Unity

AR Core 지형인식을 활용한 객체생성 및 동작

AR 지형인식 응용방법 [큐브설치 및 동작]

- ▶ 유니티(Unity) 설치하기
- ▶ 유니티(Unity) 프로젝트 생성 및 개발환경 설정
- ▶ 유니티(Unity) 모델링
- ▶ Android APK 빌드하기

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ **학습목표 :** 코딩 없이 클릭만으로 AR 지형인식 모델링을 학습함으로써 코딩 지식이 없는 일반인도 AR모델링 이해하고 결과물을 만들어 심화학습까지 연계할 수 있도록 개발역량강화

-> AR 카메라가 인식한 바닥을 시각적으로 표시한다

-> 카메라에 인식된 면의 특정위치를 지정해 터치하는 곳에 큐브를 모델링해 생성할 수 있다

-> 안드로이드 APK 파일로 빌드해 어플을 동작 시킬 수 있다.

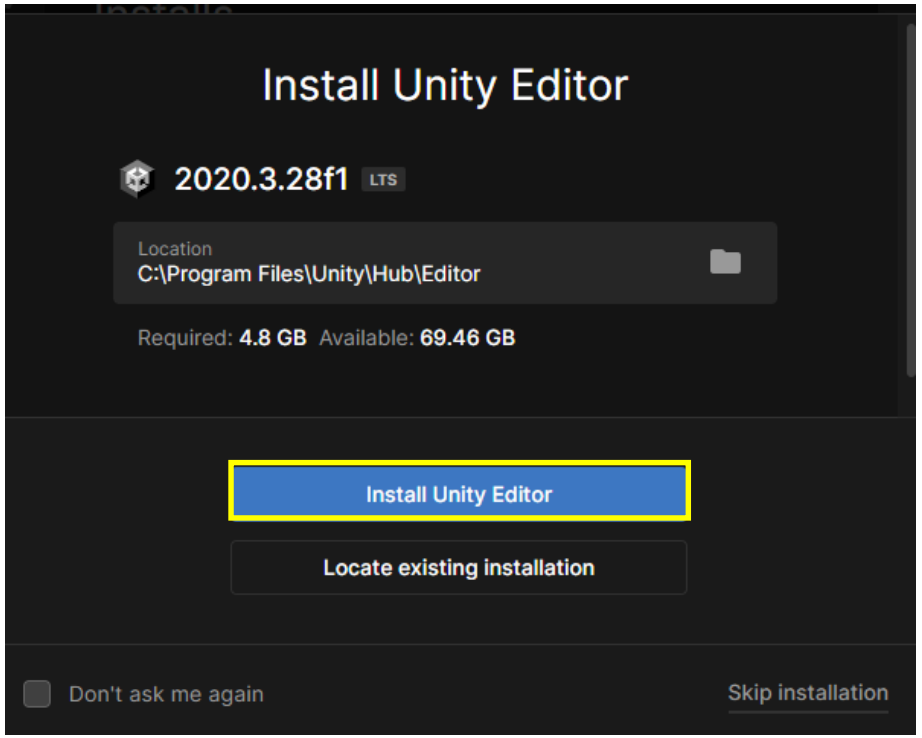
지형인식을 활용해 큐브를 설치하고 크기조절 및 각도조절 한 결과

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설치

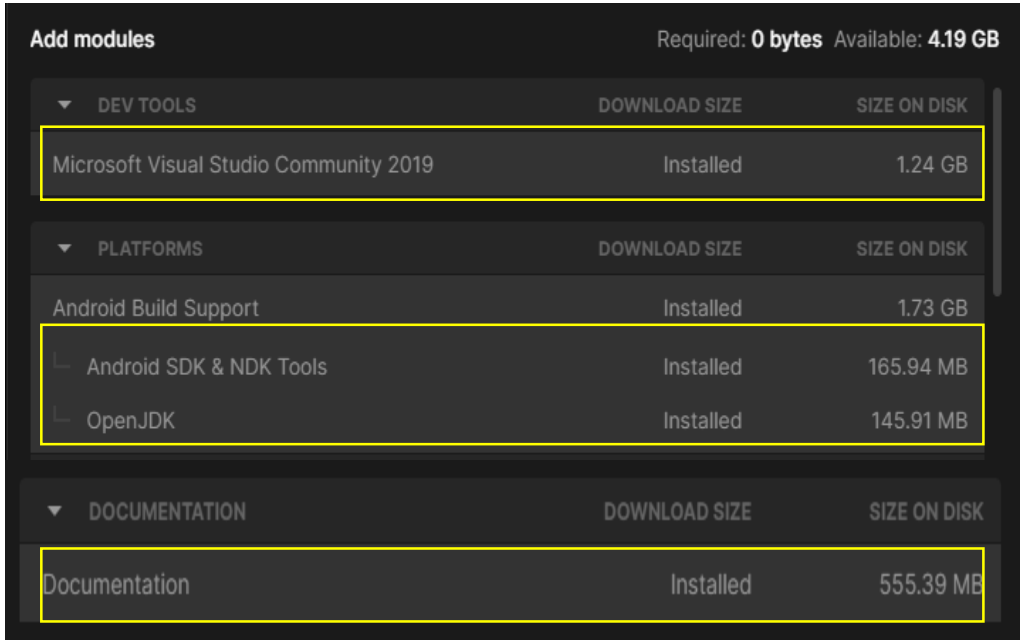
https://unity3d.com/kr/get-unity/download

- **Unity Hub**다운로드 – Unity Hub 실행



- **2020.3.28f1**  클릭

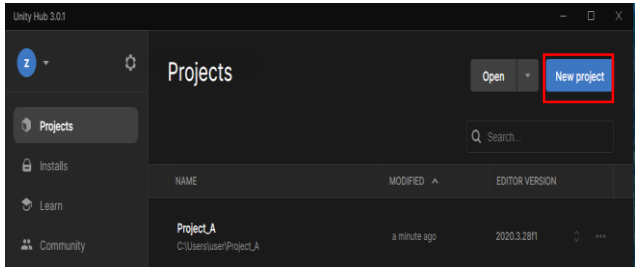
▶ 추가 모듈 설치 체크리스트



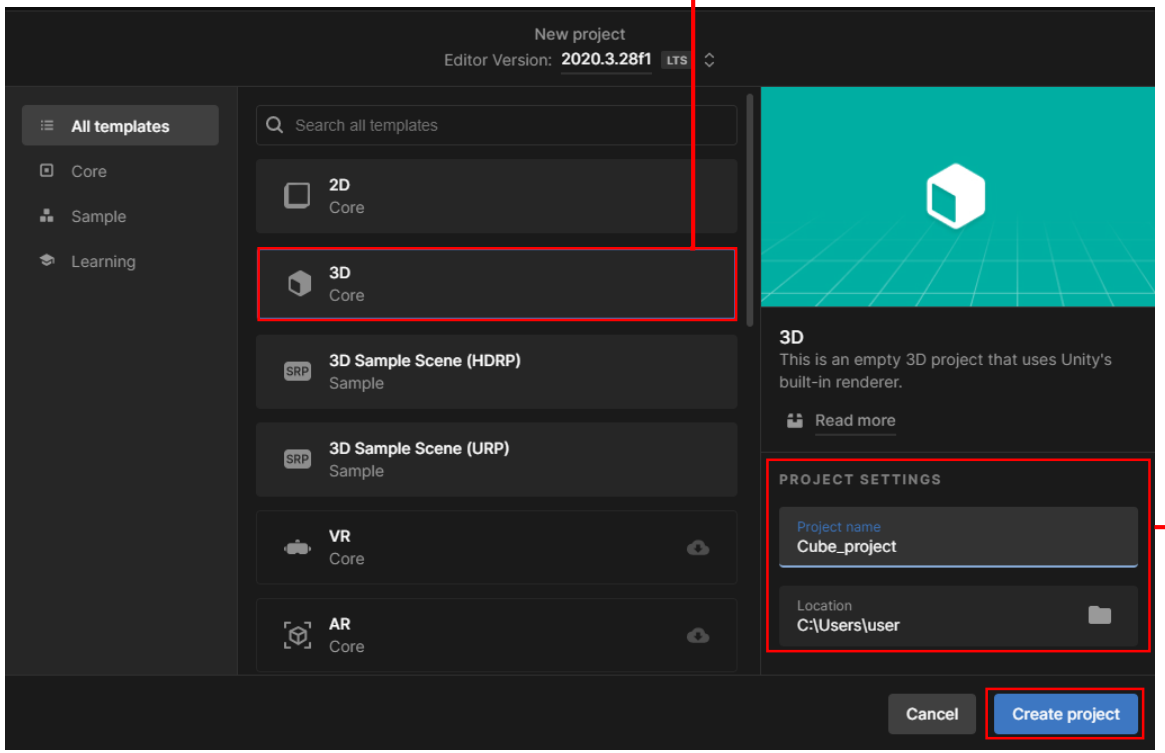
- DEV TOOLS
  - **Microsoft Visual Studio Community 2019**
- DOCUMENTATION
  - **Documentation**
- PLATFORMS
  Android Build Support
  - **Android SDK & NDK Tools**
  - **OpenJDK**

AR 지형인식 응용방법 [큐브설치 및 동작]

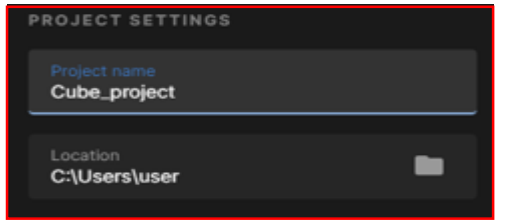
▶ 유니티(Unity) 프로젝트 생성



New project 클릭



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

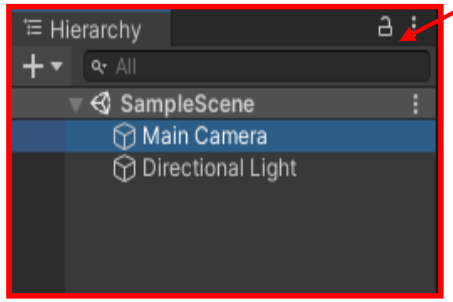


▶ Create project 클릭

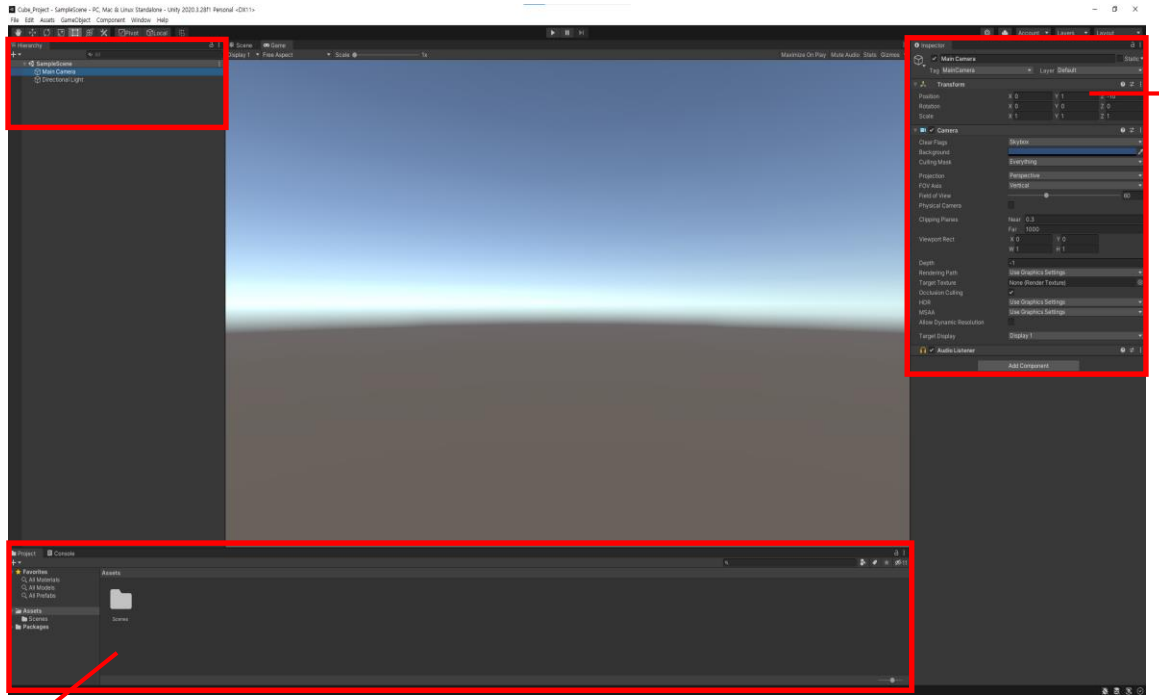
AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity)

