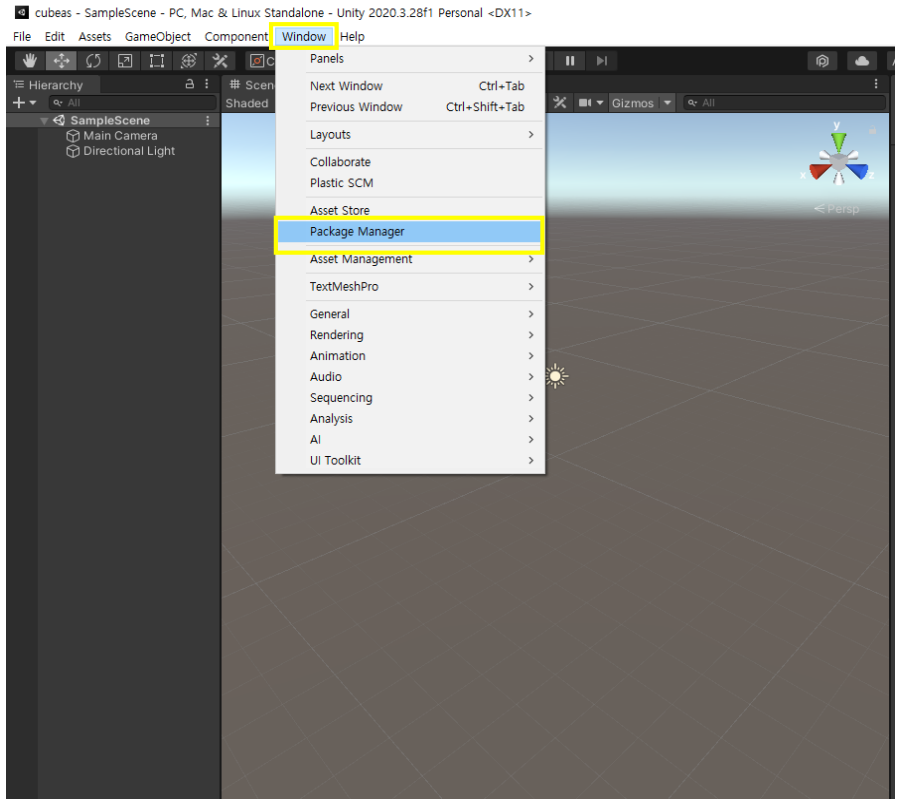
"Haon SD series Bundle" 우측하단 "내 에셋에 추가하기" 클릭

승인 클릭

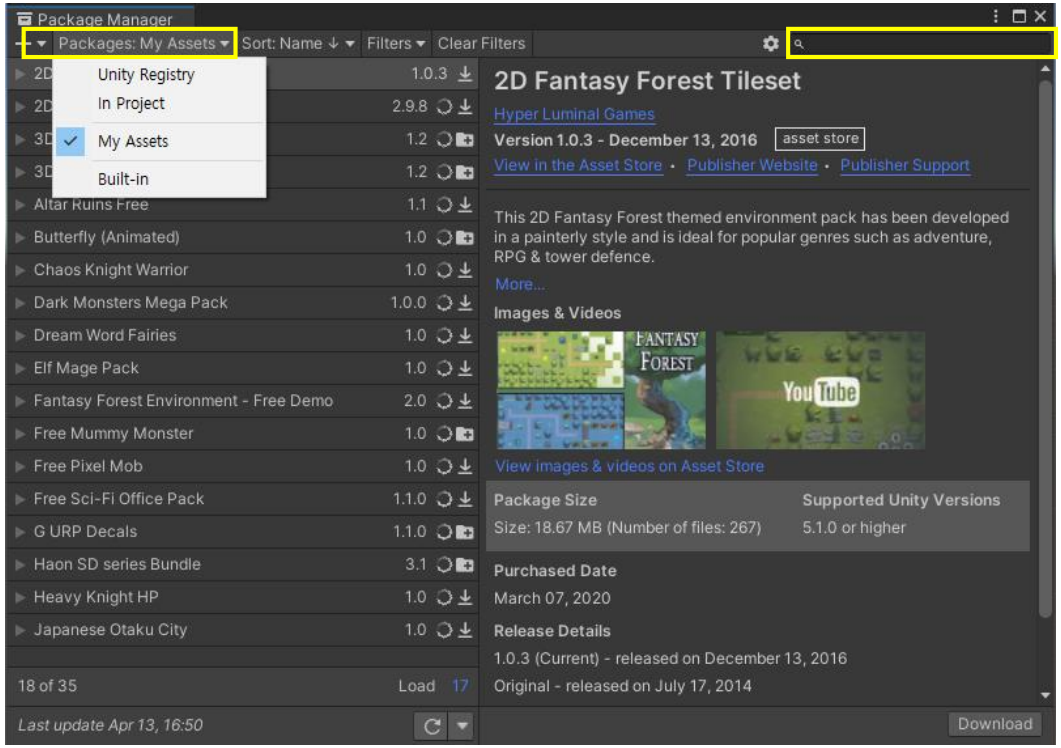
완료가 되면 창 위에 위 그림과 같이 표시 됨.

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager



▶ 상단 메뉴 **Window – Package Manager** 클릭



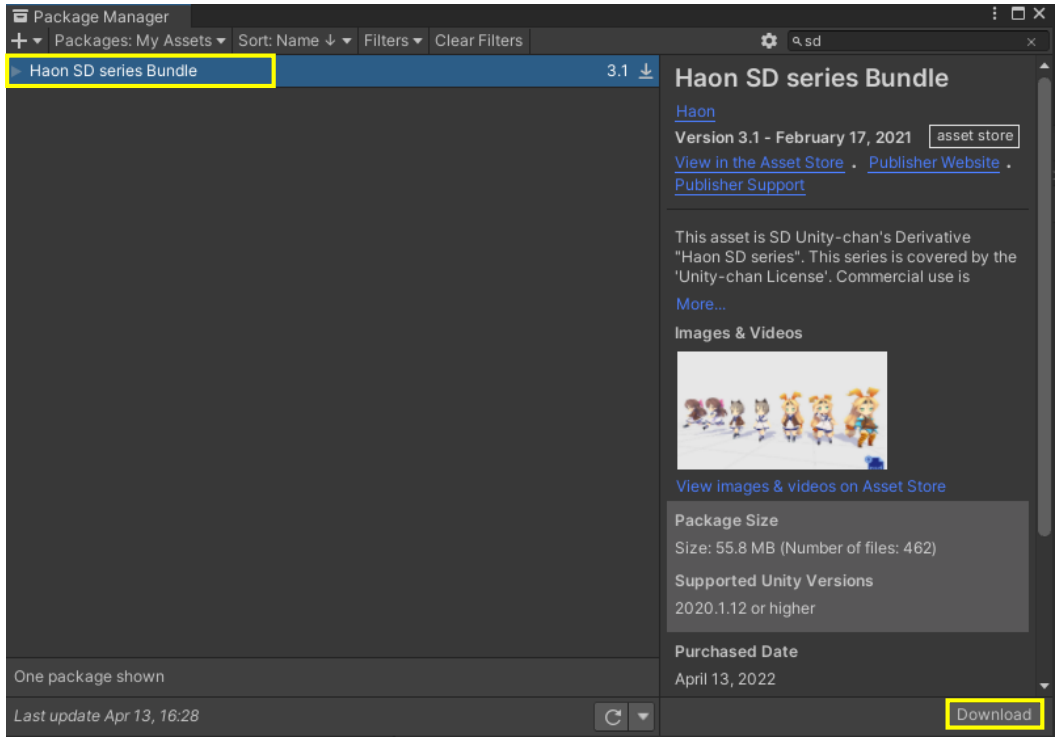
1. 

