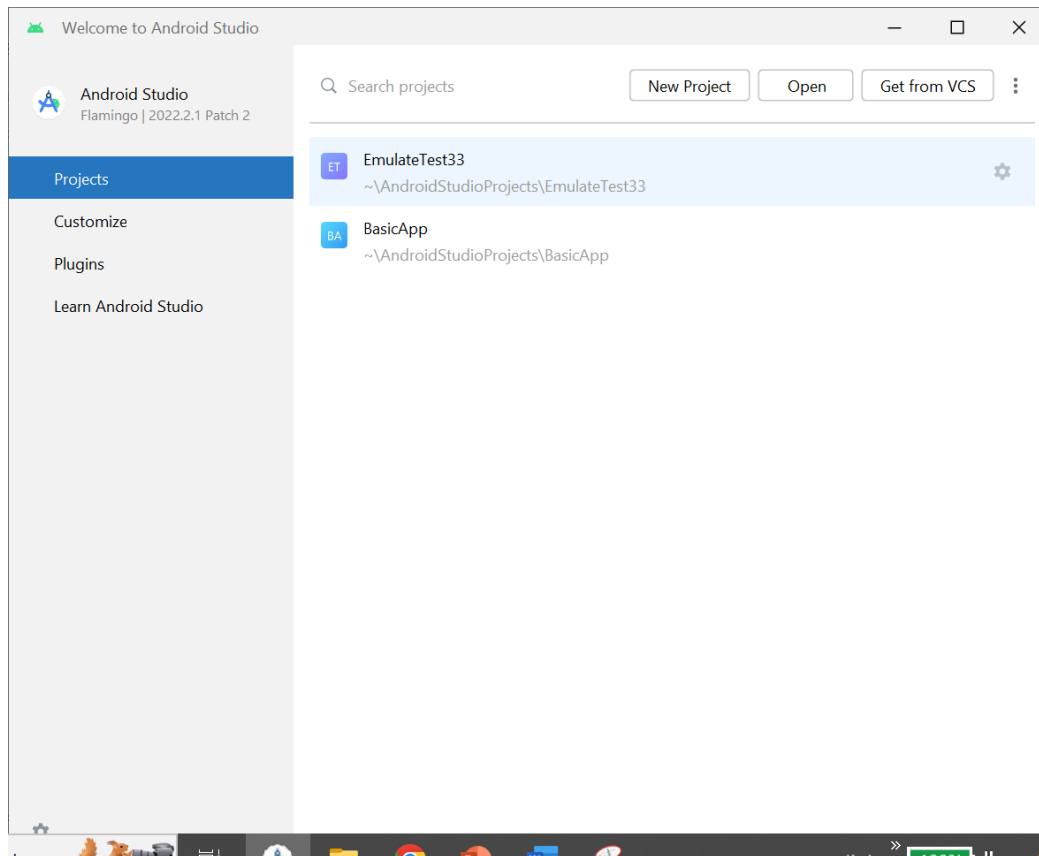# University of Central Florida
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Android Studio emulator

- Each instance of the Android Emulator uses an *Android virtual device (AVD)* to specify the Android version and hardware characteristics of the simulated device.
- To effectively test an app, create an AVD that models each device the app is designed to run on.
- Each AVD functions as an independent device with its own private storage for user data, SD card, and so on.
- By default, the emulator stores the user data, SD card data, and cache in a directory specific to that AVD.
- When launching the emulator, it loads the user data and SD card data from the AVD directory.