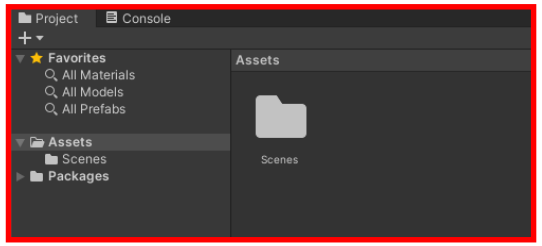
- **Hierarchy(하이어라키) 창**



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

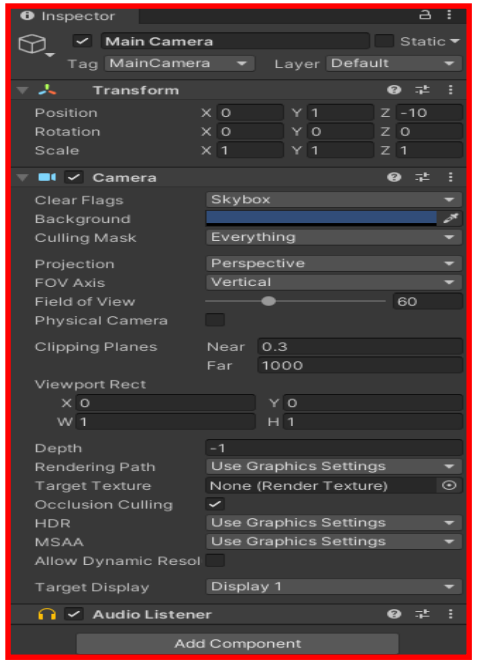


- **Project 창**



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

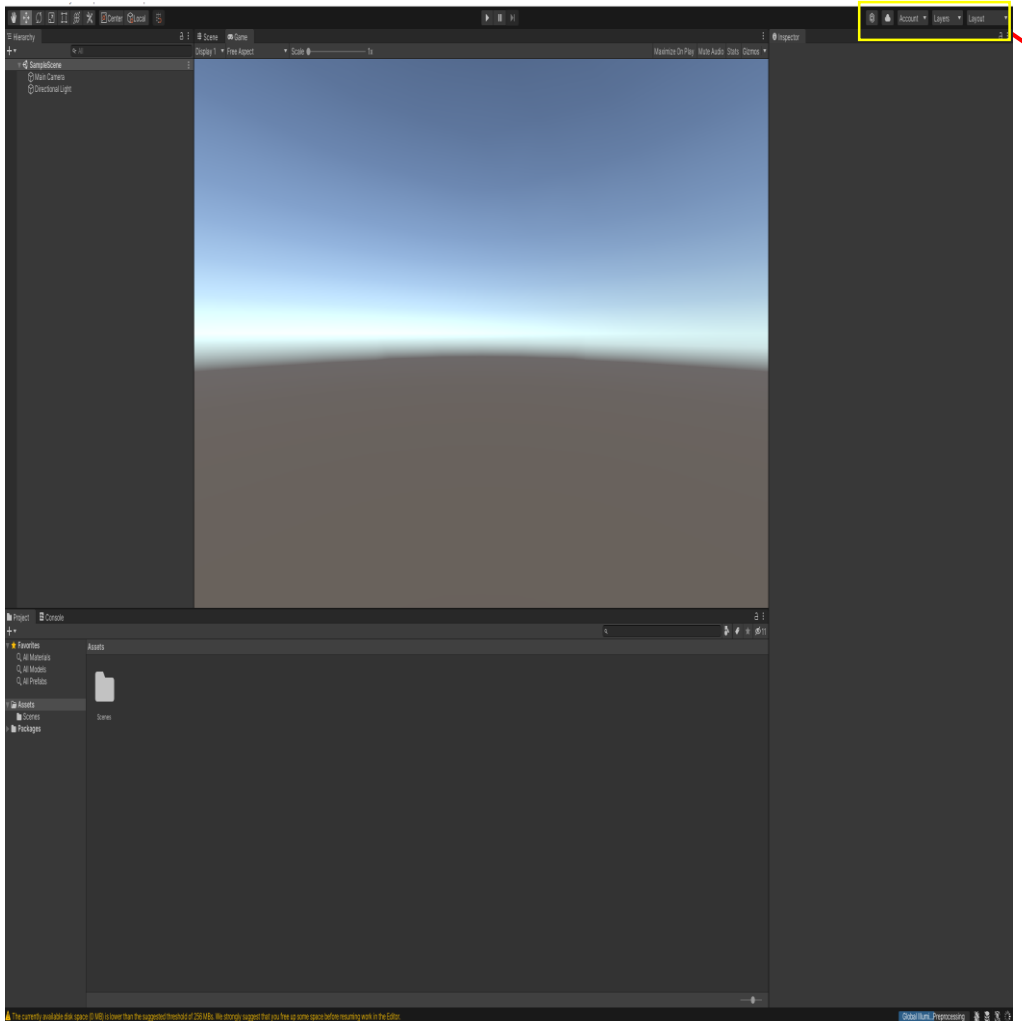
- **Inspector 창**



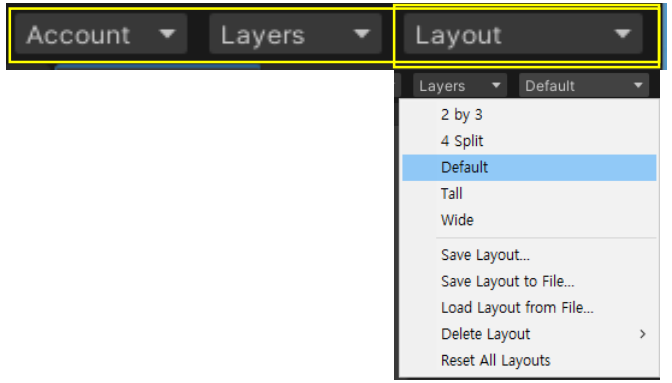
오브젝트의 **상세 정보** 표시, 오브젝트의 좌표, 회전, 크기(스케일), 색, 모양 등 설정

AR 지형인식 응용방법 [큐브설치 및 동작]

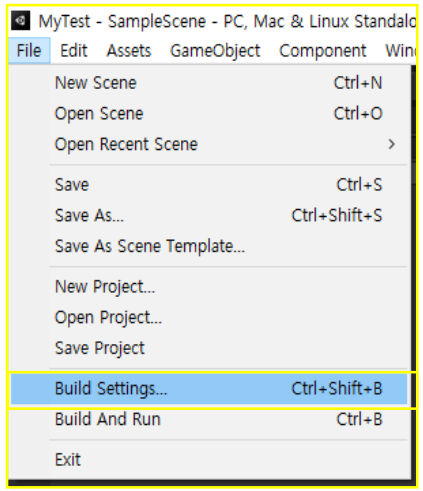
▶ 유니티(Unity) 설정

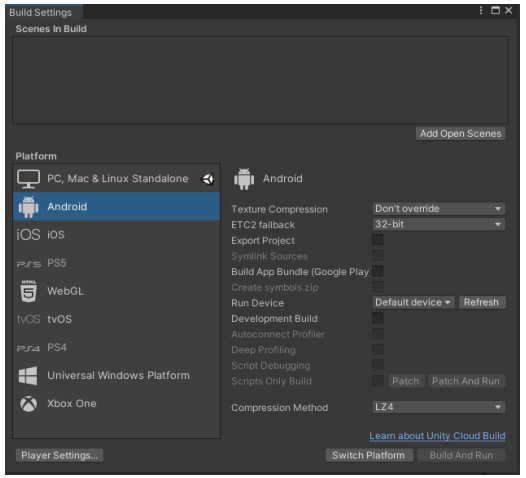


▶ 우측 상단 마지막에 있는 Layout클릭 -> Default 선택



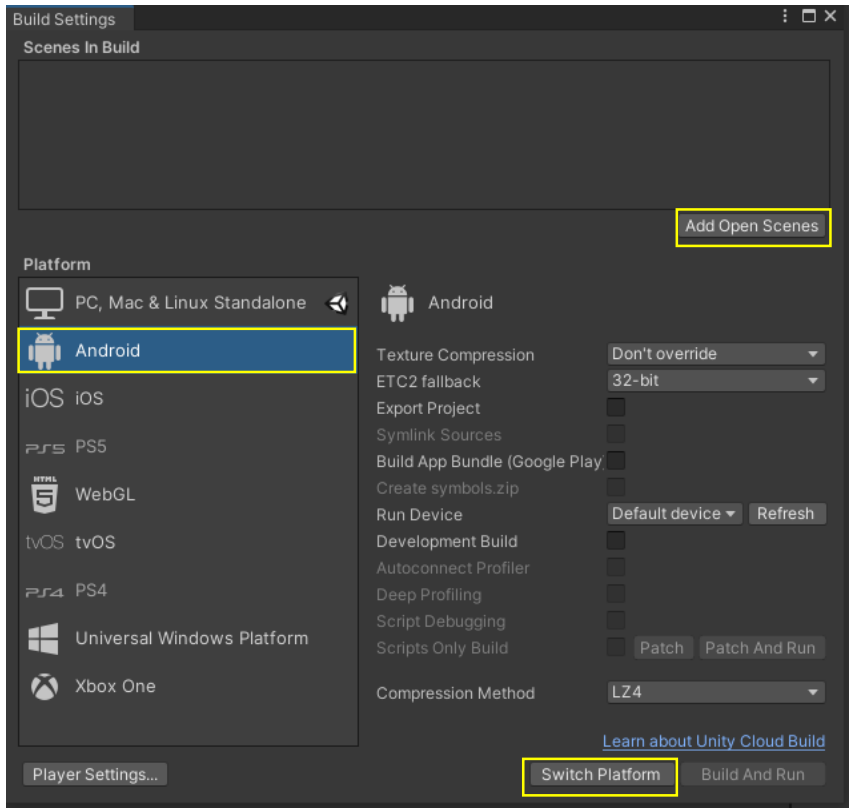
▶ 좌측 상단 메뉴 중 File – Build Settings... 선택





AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설정 _ 안드로이드 개발 환경 준비

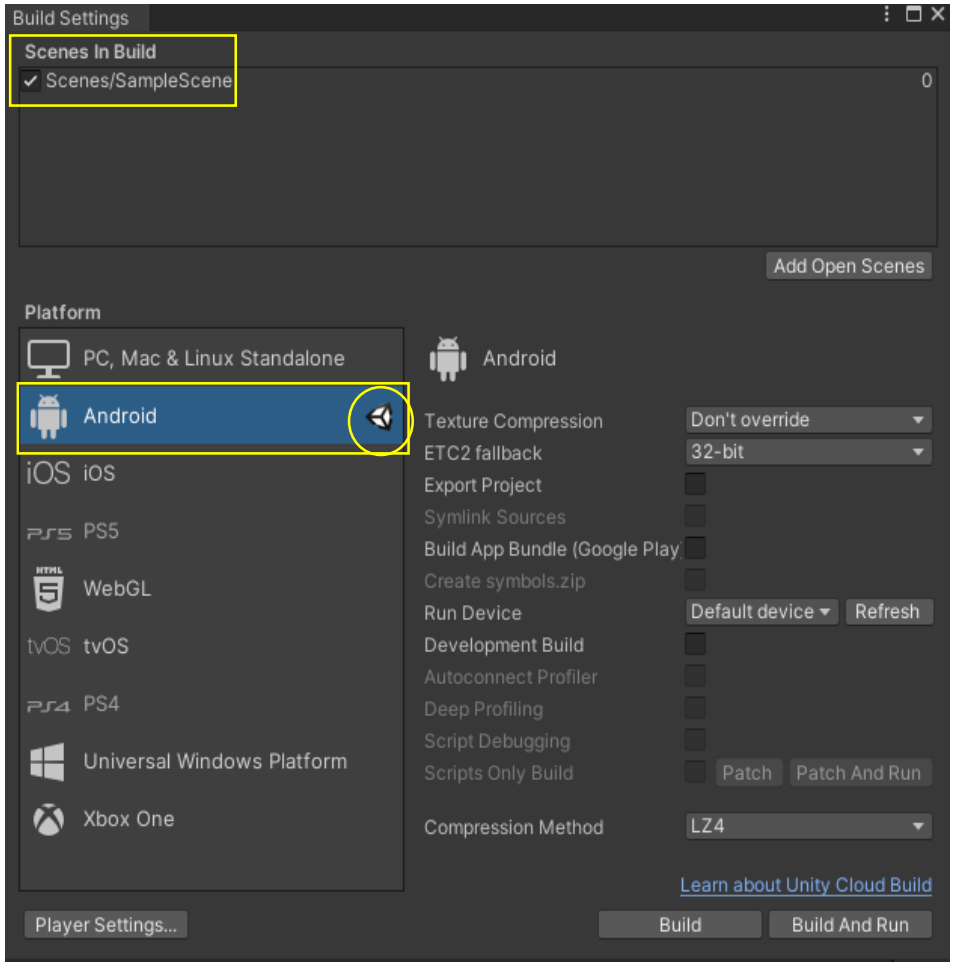


Add Open Scenes 클릭

└ Android 클릭

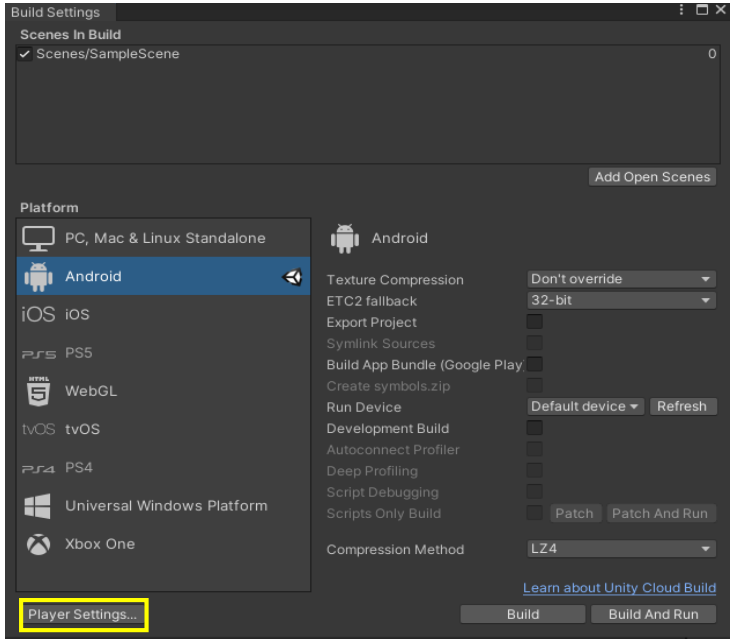
└ Switch Platform 클릭

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

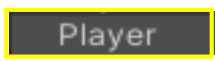


AR 지형인식 응용방법 [큐브설치 및 동작]