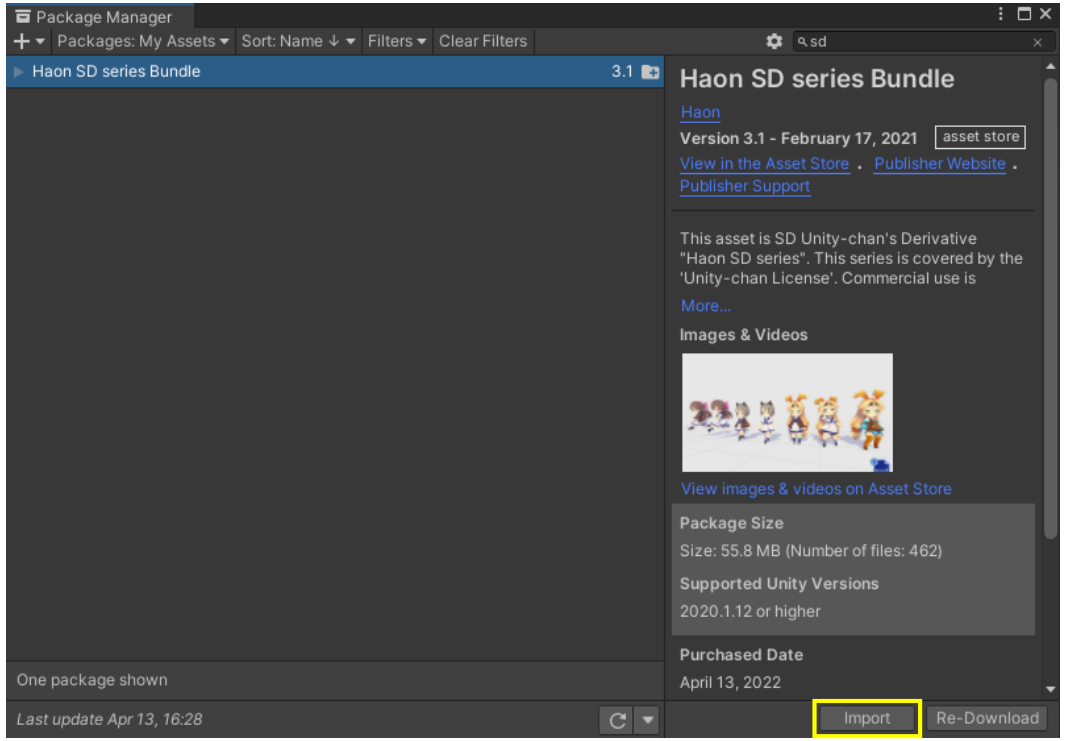
My Assets 선택

2. 우측 검색창에 **SD** 입력 

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 설정 _ Package Manager

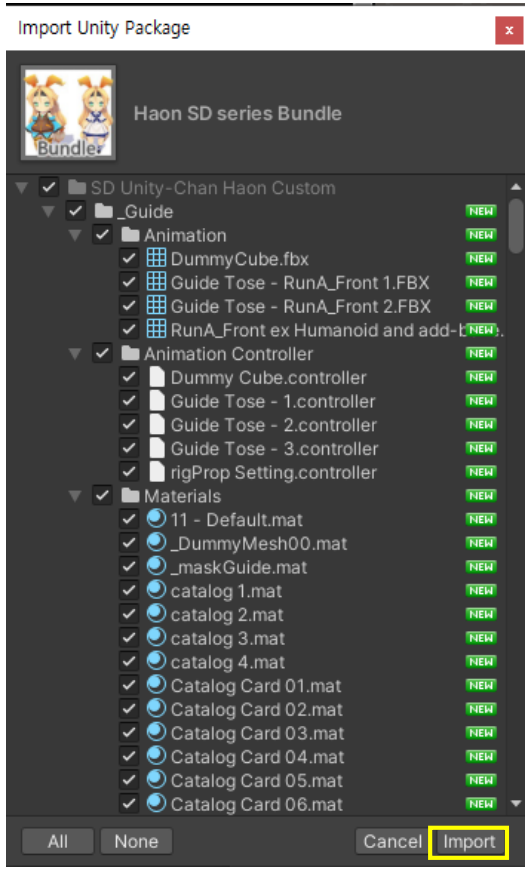




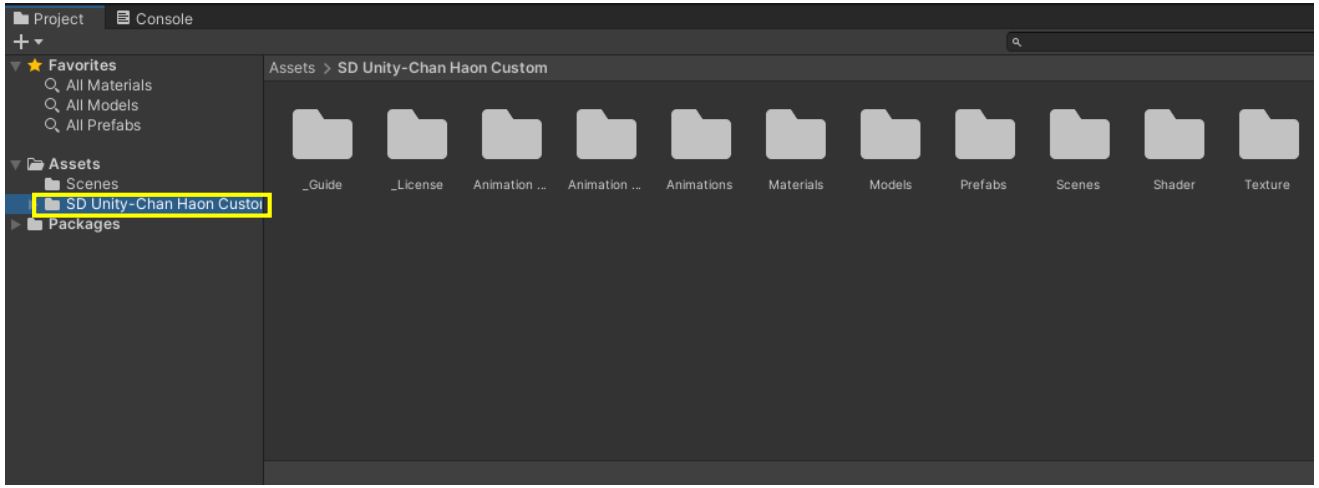
Haon SD series Bundle 클릭 후 우측하단 Download 클릭