1. Create an Android project
   a. Launch Android Studio
   b. Create a new project
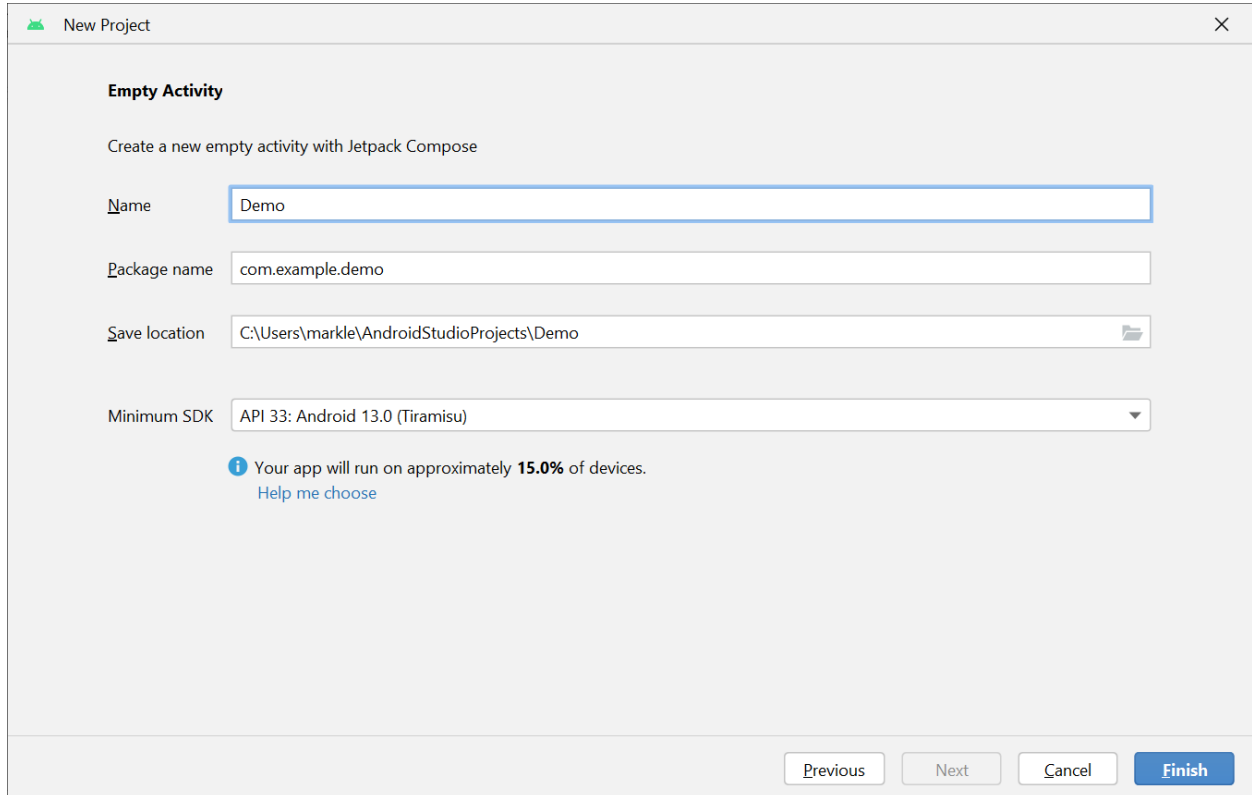
c. Ensure **Phone and Tablet** tab is selected
d. Select **Empty Activity**
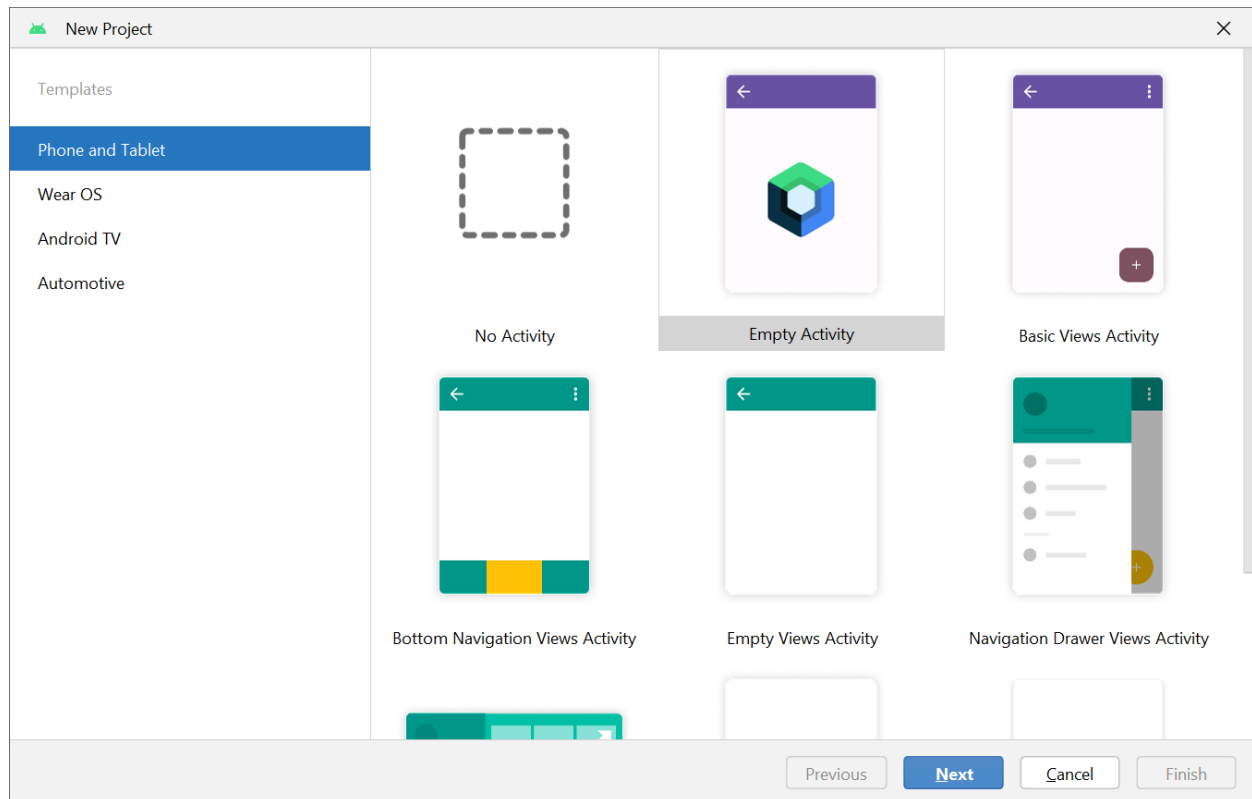
e. Name field: name project
f. Package name: leave intact
g. Save location: leave intact; ensure directory location has **NO** spaces
h. Minimum SDK: API 33: Android 13.0 (Tiramisu)
i. **The Emulator version and SDK version MUST be compatible!**