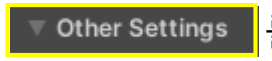
▶ 유니티(Unity) 설정 _ Player Settings



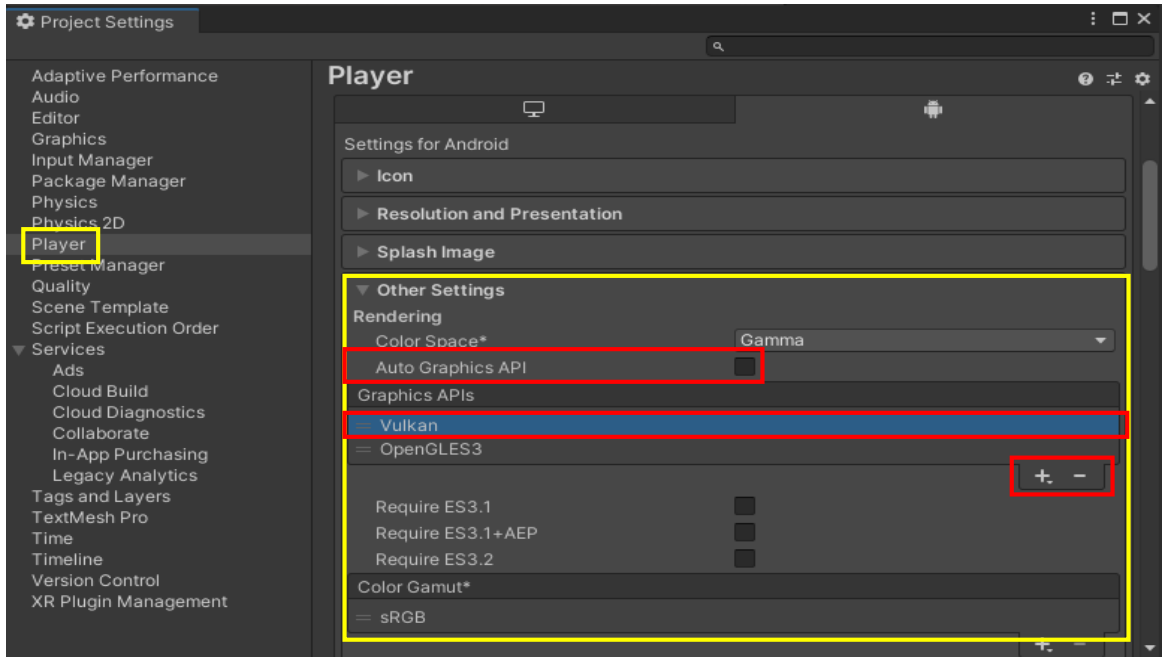
클릭



선택 후



를 클릭해 항목 펼치기



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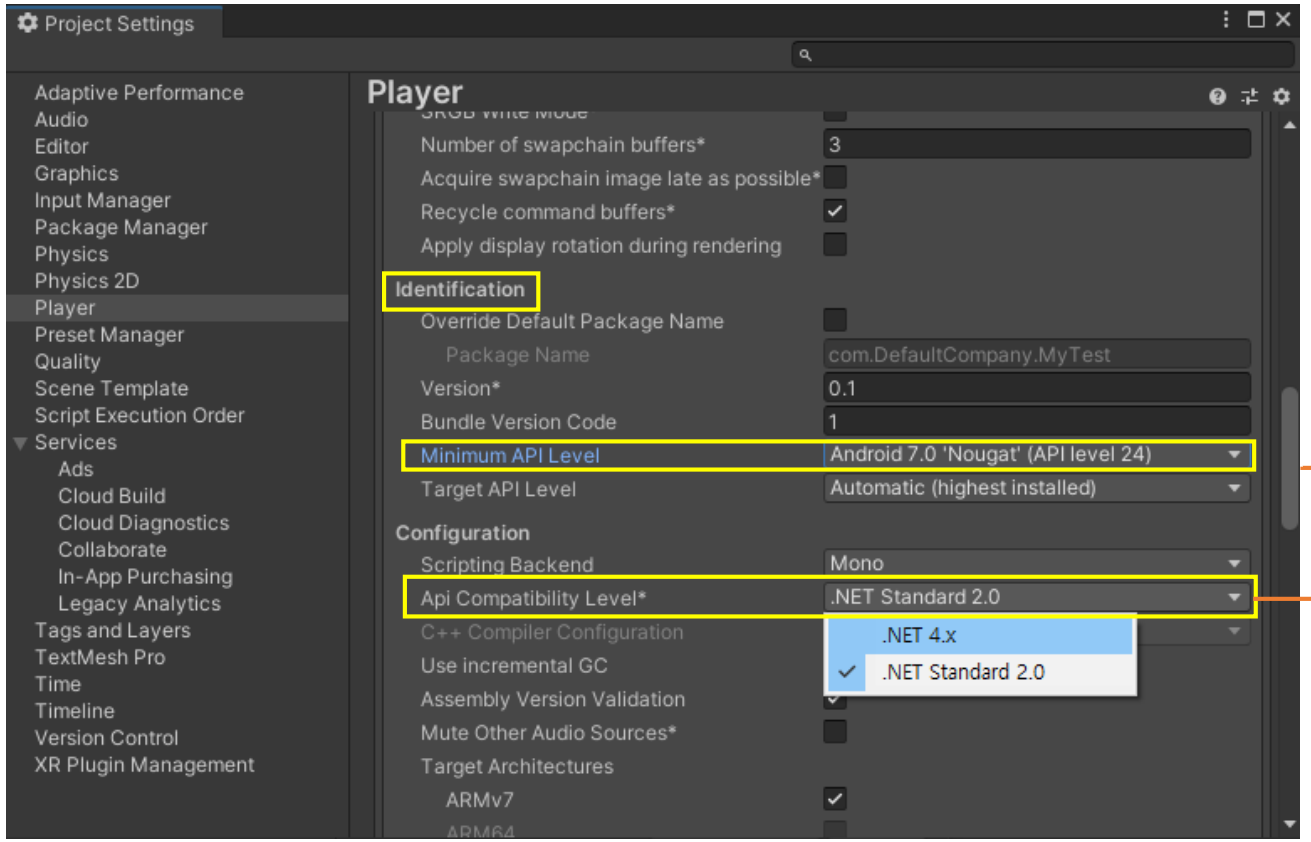
체크해제

- 

클릭 
버튼을 클릭해 Vulkan 삭제

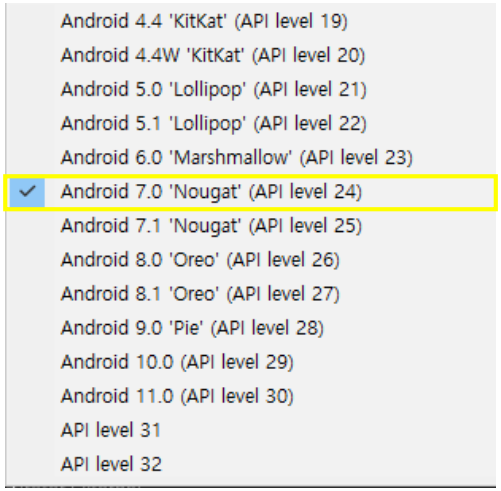
AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설정 _ Player Settings