Download가 끝나고 우측하단에 Import 버튼 클릭

▶ 유니티(Unity) 설정 _ Package Manager

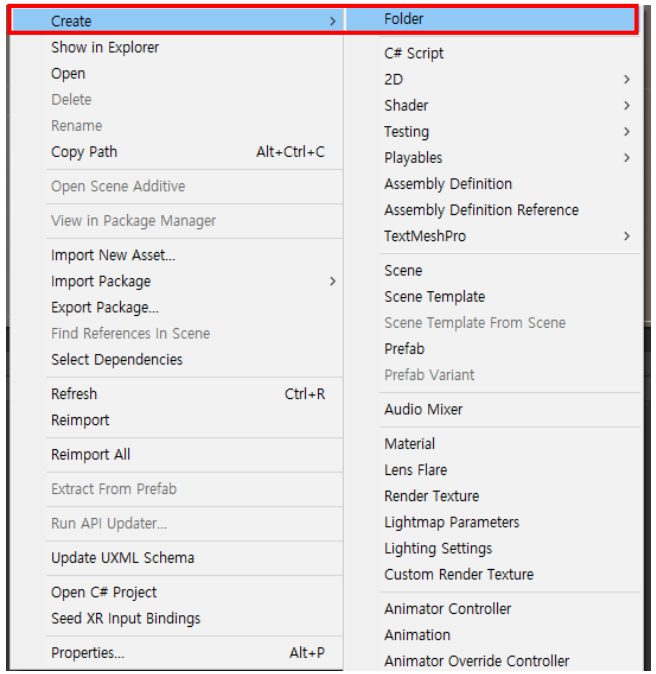


우측 하단 Import 버튼 클릭

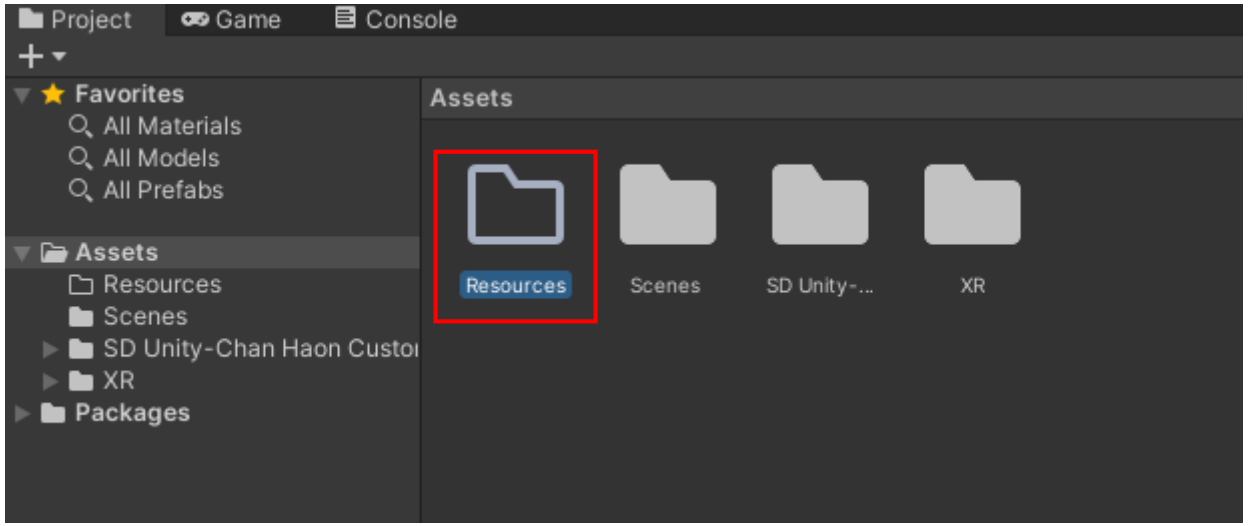


Importing이 끝나고 Project창에 "SD Unity-Chan Haon Custom" 폴더가 생성

▶ 유니티(Unity) 설정 _ Package Manager

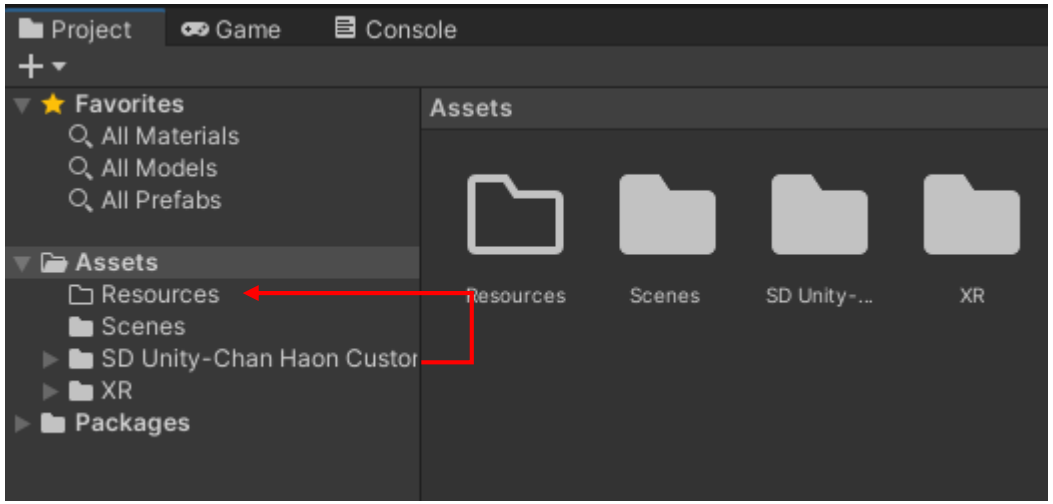


Project창에서 우클릭하고
Create – Folder 생성

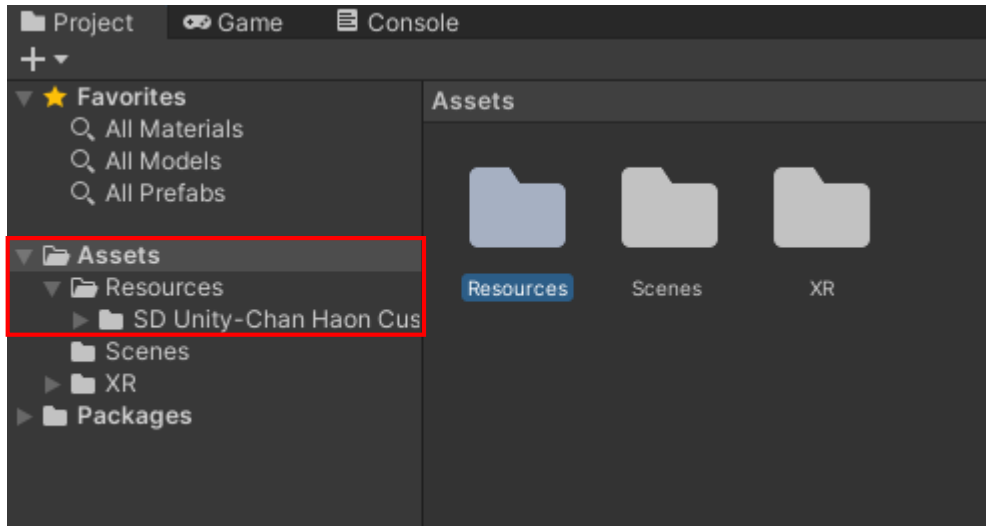


폴더 이름을 Resources로 생성(이름 정확히 기입)

▶ 유니티(Unity) 설정 _ Package Manager



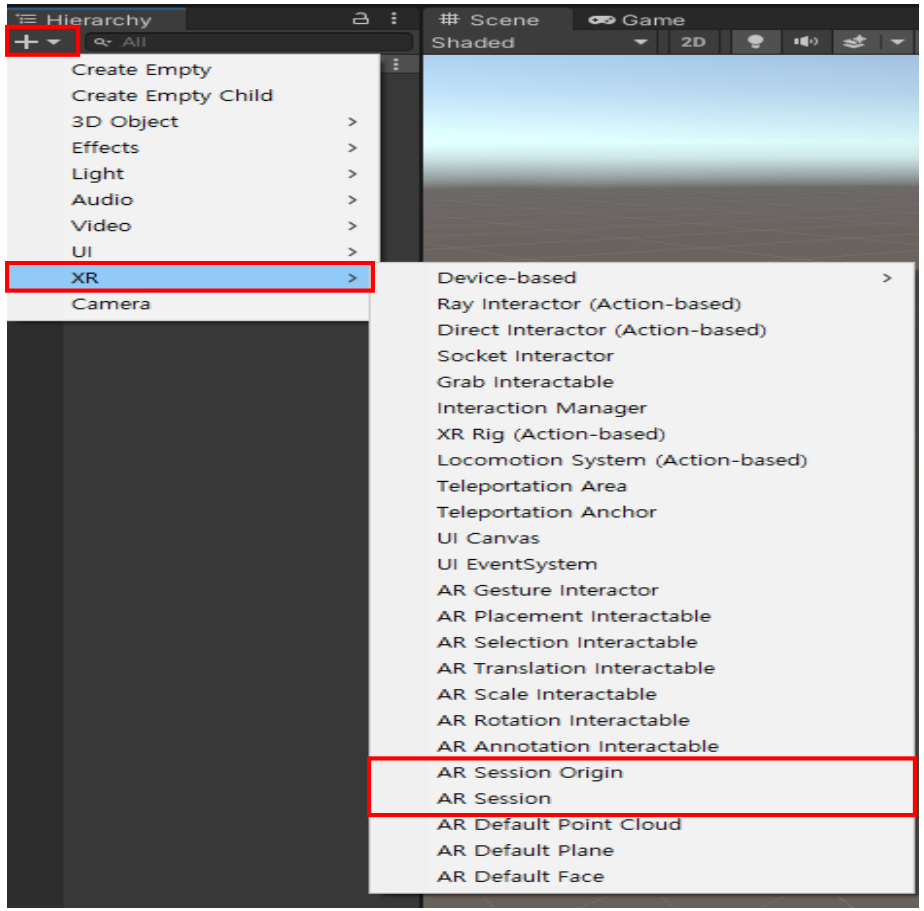
Resources 폴더안에 "SD Unity-Chan Haon Custom" 폴더 드래그 앤 드랍



Resources 폴더안에 "SD Unity-Chan Haon Custom" 폴더가 잘 들어가있는지 확인

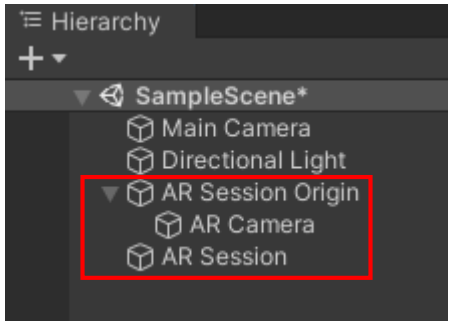
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링



- **Hierarchy** 창의 + 버튼을 클릭해 XR 선택

AR Session Origin
AR Session
추가!



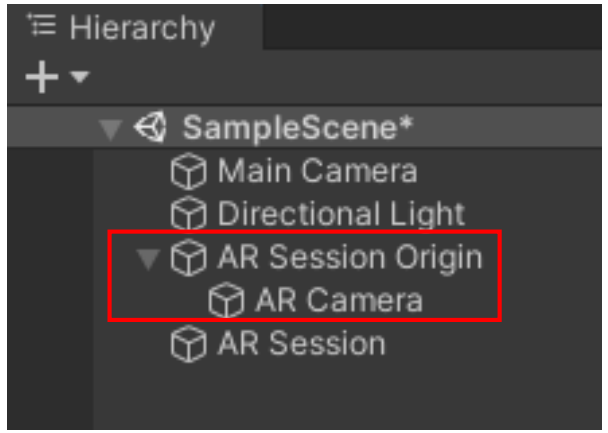
AR Session Origin
AR Camera

AR Session

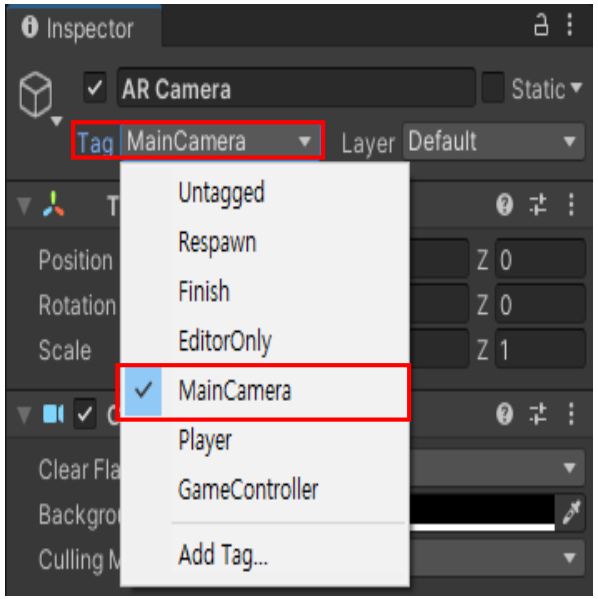
Hierarchy창에 생성확인

AR 이미지인식 응용방법 [개발]

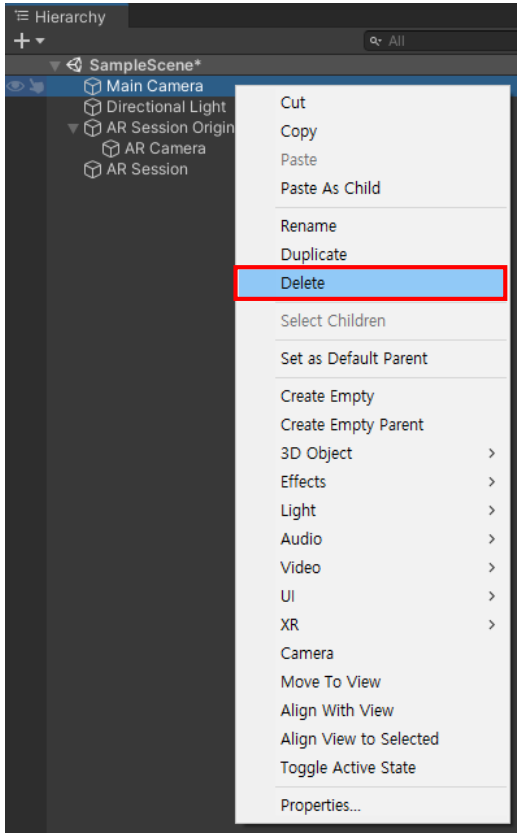
▶ 유니티(Unity) 모델링



- **Hierarchy**창의 **AR Session Origin – AR Camera** 클릭



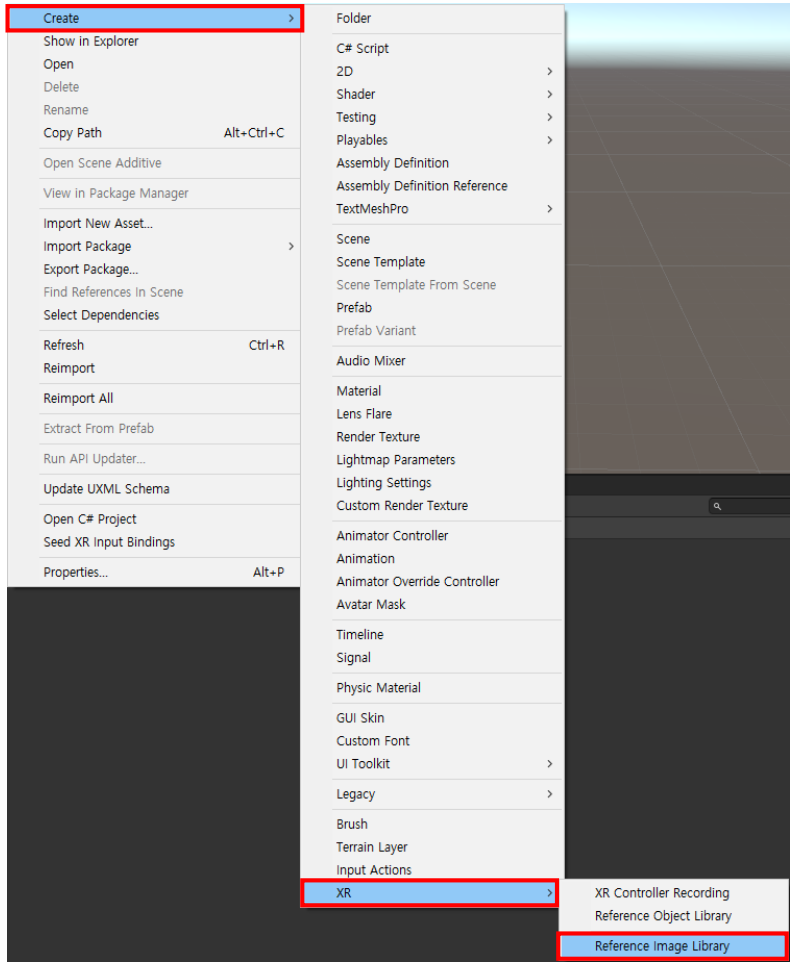
- **Inspector**창의 **Tag** 클릭 후 **MainCamera** 클릭



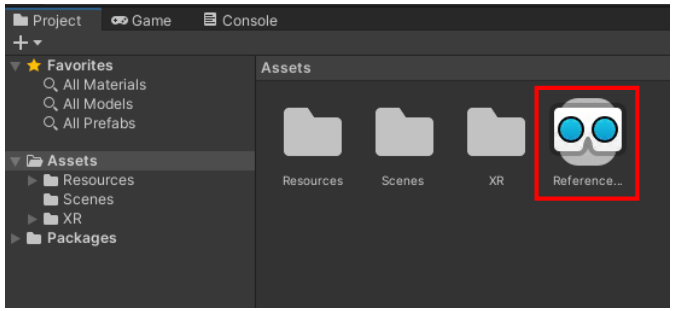
- **Hierarchy** 창의 **MainCamera** 삭제 (Delete키 or 우클릭-Delete)

AR 이미지인식 응용방법 [개발]

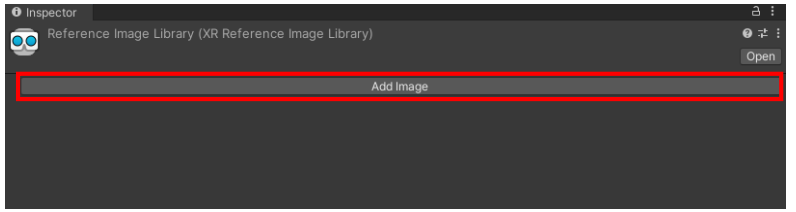
▶ 유니티(Unity) 모델링



- **Project**창에서 우클릭 – **Create – XR – Reference Image Library 클릭**



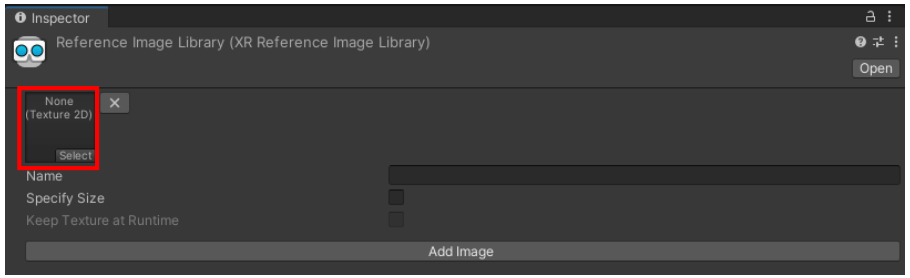
- **Project창에 ReferenceImageLibrary 파일 생성**



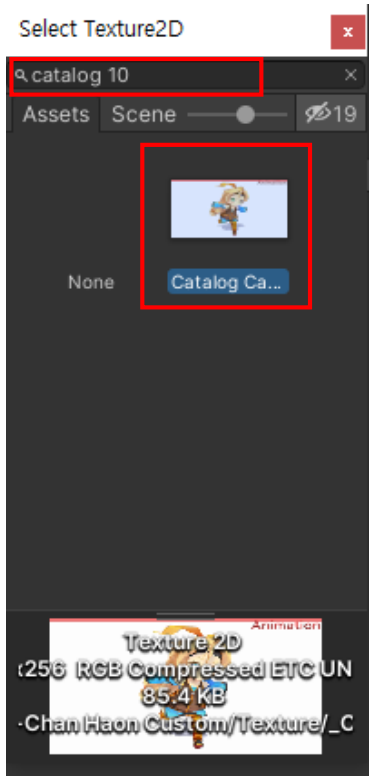
- **Project창에 ReferenceImageLibrary 클릭**
- **Inspector**창에서 Add Image 클릭

AR 이미지인식 응용방법 [개발]

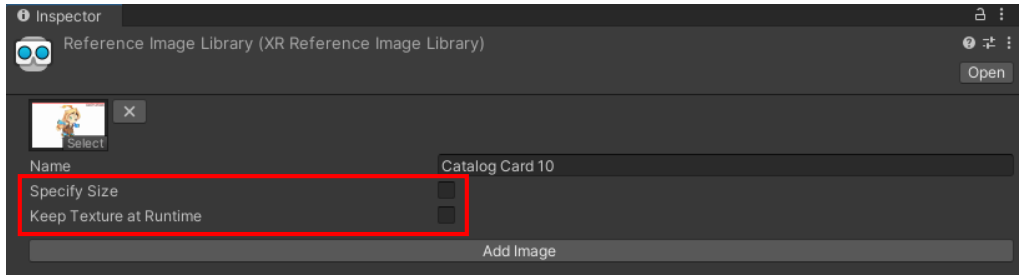
▶ 유니티(Unity) 모델링



- **Inspector**창의 None(Texture 2D) 아래 Select 버튼 클릭



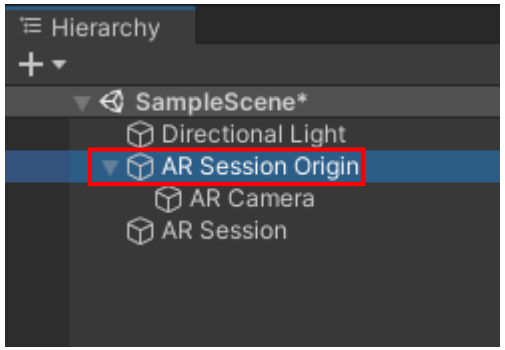
- **검색창에 “catalog 10”을 검색하고 이미지 클릭**

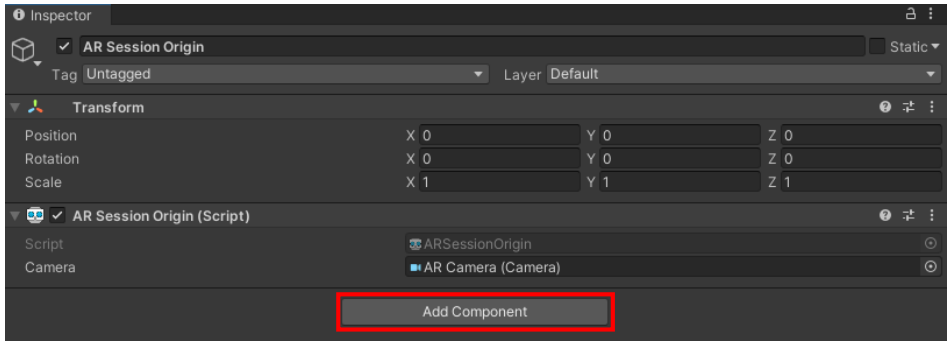


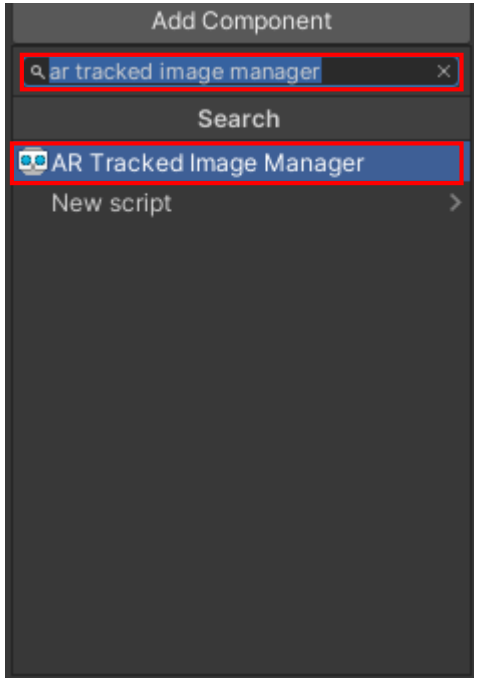
- Specify Size 체크
  - X : 0.1 입력(Y값은 자동)
- Keep Texture at Runtime 체크