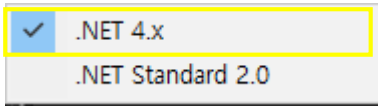


Identification 의 Minimum API Level 에서

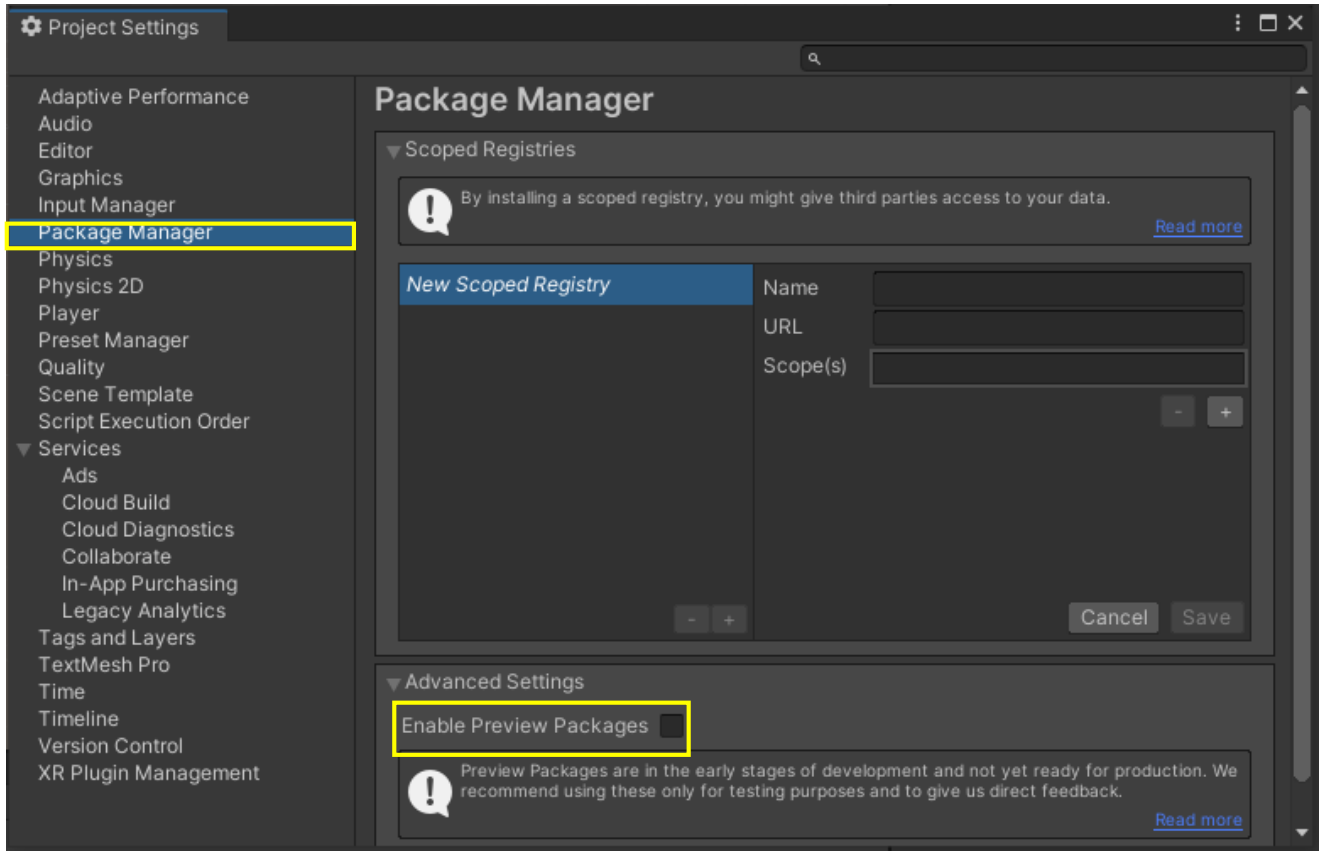
Android7.0'Nougat'(API level24)선택



Api Compatibility Level* .Net 4.x 선택

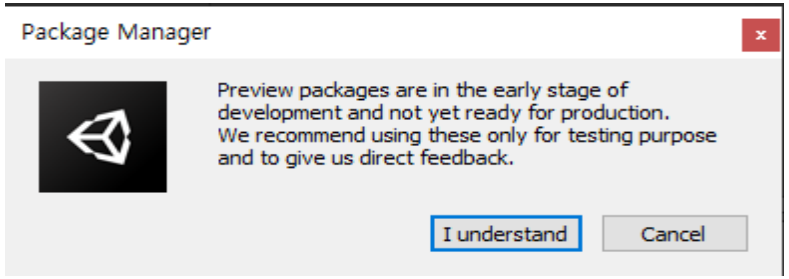


▶ 유니티(Unity) 설정 _ Package Manager



1. Package Manager 클릭

2. Enable Preview Packages 체크

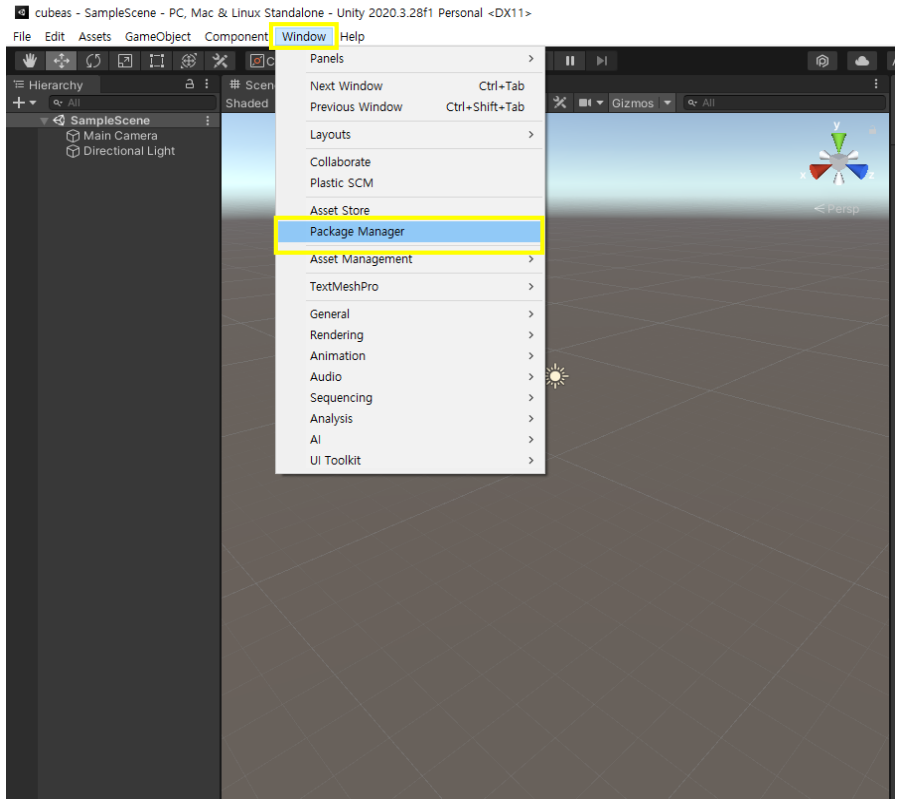


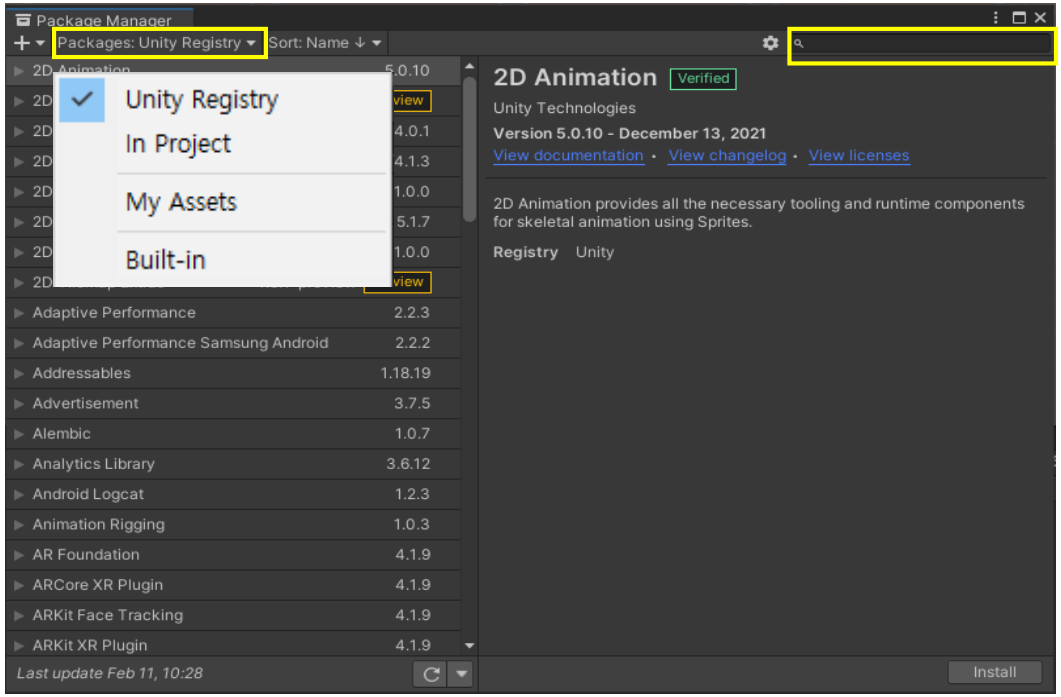
3. I understand 클릭

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

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설정 _ Package Manager





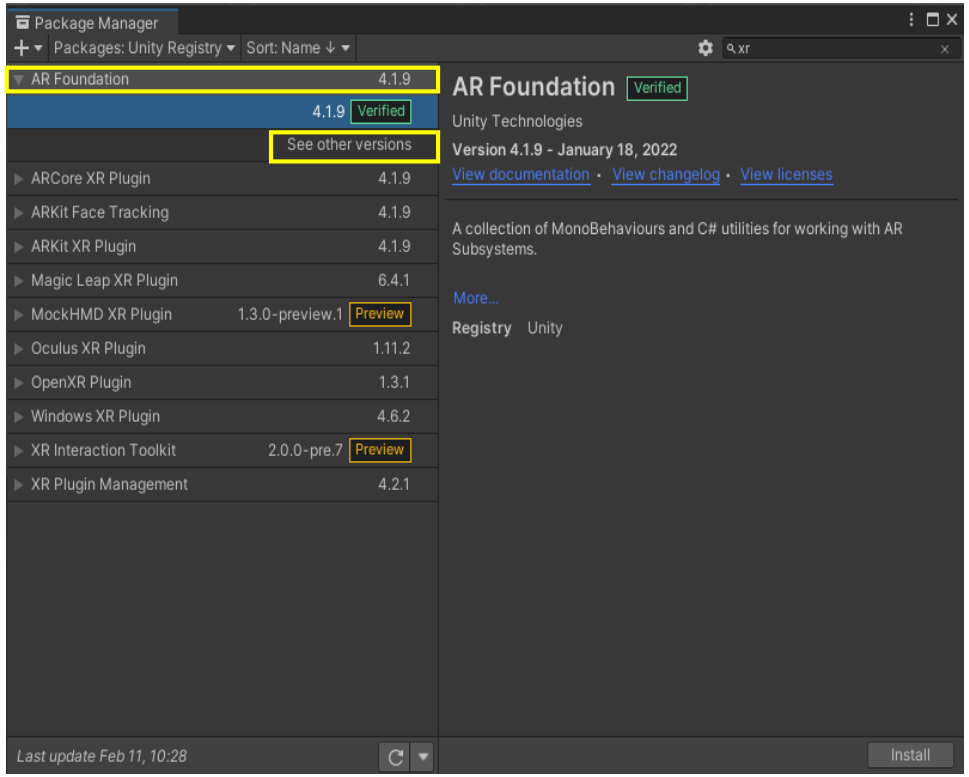
▶ 상단 메뉴 **Window – Package Manager** 클릭

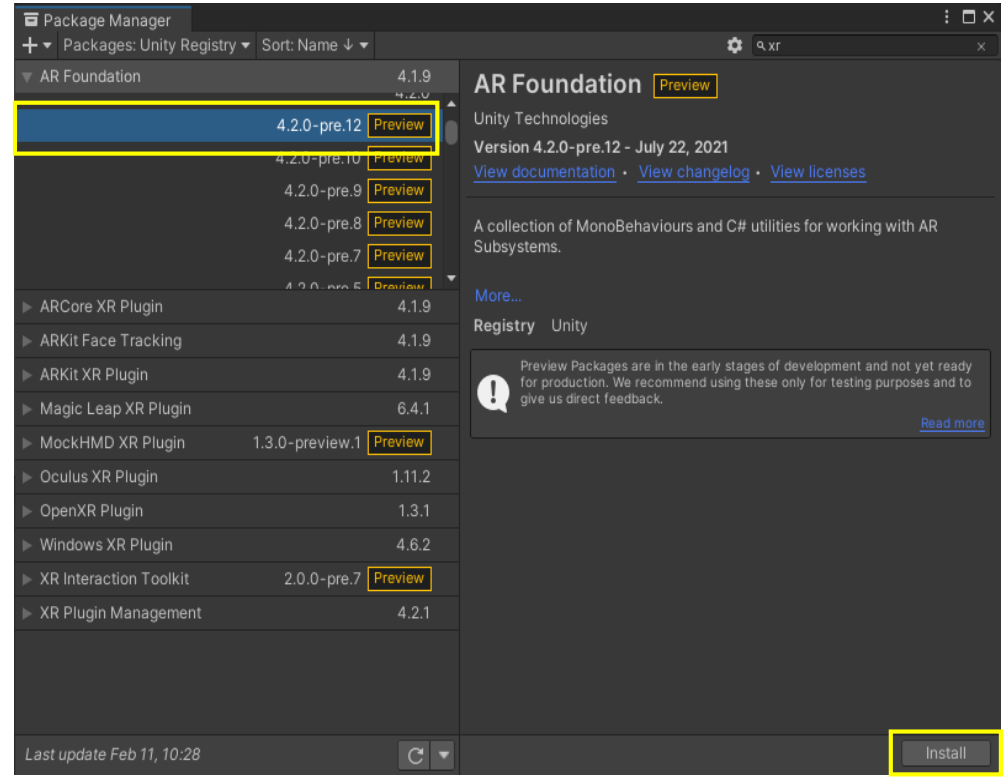
1. Packages: Unity Registry **Unity Registry** 선택

2. 우측 검색창에 **XR** 입력

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설정 _ Package Manager





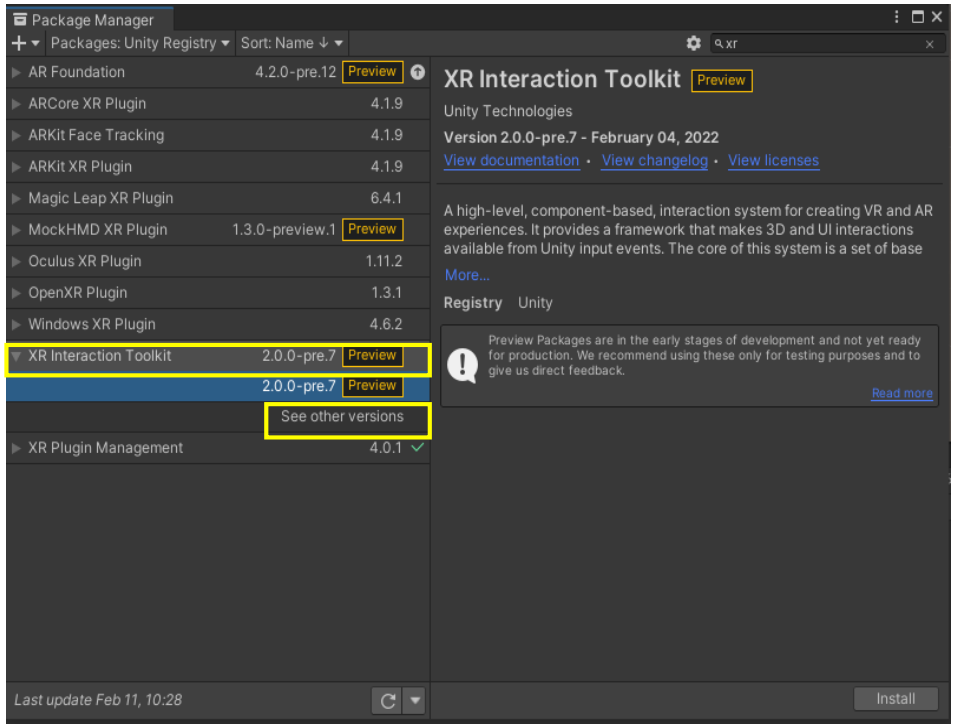
- AR Foundation 왼쪽 화살표 클릭 후

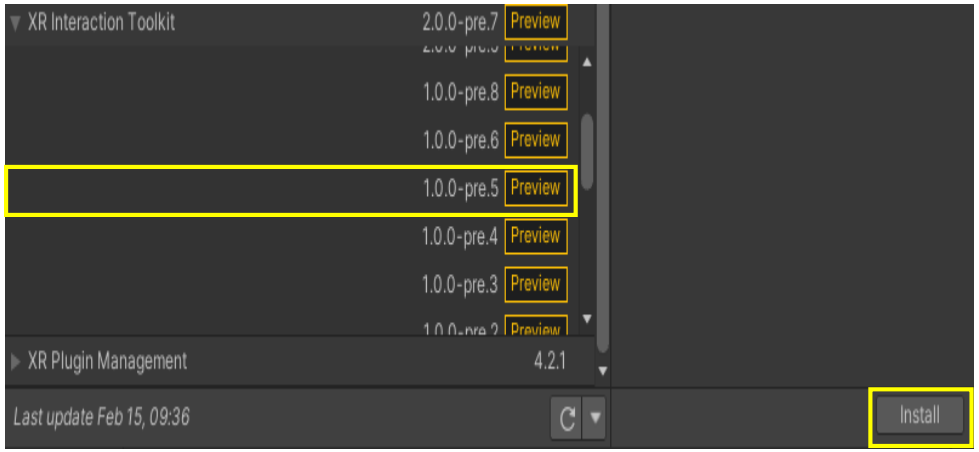
  See other versions 클릭

- 4.2.0-pre.12 Preview 클릭 후 Install

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 설정 _ Package Manager

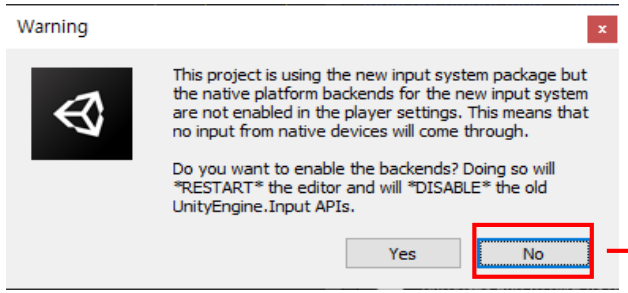




- XR Interaction Toolkit 왼쪽 화살표 클릭

- See other versions 클릭

- 1.0.0-pre.5 Preview 클릭 후 Install

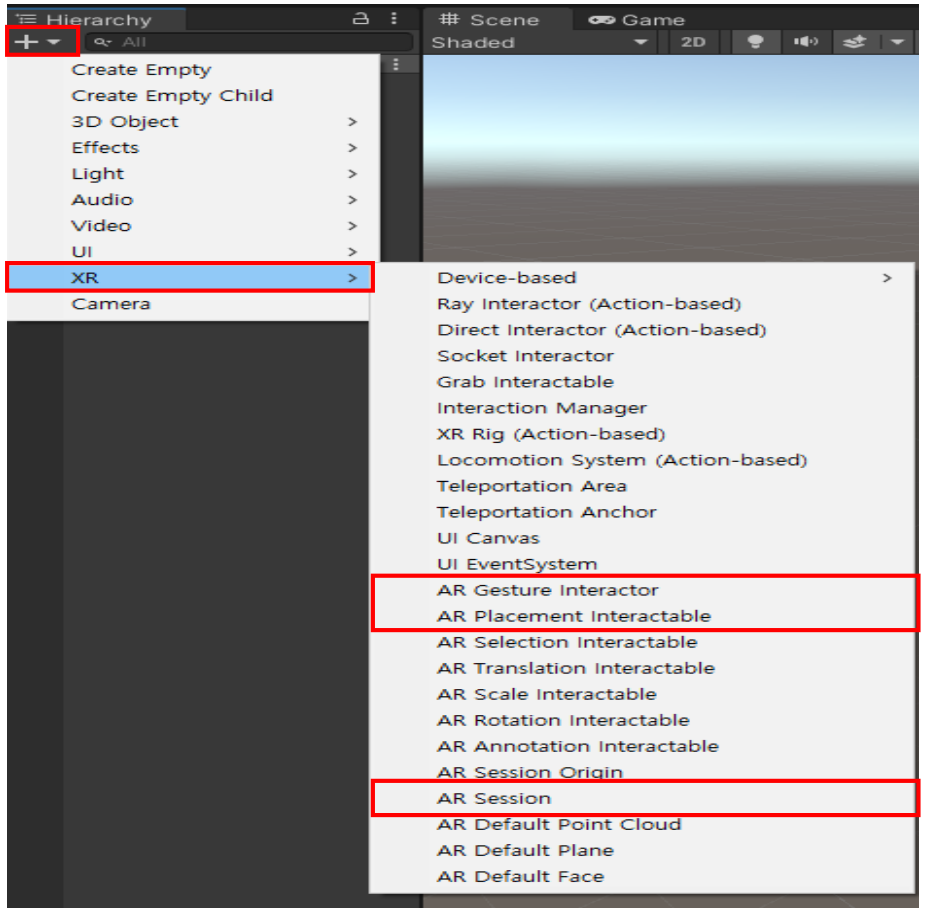


No

Package Manager 종료!

AR 지형인식 응용방법 [큐브설치 및 동작]

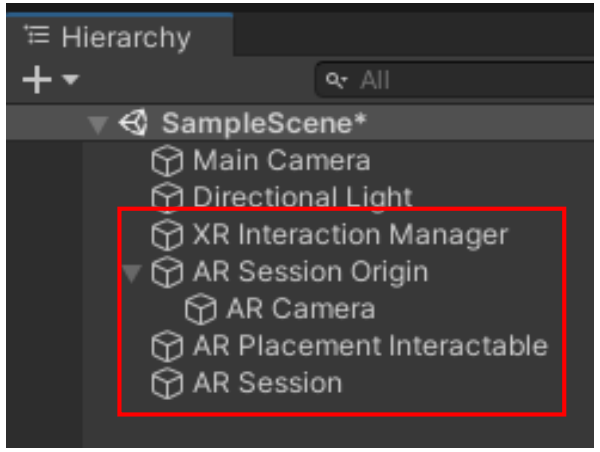
▶ 유니티(Unity) 모델링



- **Hierarchy** 창의 + 버튼을 클릭해 XR 선택

AR Gesture Interactor
AR Placement Interactable
AR Session

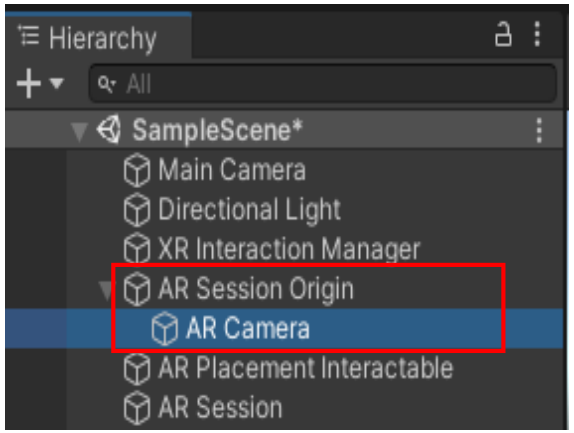
추가!