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링



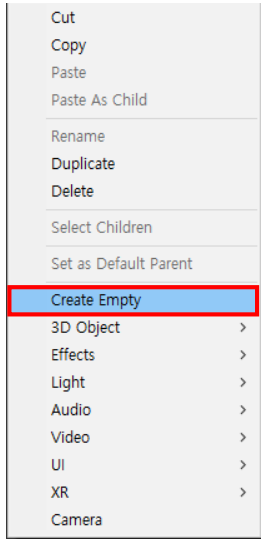


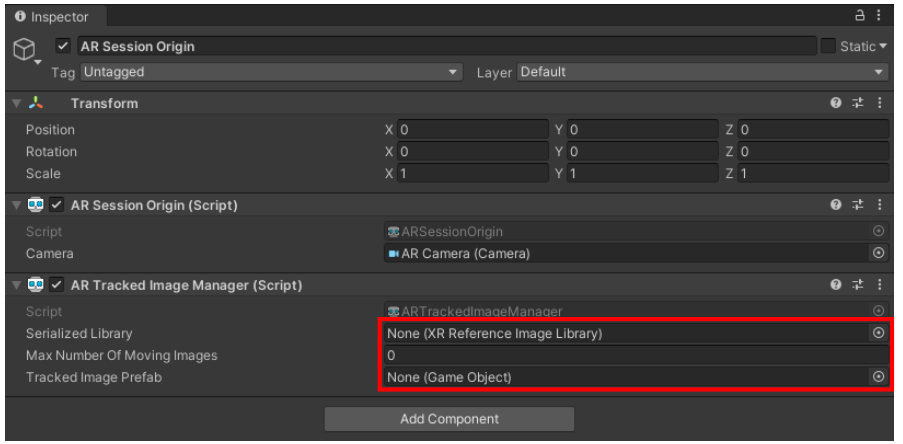


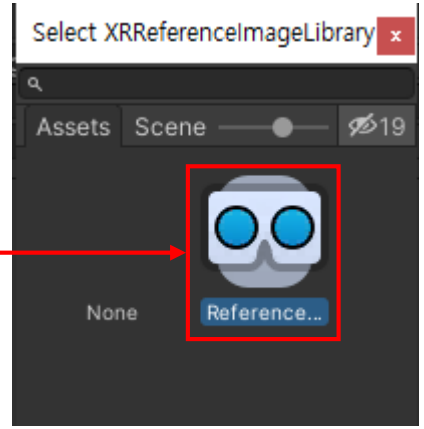
- **Hierarchy**창의 **AR Session Origin 클릭**
- **Inspector**창에서 Add Component 클릭
- **ar tracked image manager 검색 후 AR Tracked Image Manager 클릭**

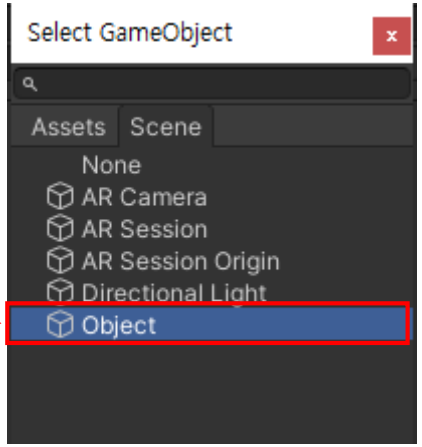
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링

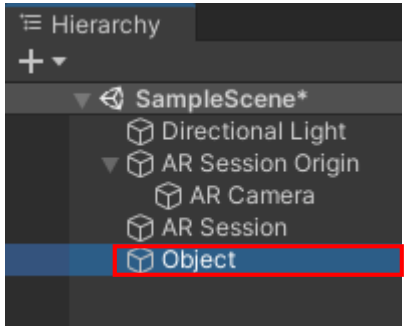




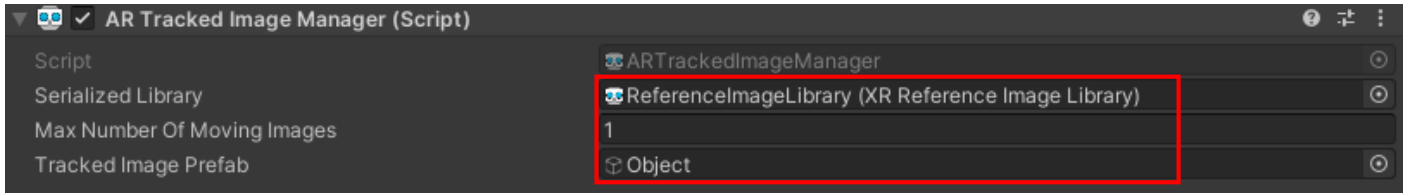




- **Hierarchy**창에서 우클릭 – Create Empty 클릭
- 이름을 "Object"로 변경

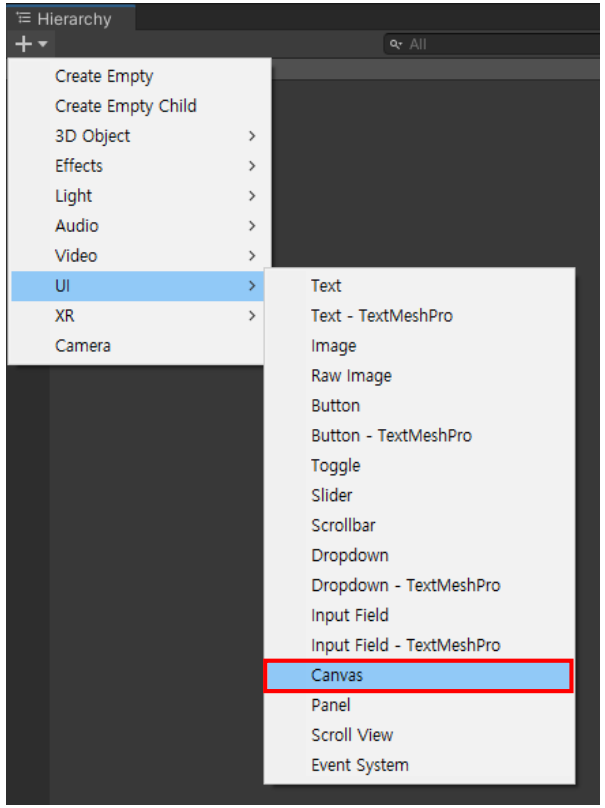


- Serialized Library – ⊙
- Max Number Of Moving Images = 1
- Tracked Image Prefab - ⊙

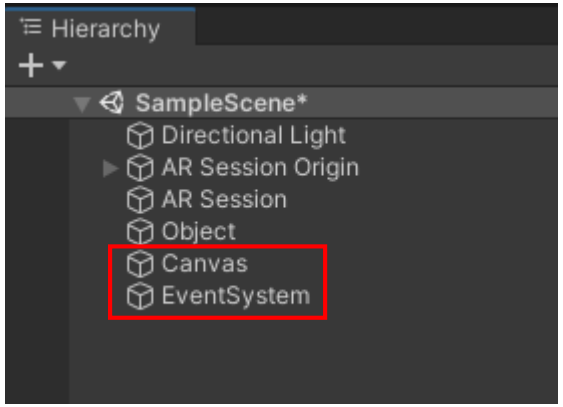


AR 이미지인식 응용방법 [개발]

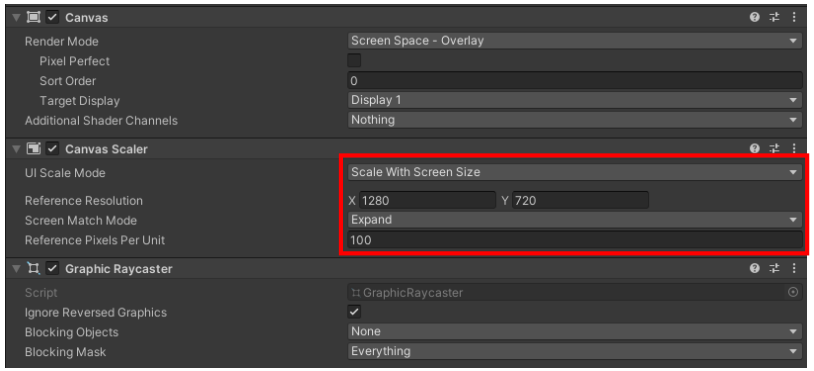
▶ 유니티(Unity) 모델링



- **Hierarchy**창의 **UI – Canvas** 클릭



- **Hierarchy**창에 생성 확인



- **Hierarchy**창에서 Canvas 클릭
- **Inspector**창의 CanvasScaler 속성값 변경

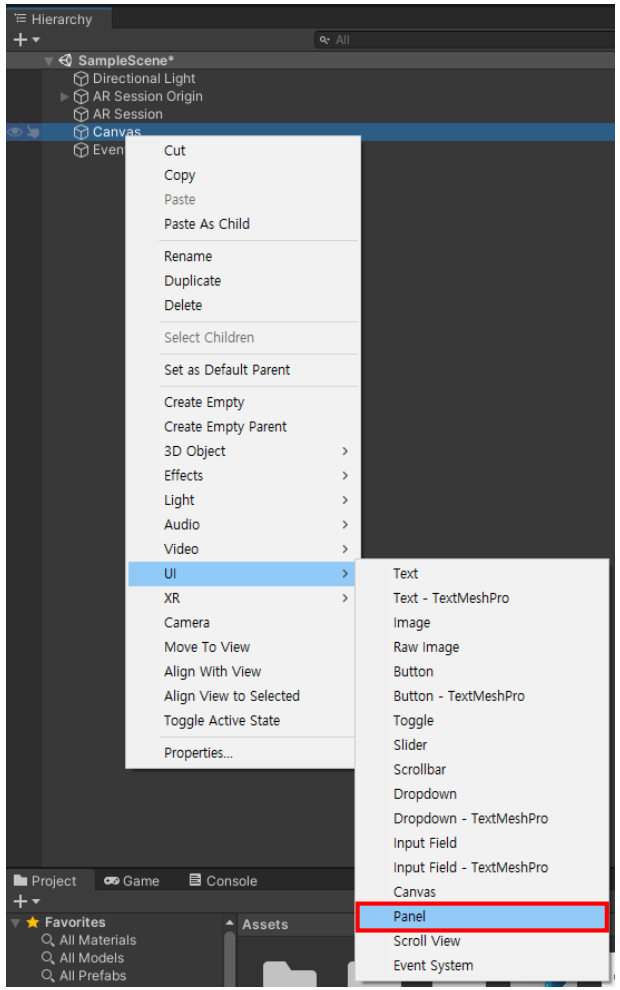
  UI Scale Mode – Scale With Screen Size