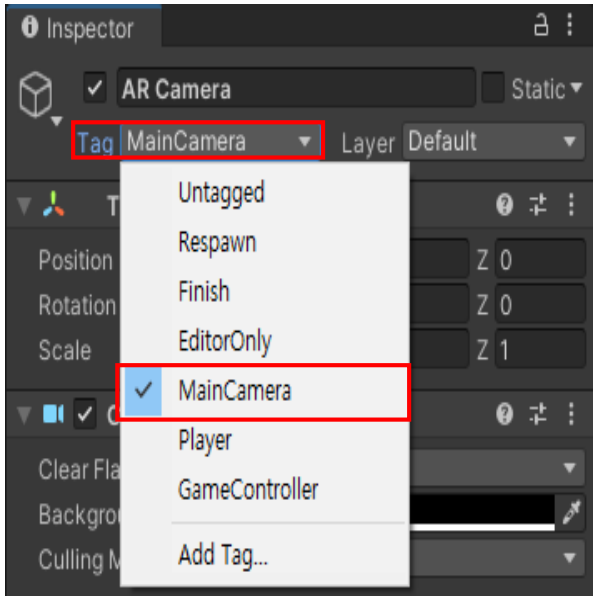
Hierarchy창에 생성확인

AR 지형인식 응용방법 [큐브설치 및 동작]

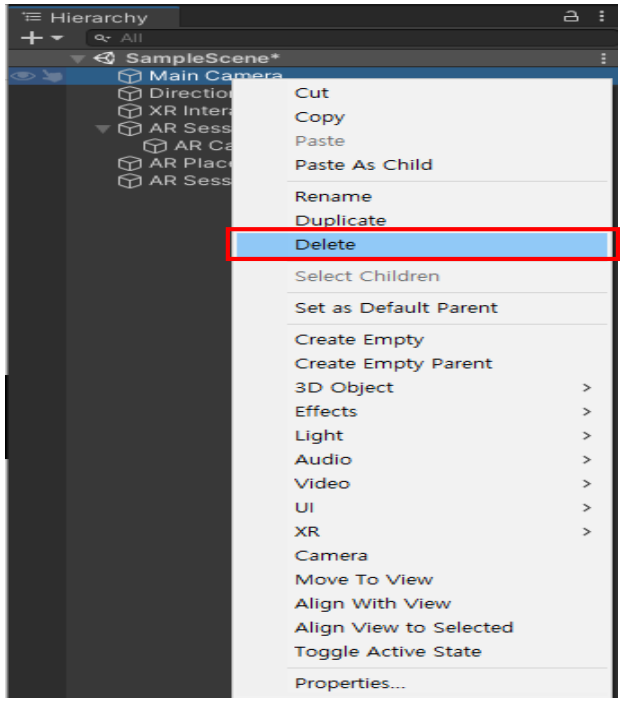
▶ 유니티(Unity) 모델링



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



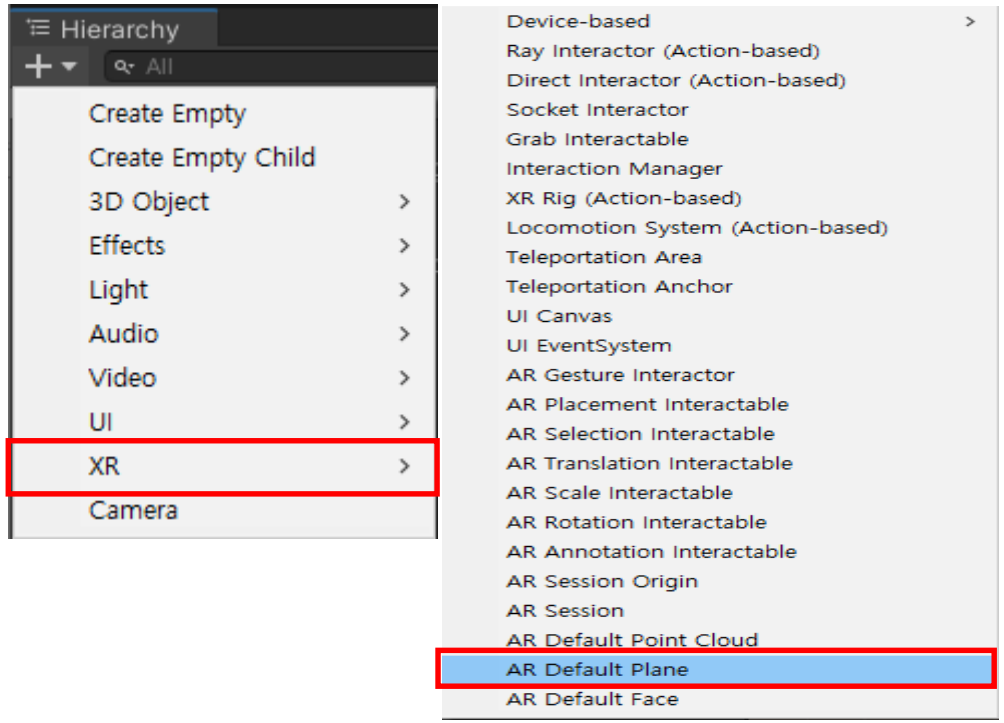
- **Inspector**창의 **Tag** 클릭 후 **MainCamera** 클릭

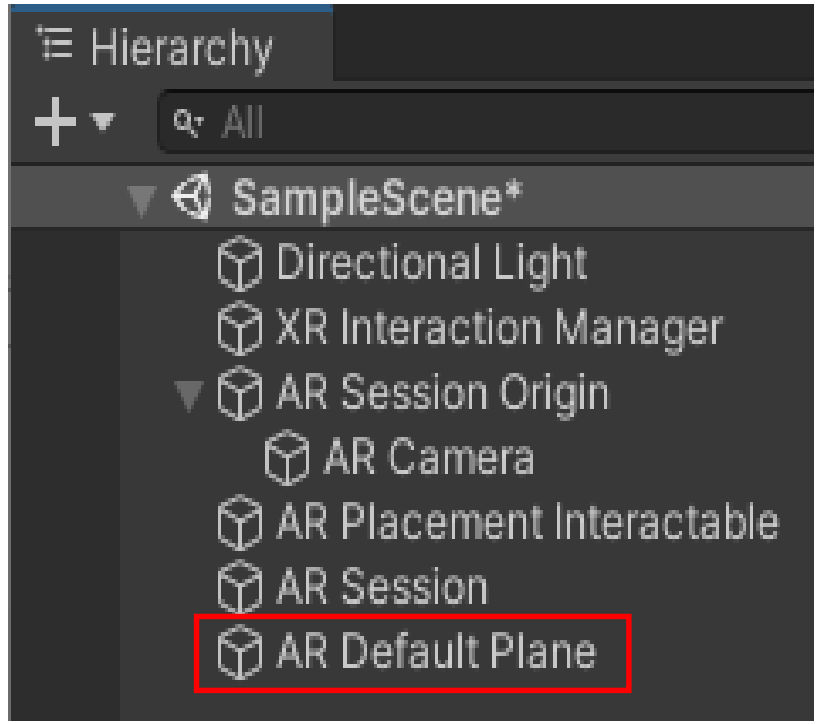


- **Hierarchy** 창의 **MainCamera** 삭제 (Delete키 or 우클릭-Delete)

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링





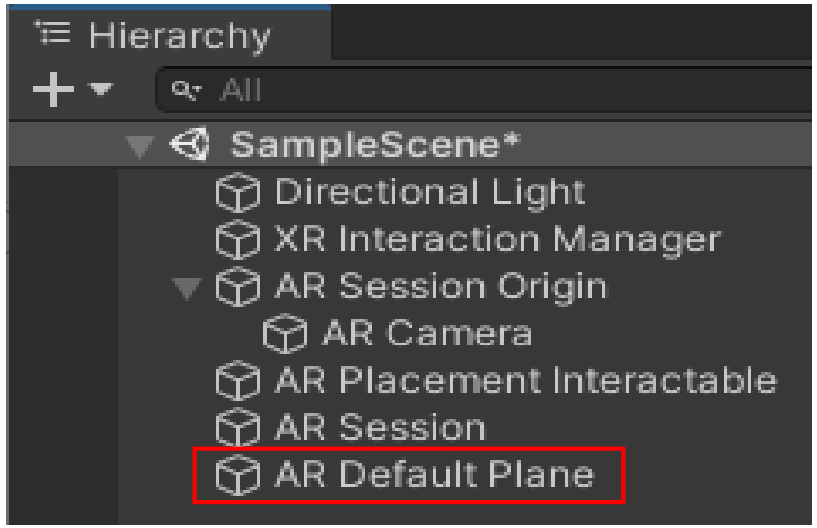
- **Hierarchy** 창의  클릭 - **XR** 선택 - **AR Default Plane** 클릭

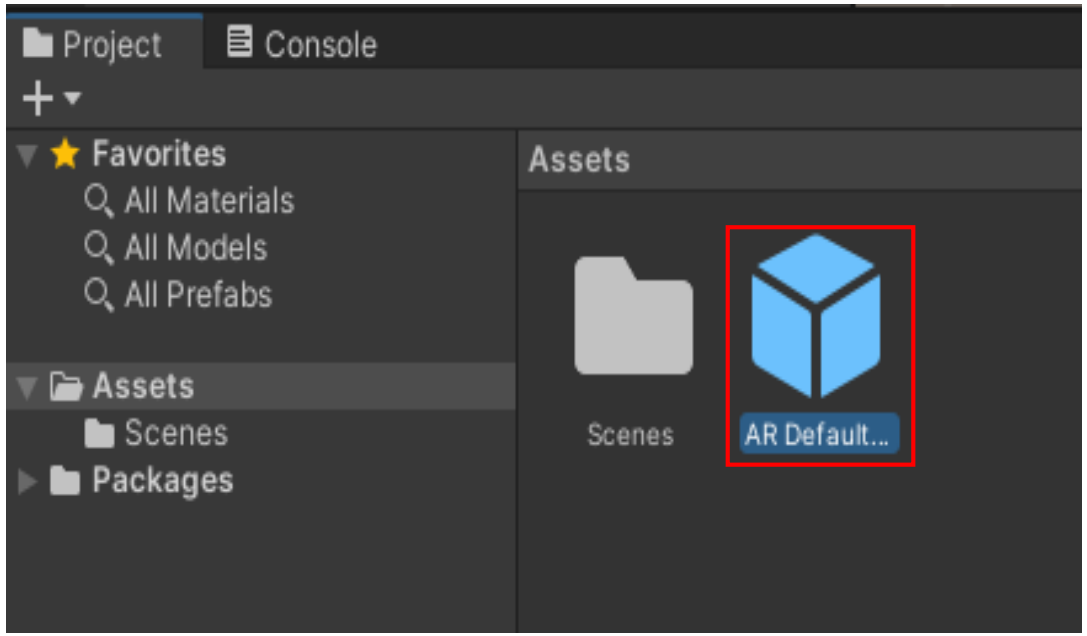
- **Hierarchy** 창에 

생성확인

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링





- **Hierarchy**창의 AR Default Plane 을

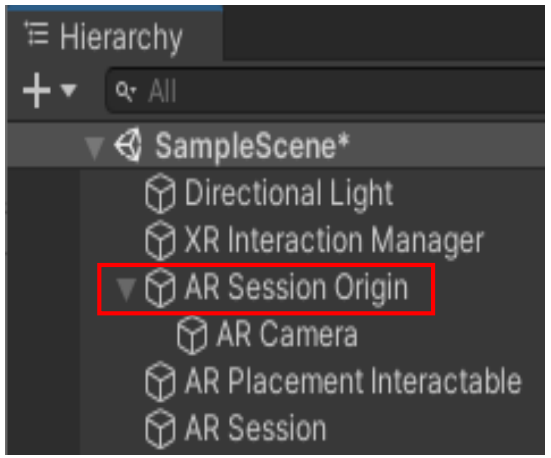
  하단 **Project**창의 **Assets** 폴더로 **드래그 앤 드랍**

- **Assets**폴더에 AR Default... 아이콘 생성확인

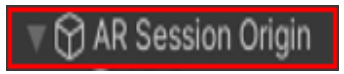
  └ **Hierarchy** 창의 AR Default Plane 삭제

AR 지형인식 응용방법 [큐브설치 및 동작]

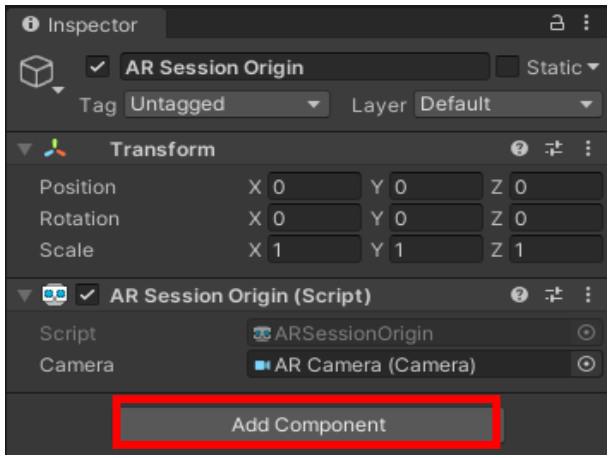
▶ 유니티(Unity) 모델링



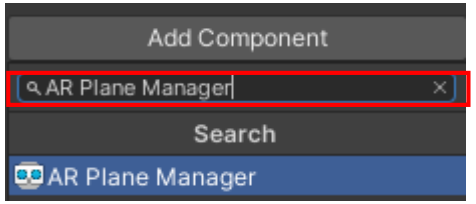
- **Hierarch 창의**



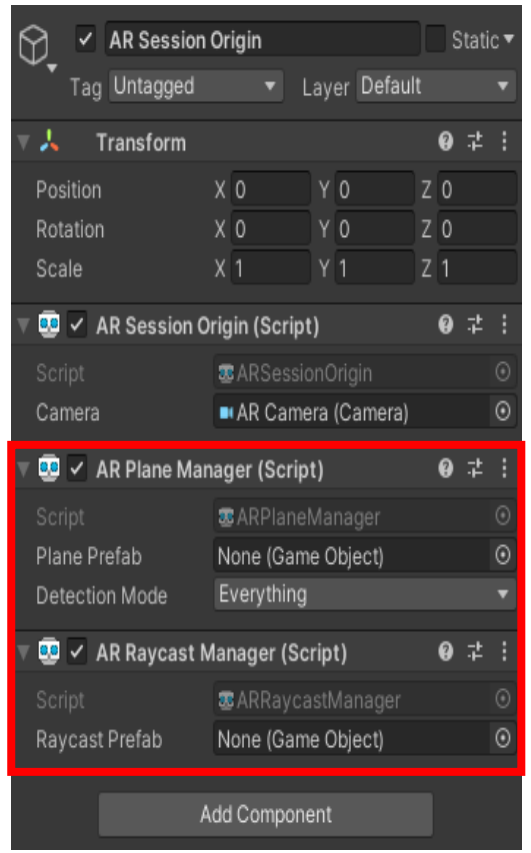
클릭!



- **Inspector**창 - **Add Component** 클릭
  - **AR Plane Manager** 입력 후 클릭



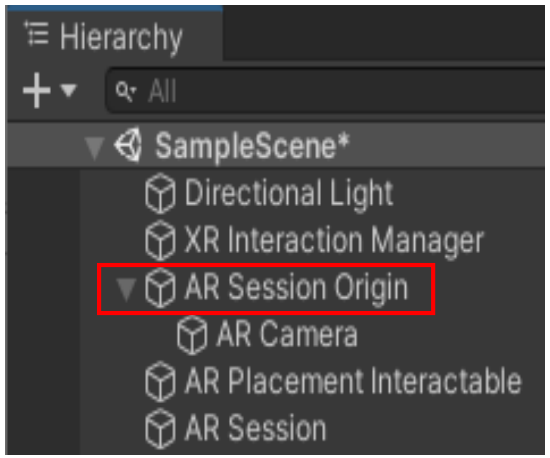
- **동일한 방식으로 AR Raycast Manager** 추가



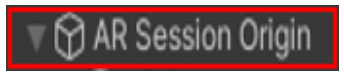
생성확인

AR 지형인식 응용방법 [큐브설치 및 동작]

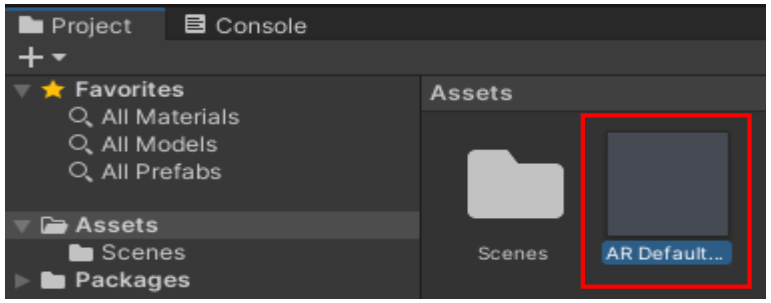
▶ 유니티(Unity) 모델링



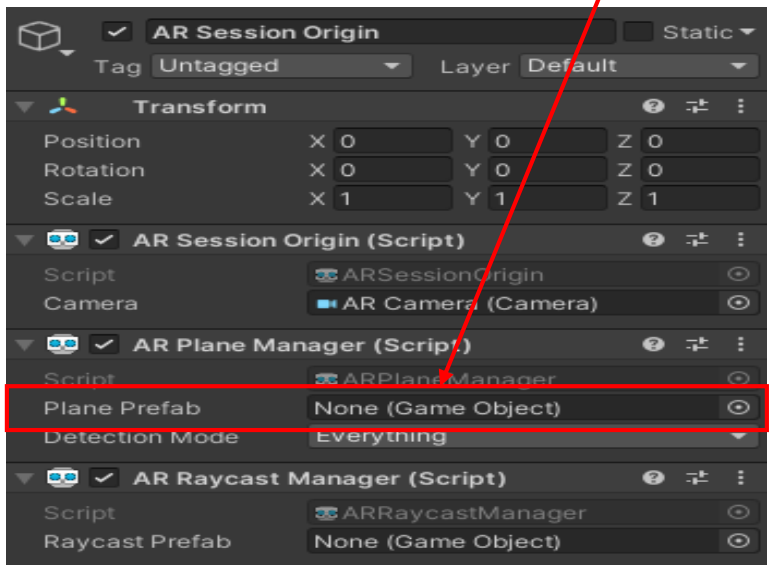
- Hierarch 창의



클릭!

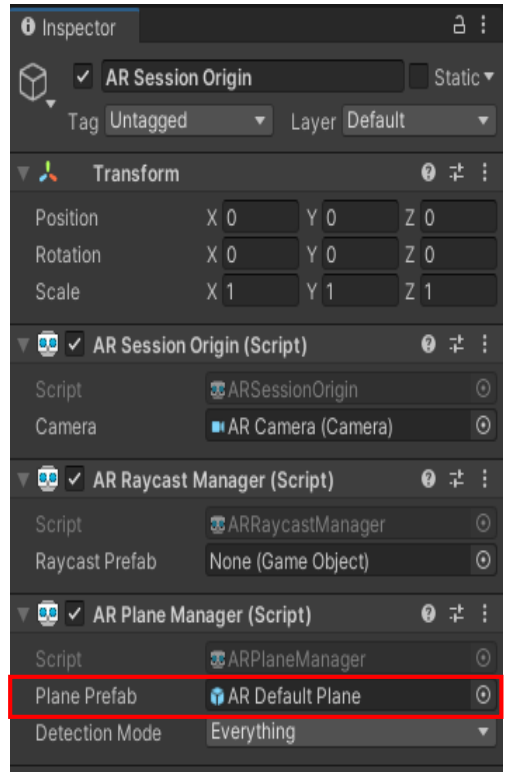


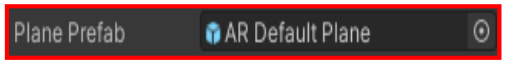
Project창 - AR Default Plane



- Inspector창의 AR Plane Manager

  - Plane Prefab에 **드래그 앤 드랍**

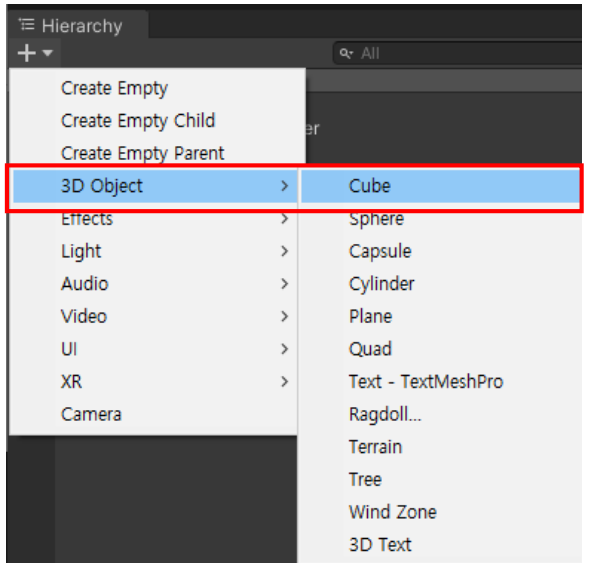




변경확인

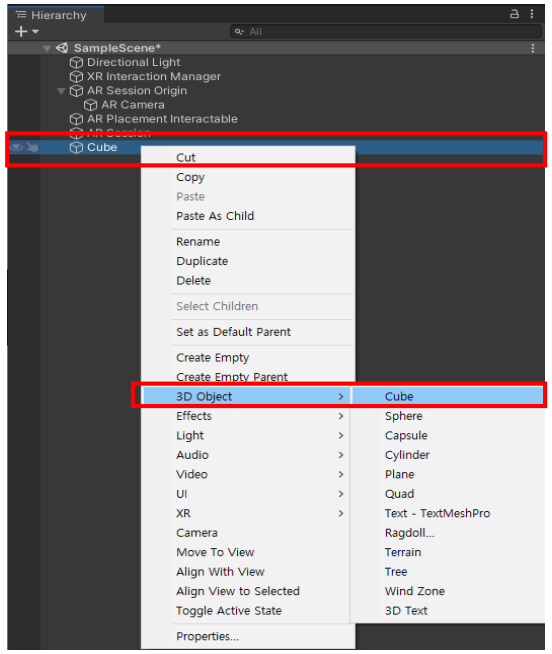
AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



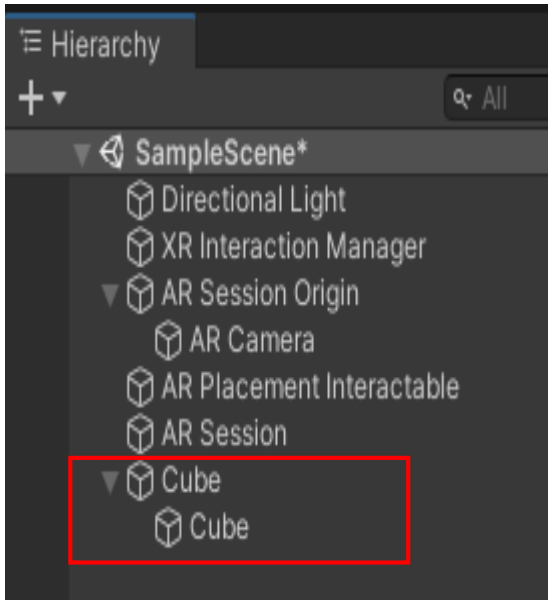
- Hierarch 창의  클릭

  └ 3D Object – Cube 선택

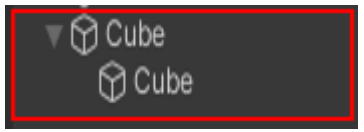


- 생성된 Cube 마우스 우클릭

  └ 3D Object – Cube 선택

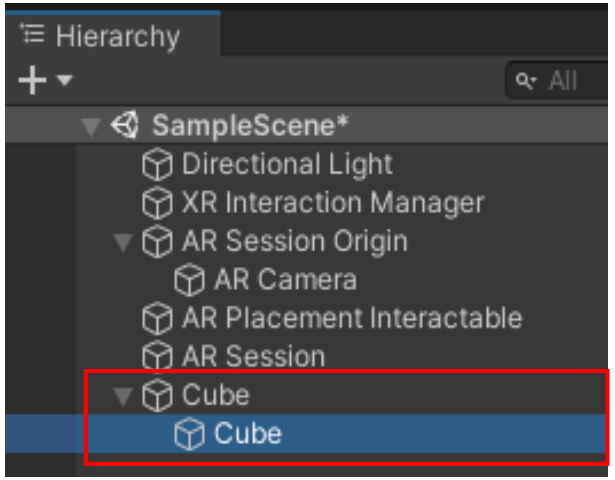


- Hierarch 창 Cube 생성확인



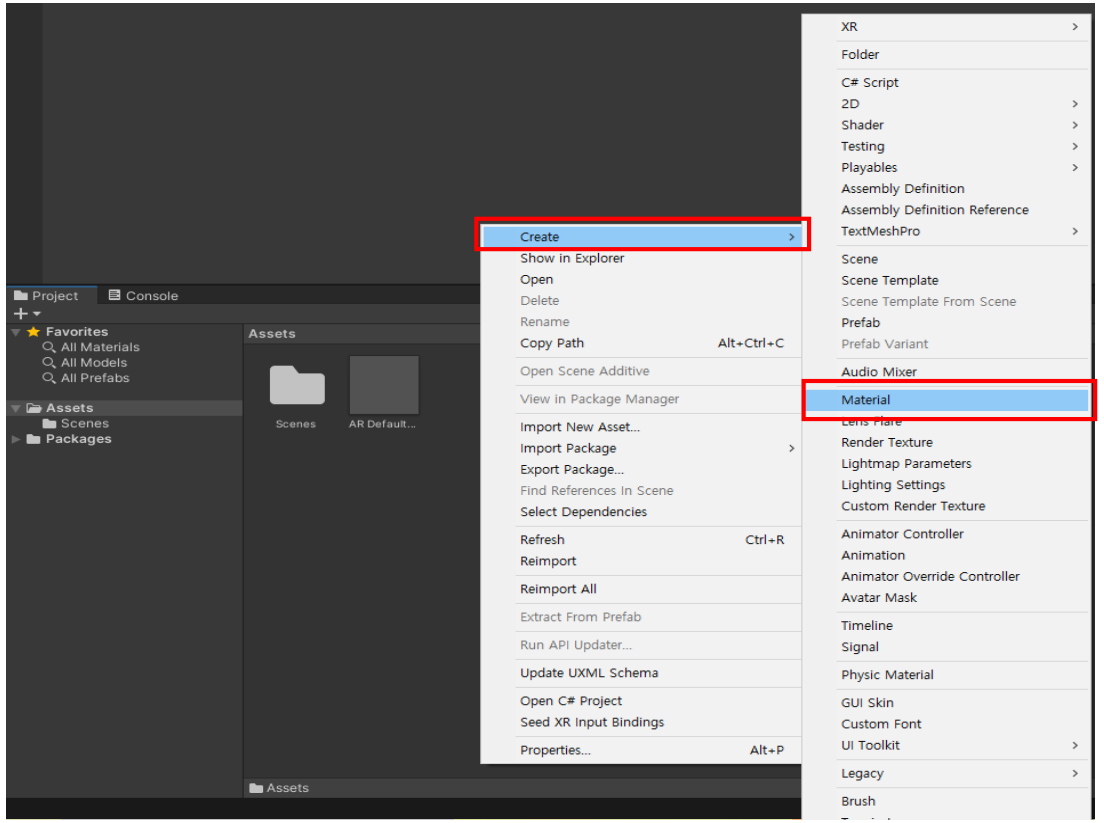
AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



- 2번째 Cube클릭 - F2(이름바꾸기)

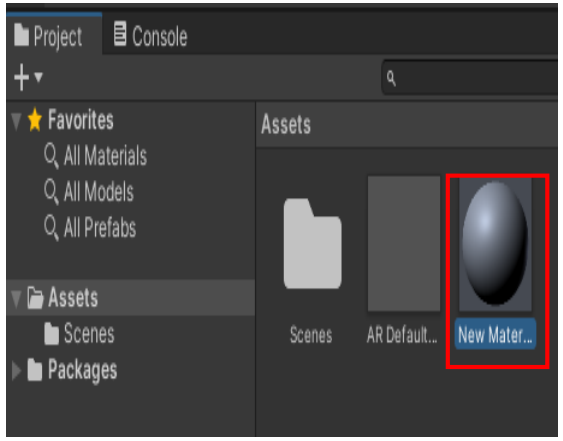
  - **Selection Cube**입력 후 Enter



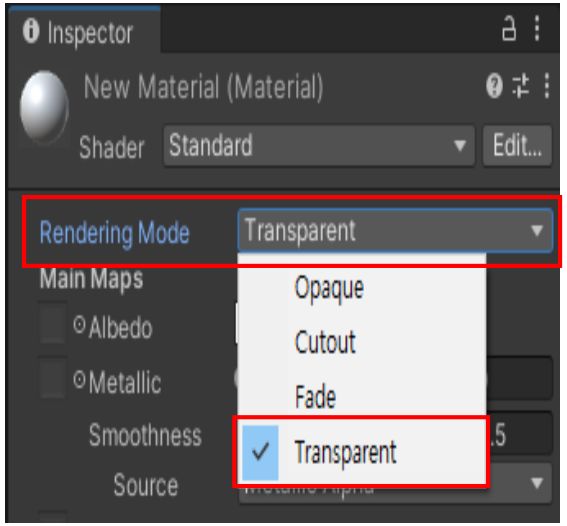
- **Project** 창 빈 공간에 마우스 우클릭 – **Create** – **Material** 클릭

AR 지형인식 응용방법 [큐브설치 및 동작]