  Reference Resolution – X : 1280 Y : 720

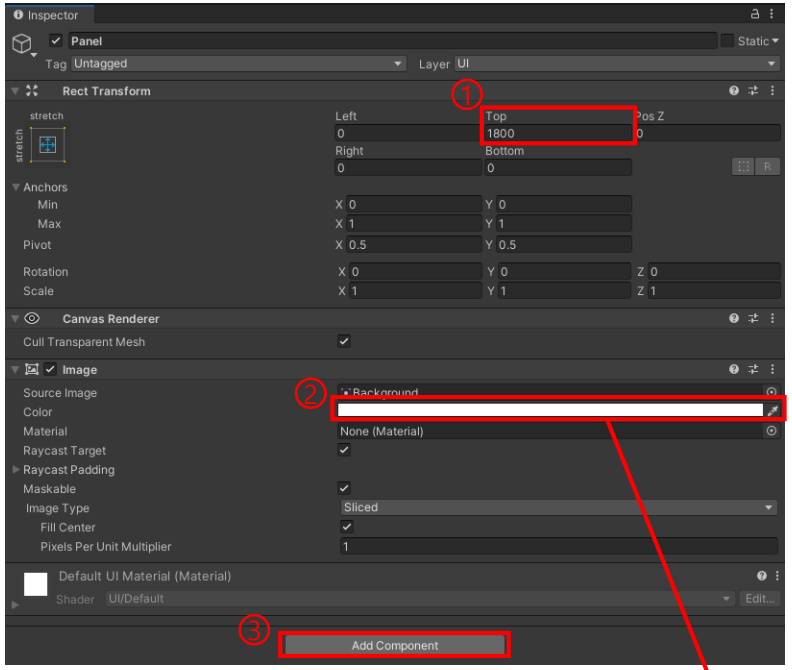
  Screen Match Mode - Expand

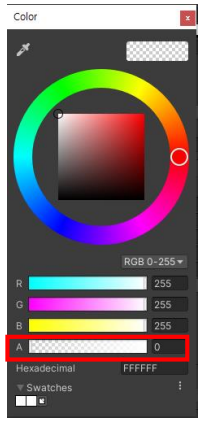
AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링



- **Hierarchy**창의 Canvas 우클릭 – UI – Panel 선택



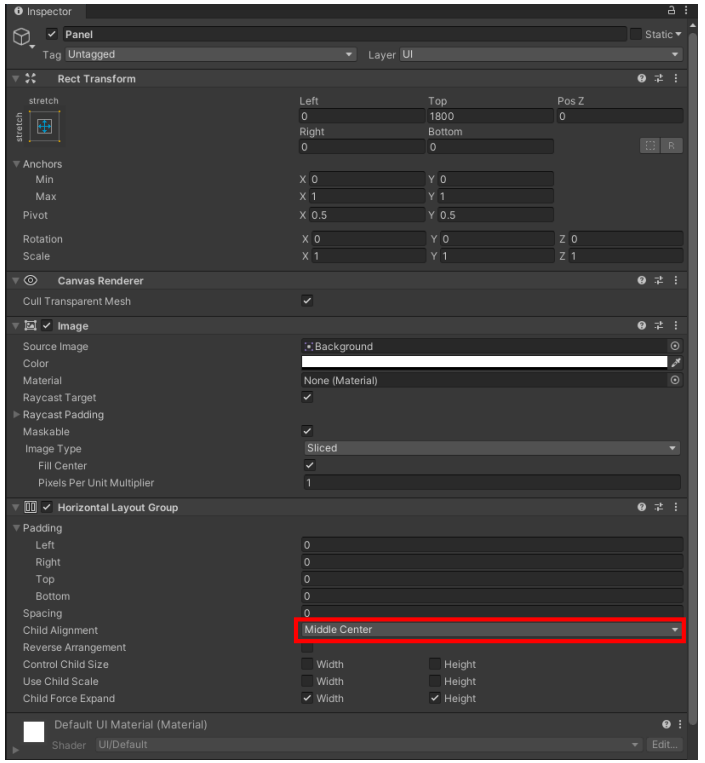


- **Hierarchy**창에서 Panel 클릭
- **Inspector**창에서 Panel 속성값 변경

① Rect Transform – Top : 1800

② Color – 흰색 좌클릭 – A : 0

③ Add Component – Horizontal Layout Group 검색 후 선택

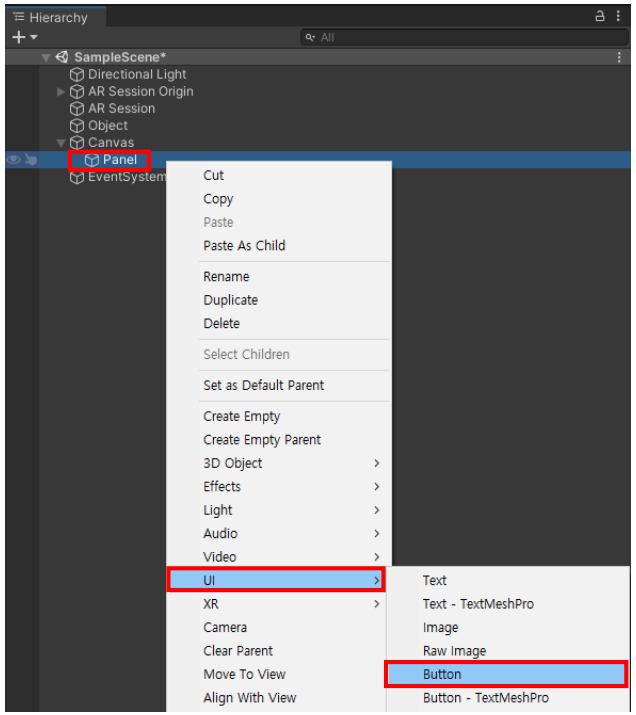


- **Inspector**창에서 Horizontal Layout Group 속성값 변경

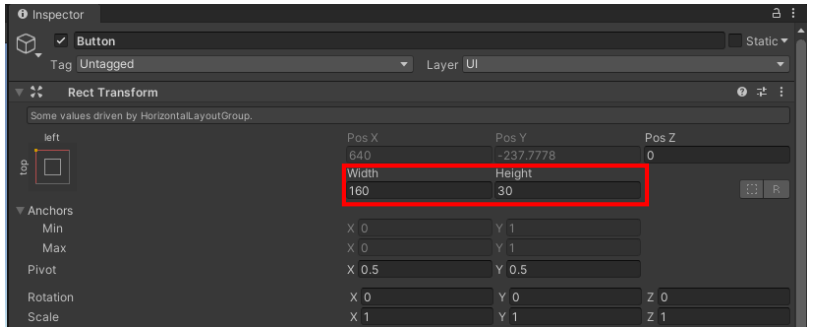
Child Alignment – Middle Center

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링

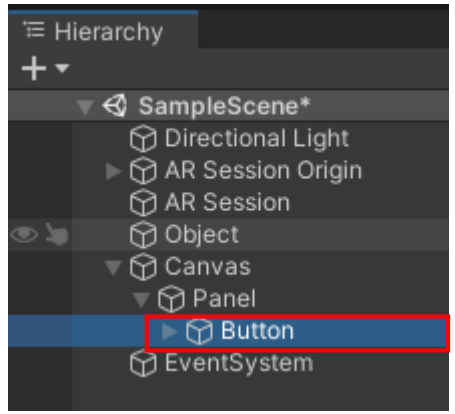


- **Hierarchy**창의 Panel 우클릭 – UI – Button 선택

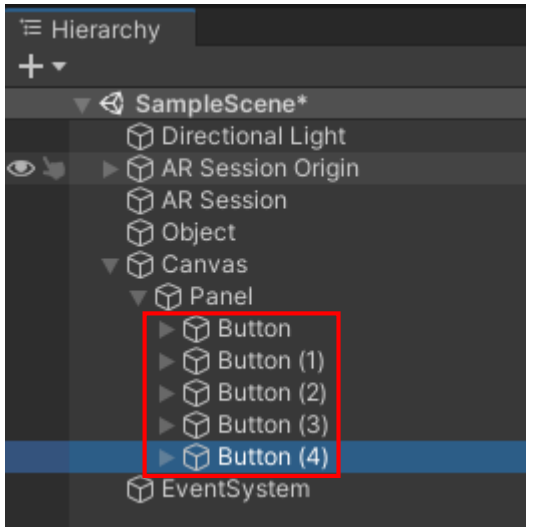


- **Hierarchy**창에서 Button 클릭
- **Inspector**창에서 Button 속성값 변경

Width : 200 Height : 200



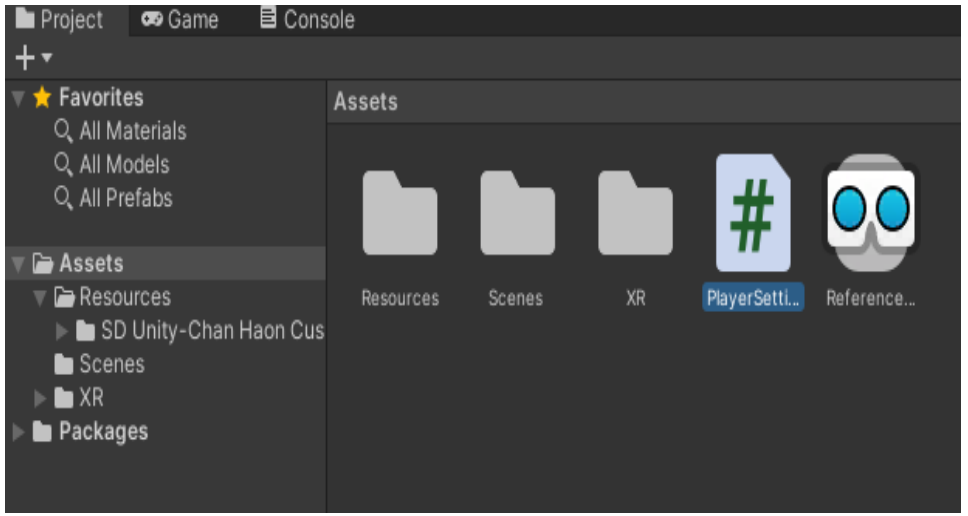
- **Hierarchy**창에서 Button 클릭
- Ctrl + D를 4번 반복입력



AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링

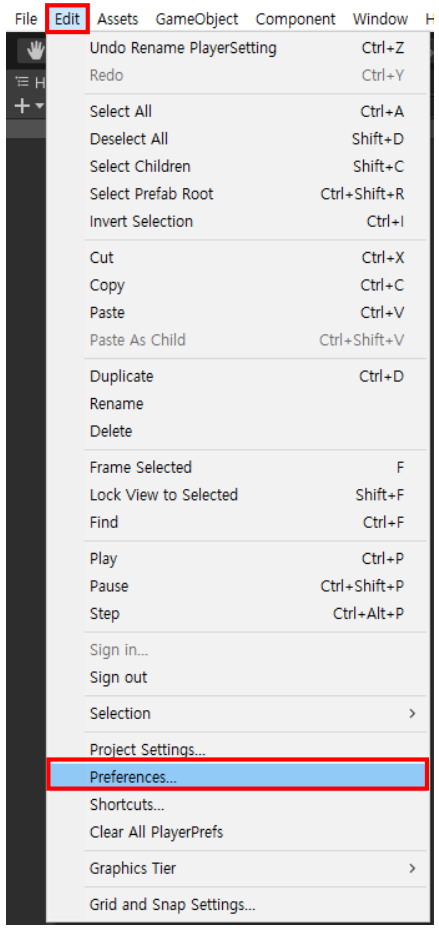
PlayerSetting.cs



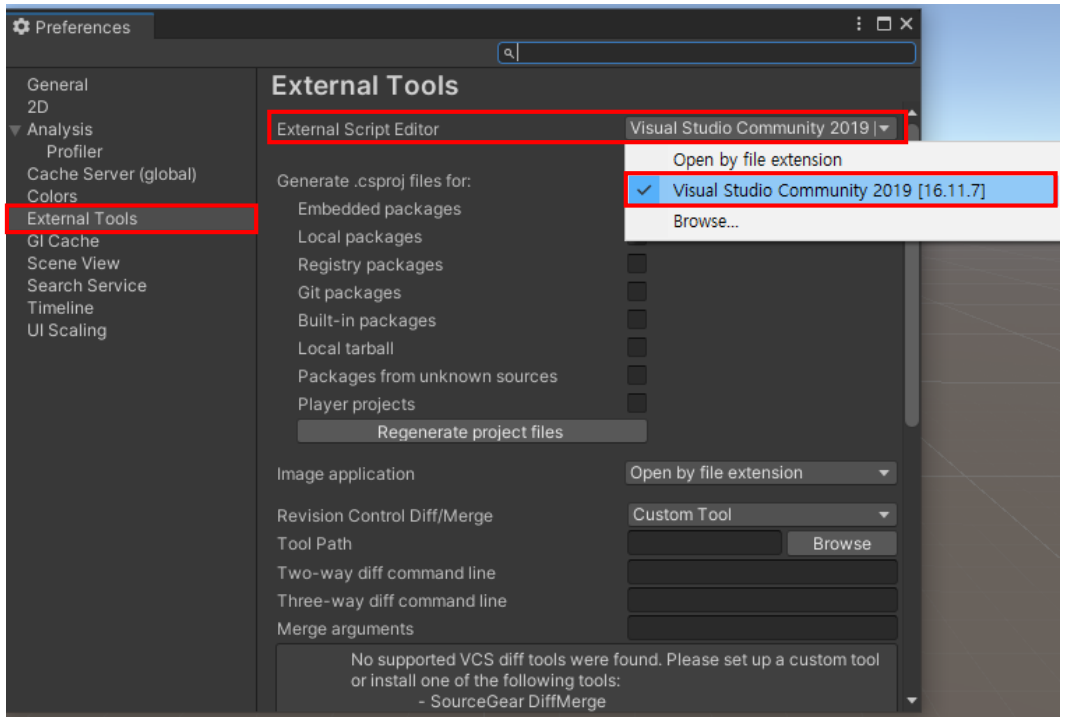
- PlayerSetting.cs 스크립트를 더블클릭해 열기를 누른다음 현재 작업중인 디렉토리에 저장

AR 이미지인식 응용방법 [개발]

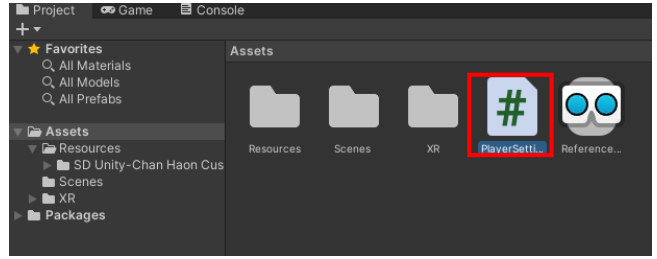
▶ 유니티(Unity) 모델링



- 좌측상단 Edit - Preferences... 클릭



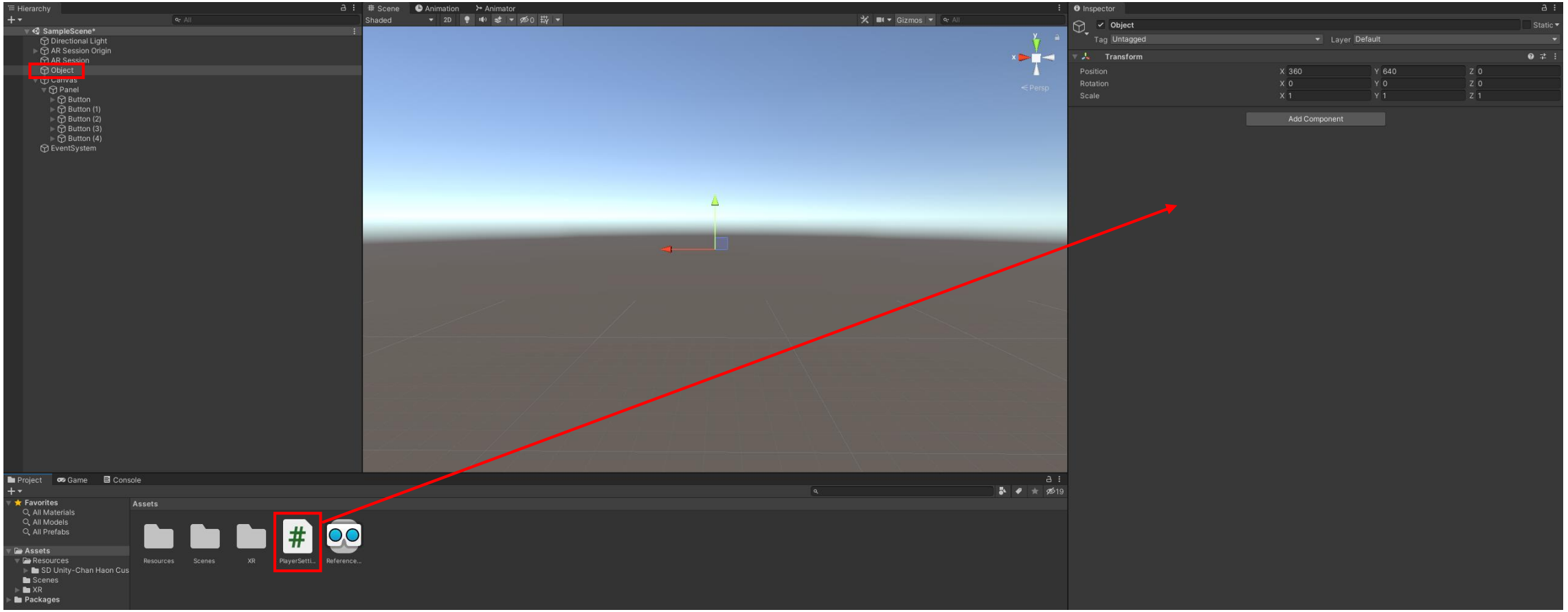
- External – External Script Editor – Visual Studio Community 2019 선택



- Preferences창을 종료
- Project창에서 PlayerSetting 더블클릭

AR 이미지인식 응용방법 [개발]