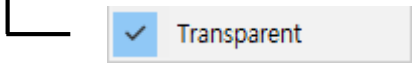
▶ 유니티(Unity) 모델링



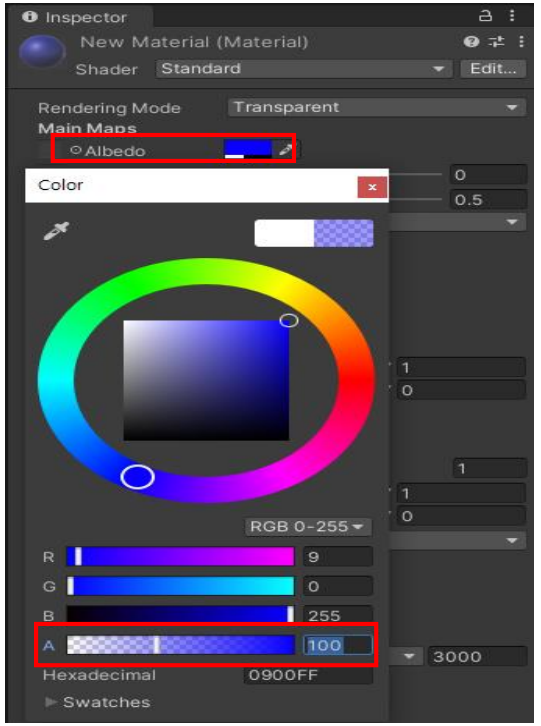
- **Project**창의 **New Material** 클릭



- **Inspector**창



클릭



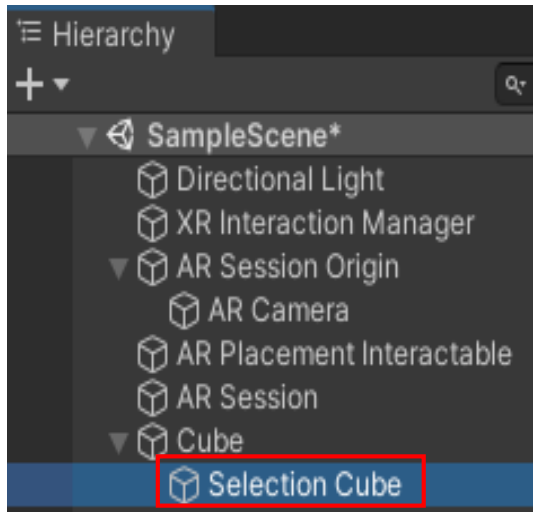
- **Albedo** 흰색칸 클릭

파란색변경 및 **A값 100**으로 수정

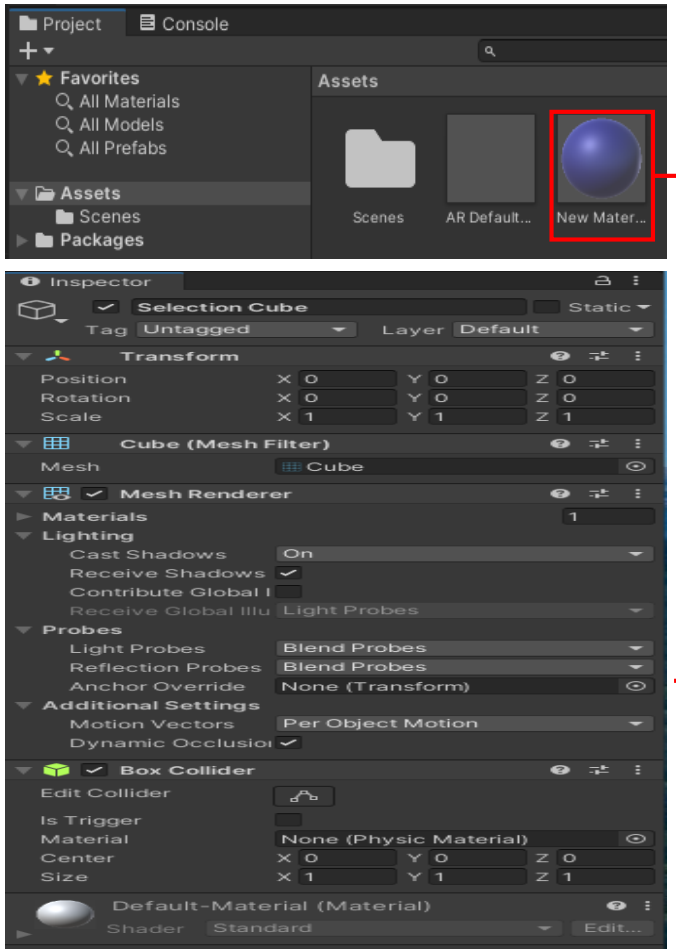
Color창 닫기

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



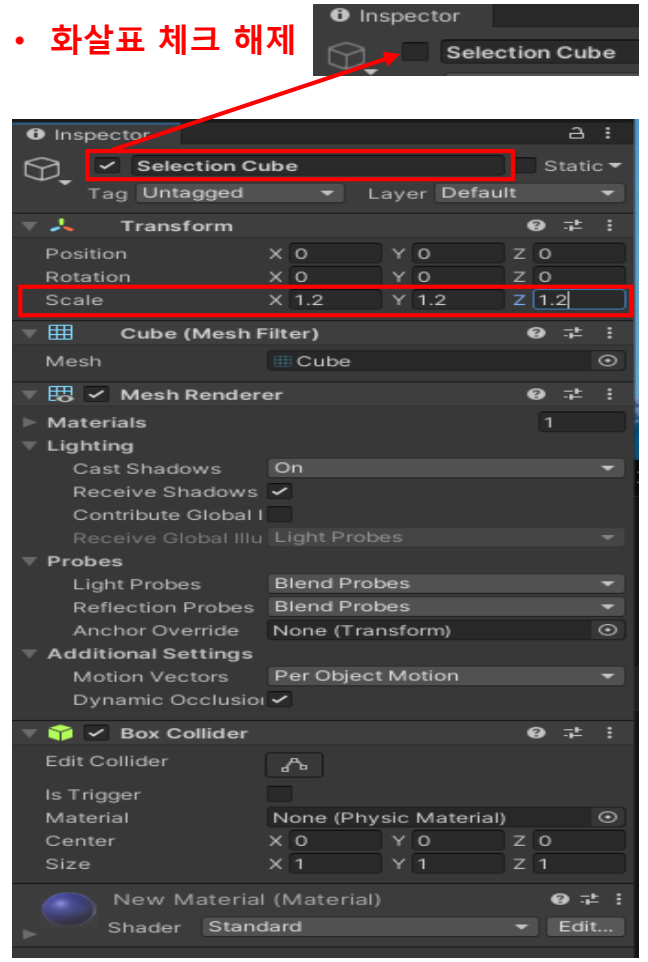
- **Hierarchy - Selection Cube** 클릭



- **Project**창 – **New Material**

  Inspector 창 빈 곳에 **드래그 앤 드롭**

- 화살표 체크 해제

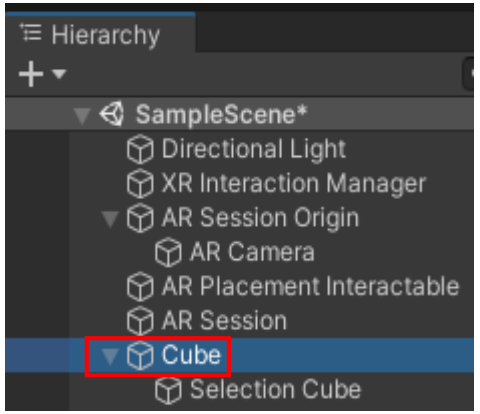


- **Inspector 창 – Scale**

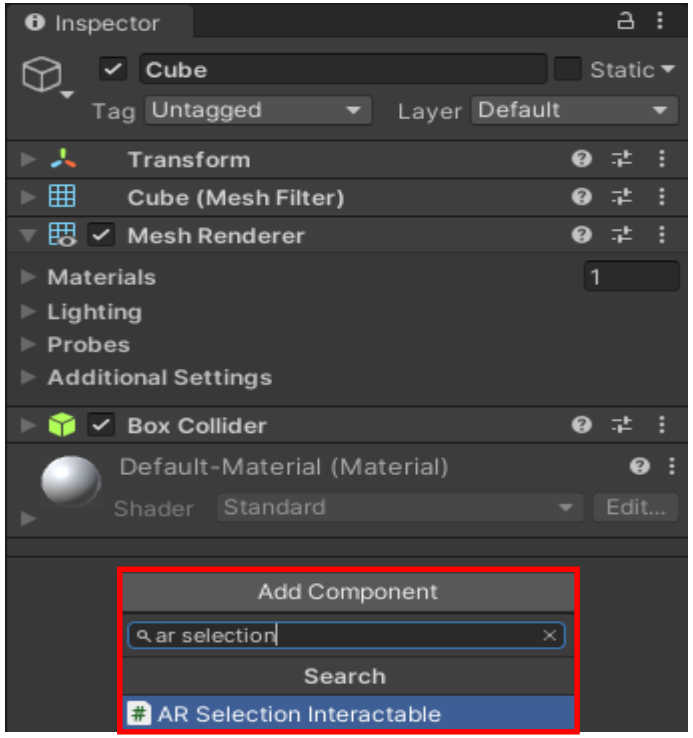
  X, Y, Z값 1.2로 수정

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



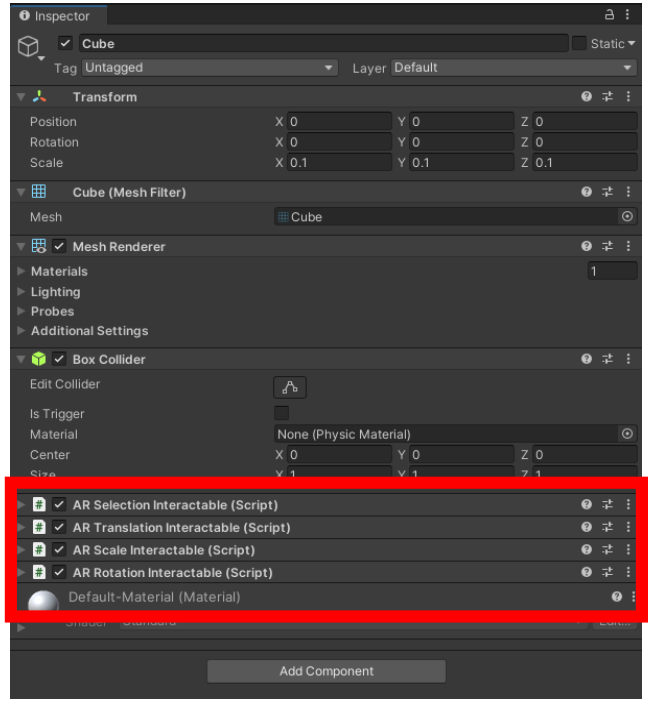
- **Hierarchy**창의 **Cube** 클릭



- Inspector창 - Add Component

  - **AR Selection** 입력

  - **AR Selection Interactable** 클릭



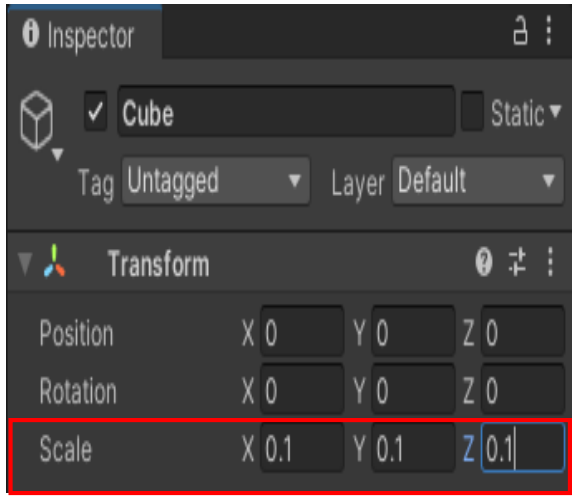
- **AR Translation Interactable** ,

  AR Scale Interactable,

  AR Rotation Interactable 추가

AR 지형인식 응용방법 [큐브설치 및 동작]