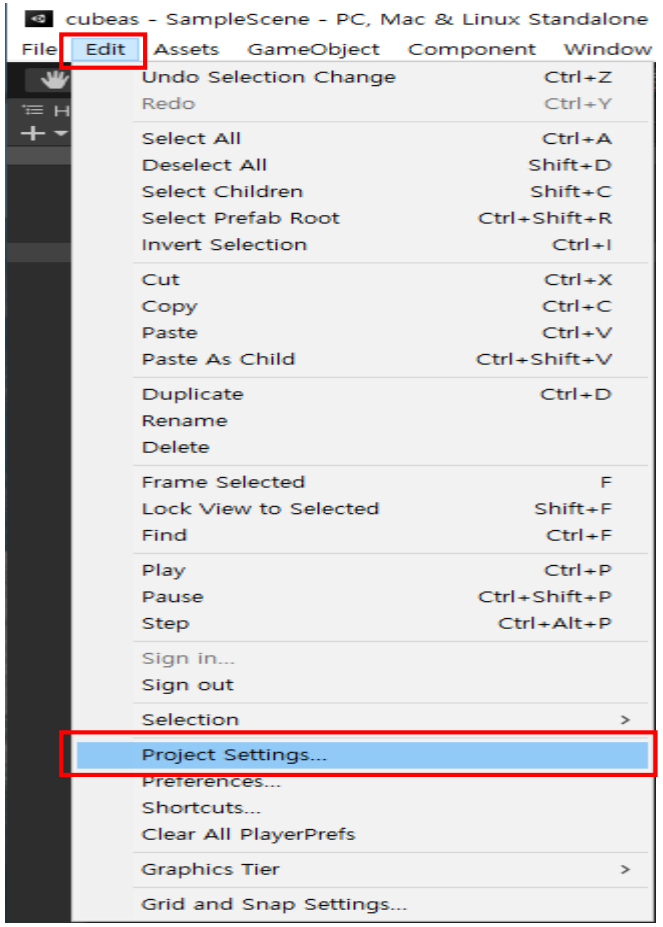
▶ 유니티(Unity) 모델링

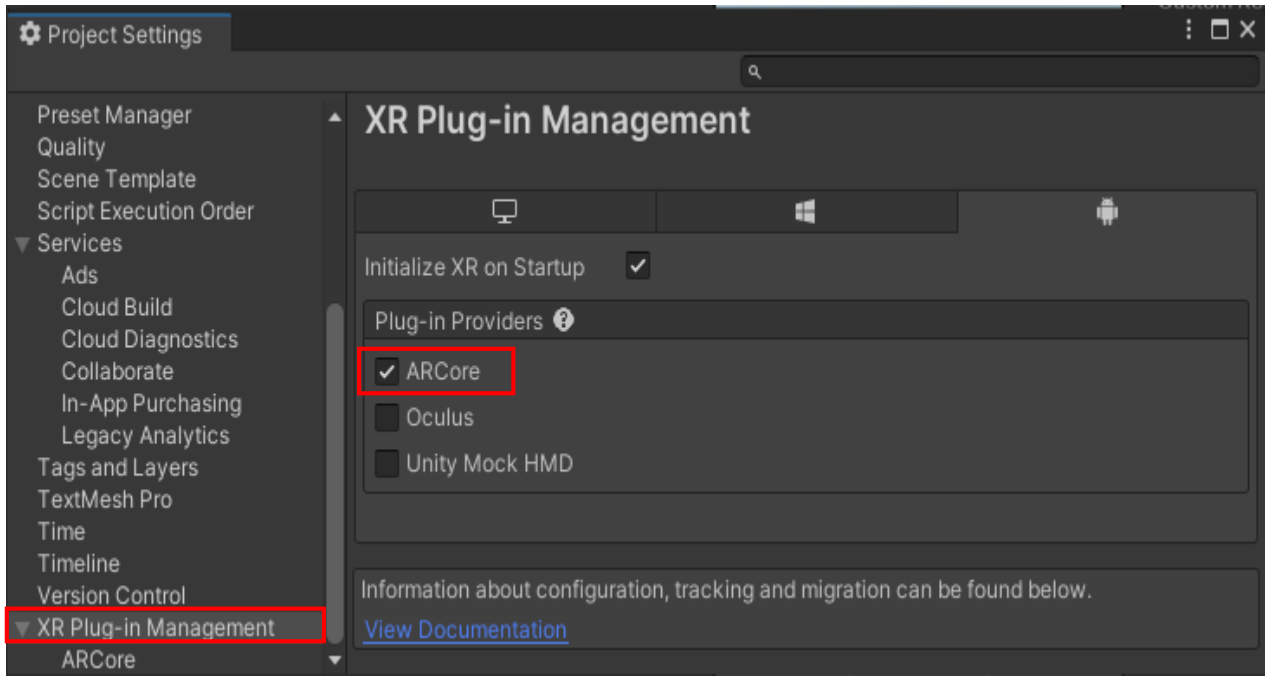


- Hierarchy창의 Object 선택
- Project창의 PlayerSetting 스크립트를 Inspector창에 드래그앤드랍

AR 이미지인식 응용방법 [개발]

▶ 유니티(Unity) 모델링





클릭

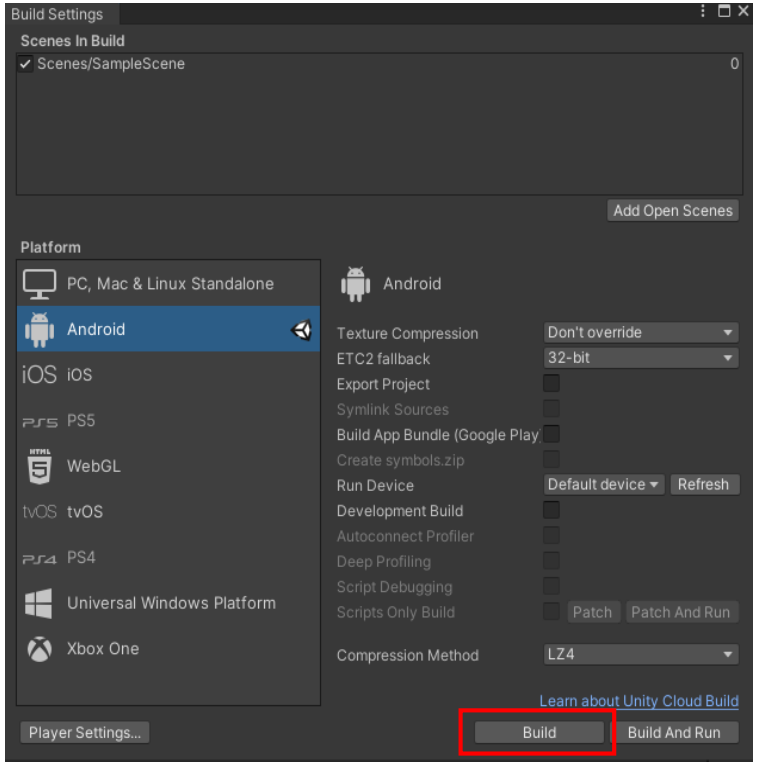
체크

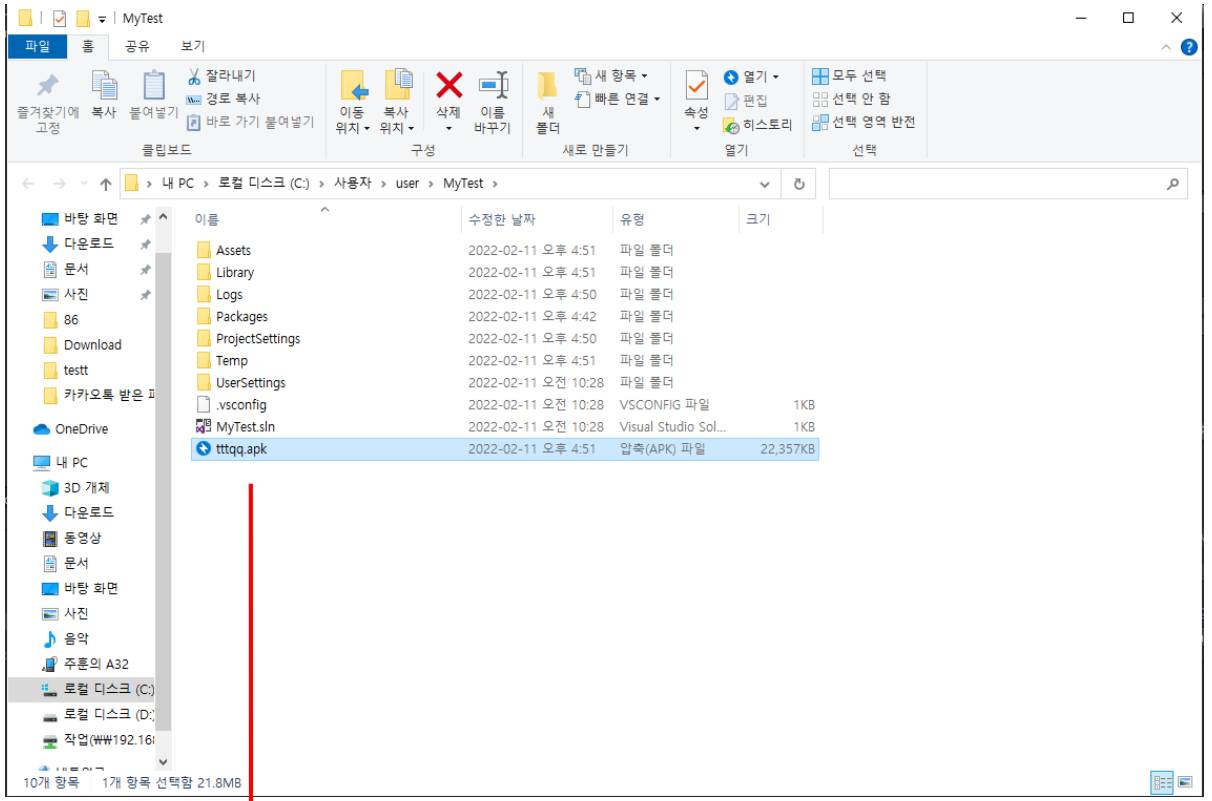
- 좌측 상단 **Edit – Project Settings...** 클릭

체크 후 **Project Settings** 닫기

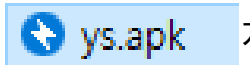
AR 이미지인식 응용방법 [개발]

▶ Android APK 빌드하기





- 좌측상단 **File** – **Build Settings...** – **Build** 클릭

파일명 입력 후 저장 -  처럼 .apk 확장자의 파일생성 시 완료!

AR 이미지인식 응용방법 [개발]

▶ 지형인식 응용