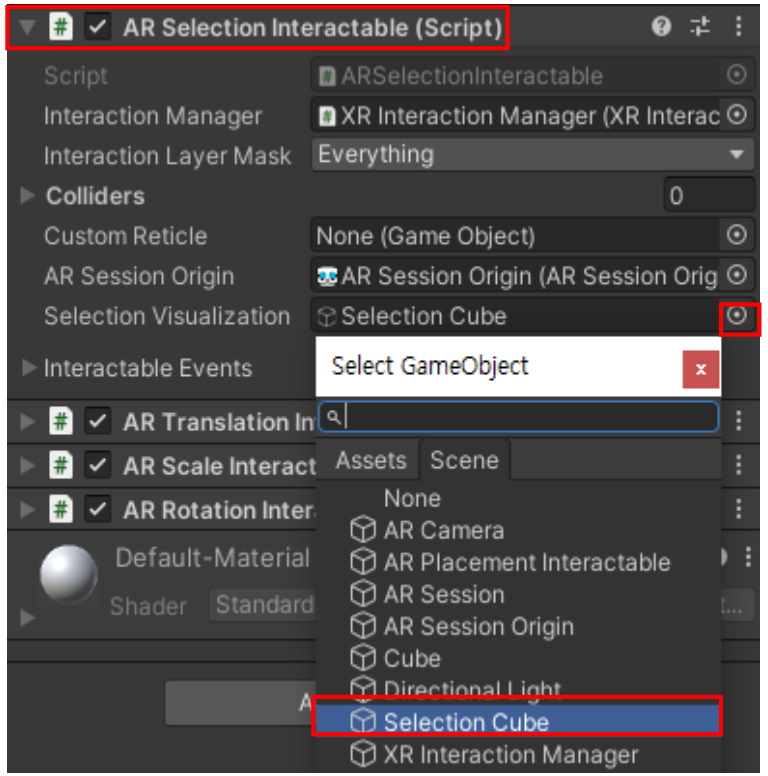
▶ 유니티(Unity) 모델링



Hierarchy창 - Cube 클릭

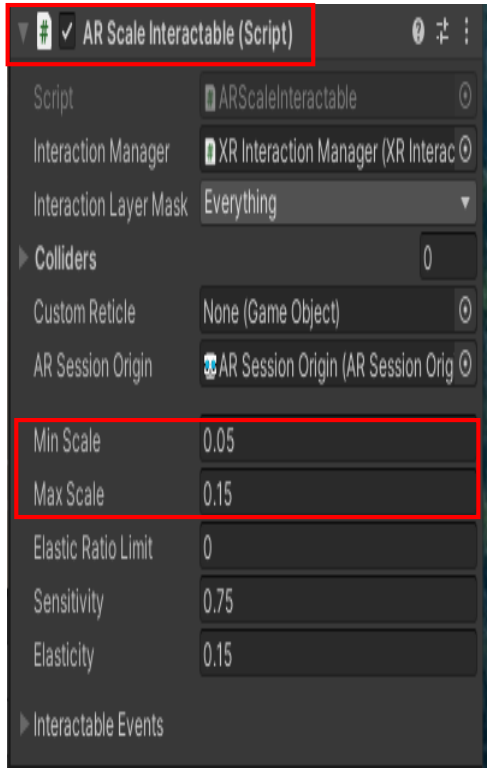
- Inspector창 – Transform

└ Scale X, Y, Z 값 0.1로 수정



AR Selection Interactable – Selection Visualization

-  버튼클릭 - Selection Cube 더블클릭



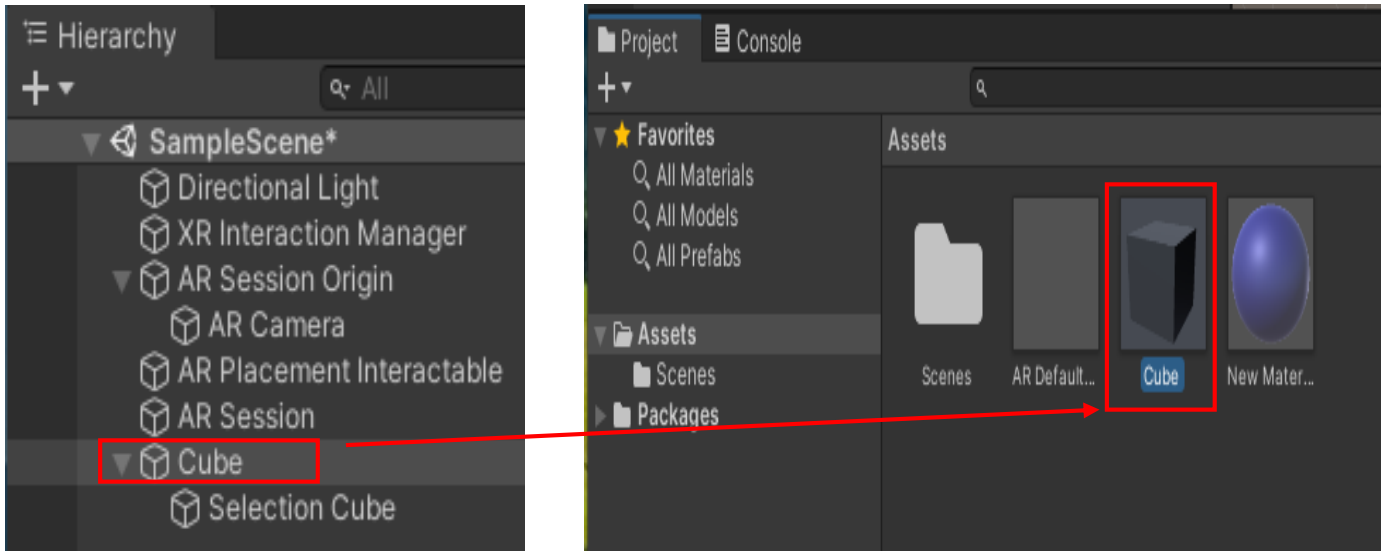
AR Scale Interactable

- Min Scale = 0.05

- Max Scale = 0.15

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



- **Hierarchy**창 – **Cube 클릭 - Project**창 빈 곳에 **드래그 앤 드롭**

  Project창 - **Assets**폴더 - 

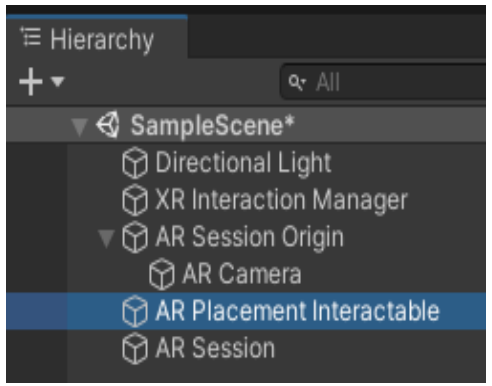
 모양 생성 확인

  - **Hierarchy**창 **Cube** 클릭 후 **Delete 눌러** 삭제

- **Cube 삭제 된 Hierarchy 창**

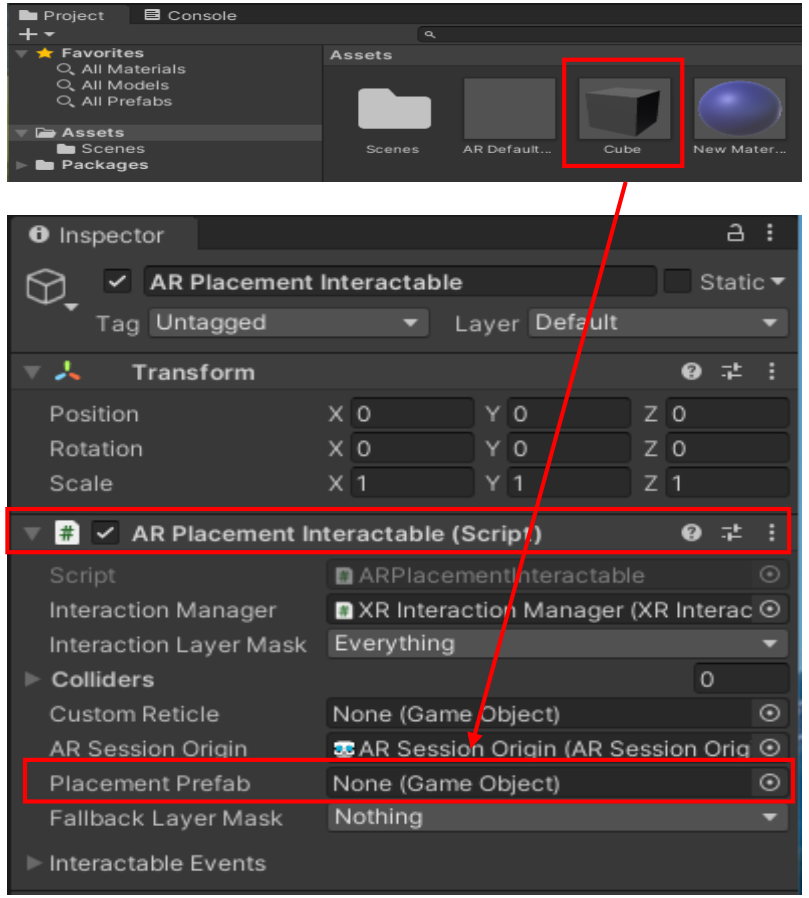
AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링



- **Hierarchy**창

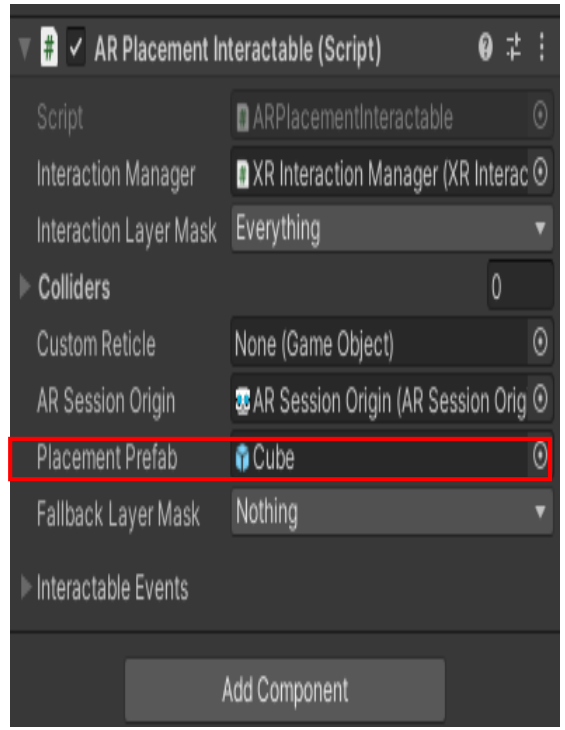
  AR Placement Interactable 클릭



- Project창의 **Cube** 를 AR Placement Interactable 의

  Inspector – **AR Placement Interactable**

  – **Placement Prefab**에 **드래그 앤 드롭**

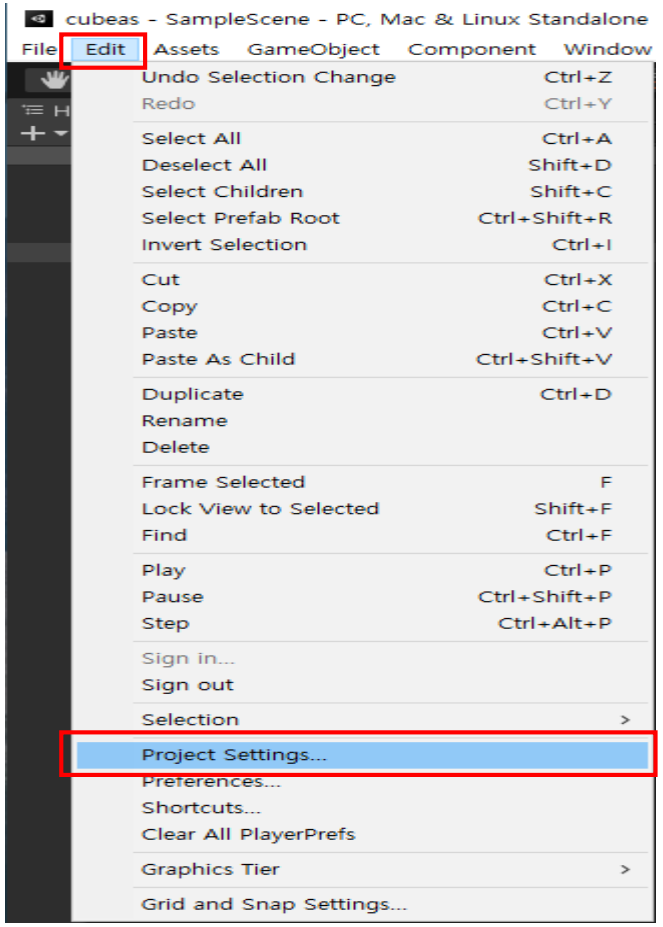


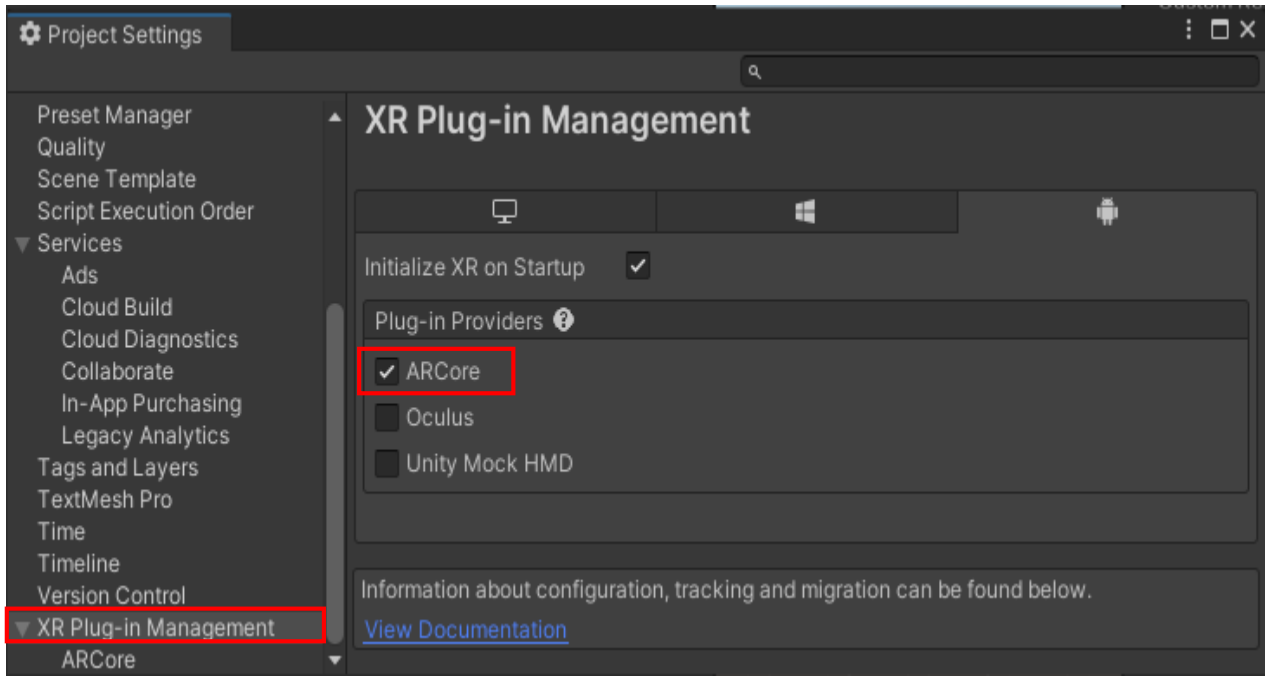
- None (Game Object) ->

  Cube로 변경 확인

AR 지형인식 응용방법 [큐브설치 및 동작]

▶ 유니티(Unity) 모델링





클릭

체크

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

체크 후 **Project Settings** 닫기

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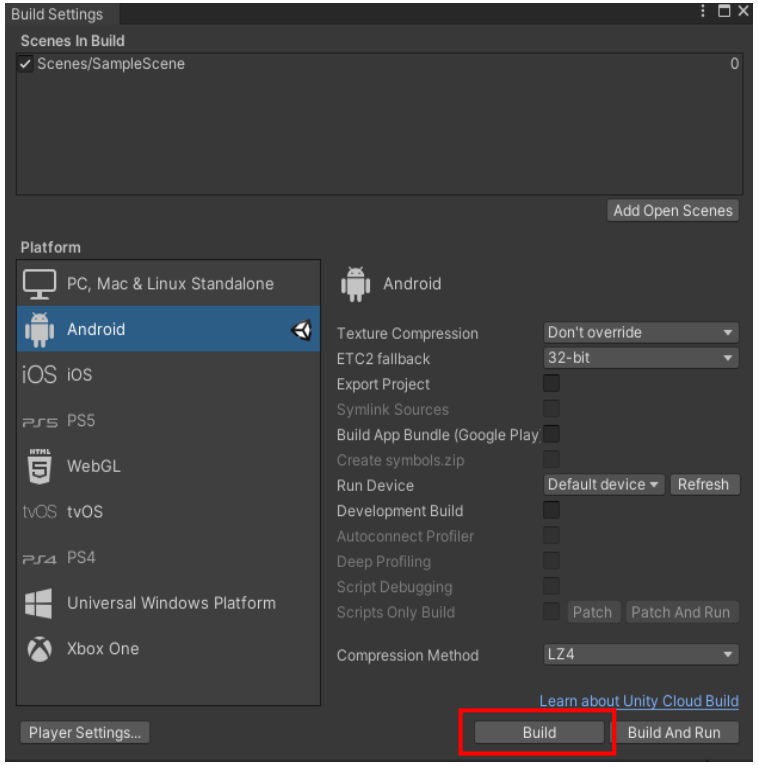
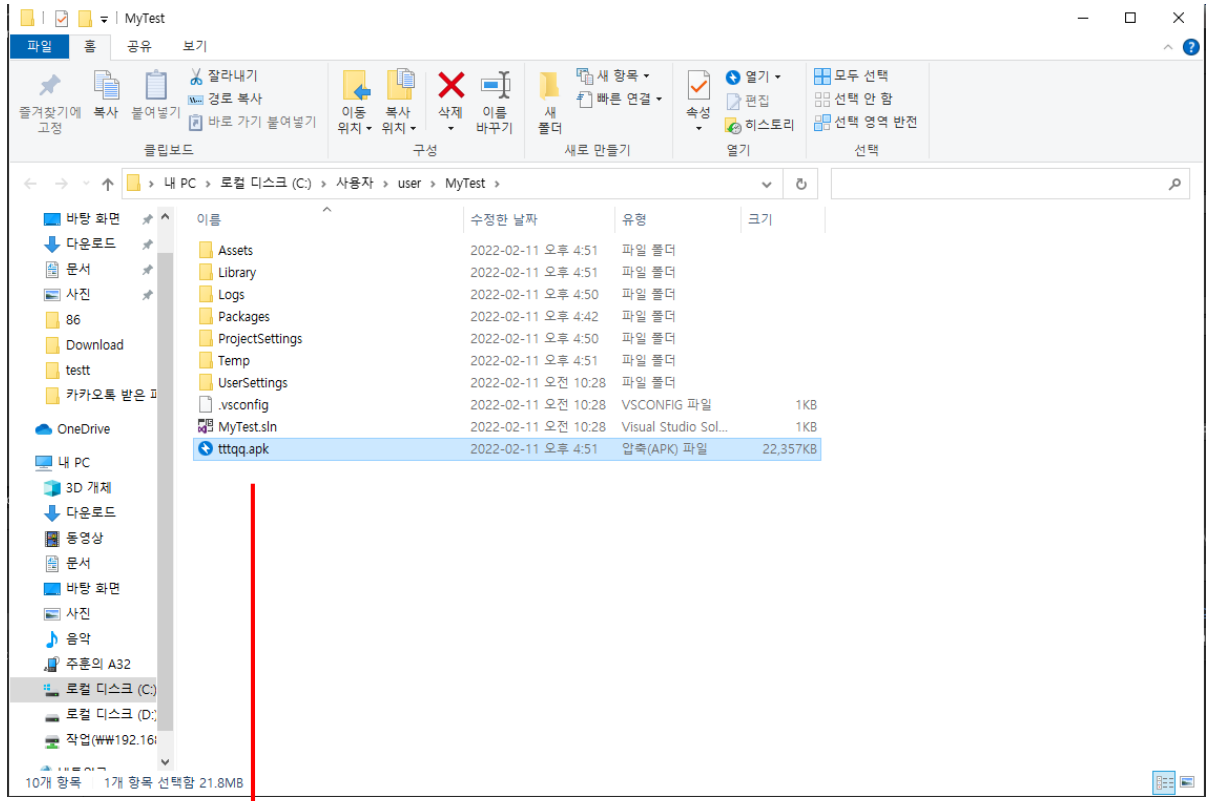
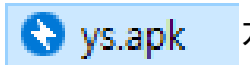
▶ Android APK 빌드하기





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

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

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▶ 지형인식 응용