New Project ✕

Empty Activity

Create a new empty activity with Jetpack Compose

Name	Demo
Package name	com.example.demo
Save location	C:\Users\markle\AndroidStudioProjects\Demo 📁
Minimum SDK	API 33: Android 13.0 (Tiramisu) ▾

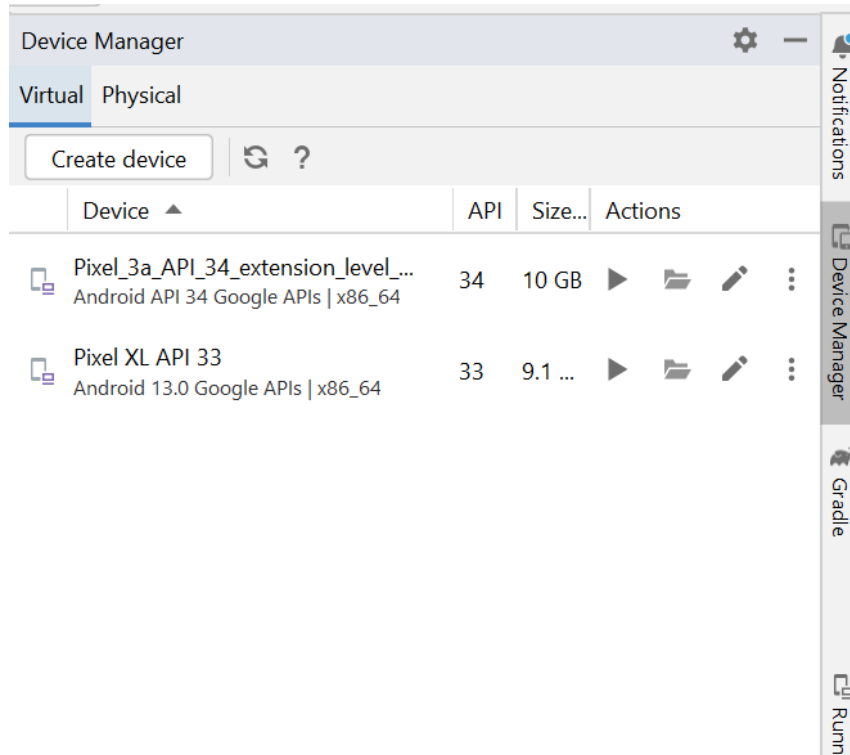ℹ️ Your app will run on approximately **15.0%** of devices.
Help me choose

Previous   Next   Cancel   **Finish**

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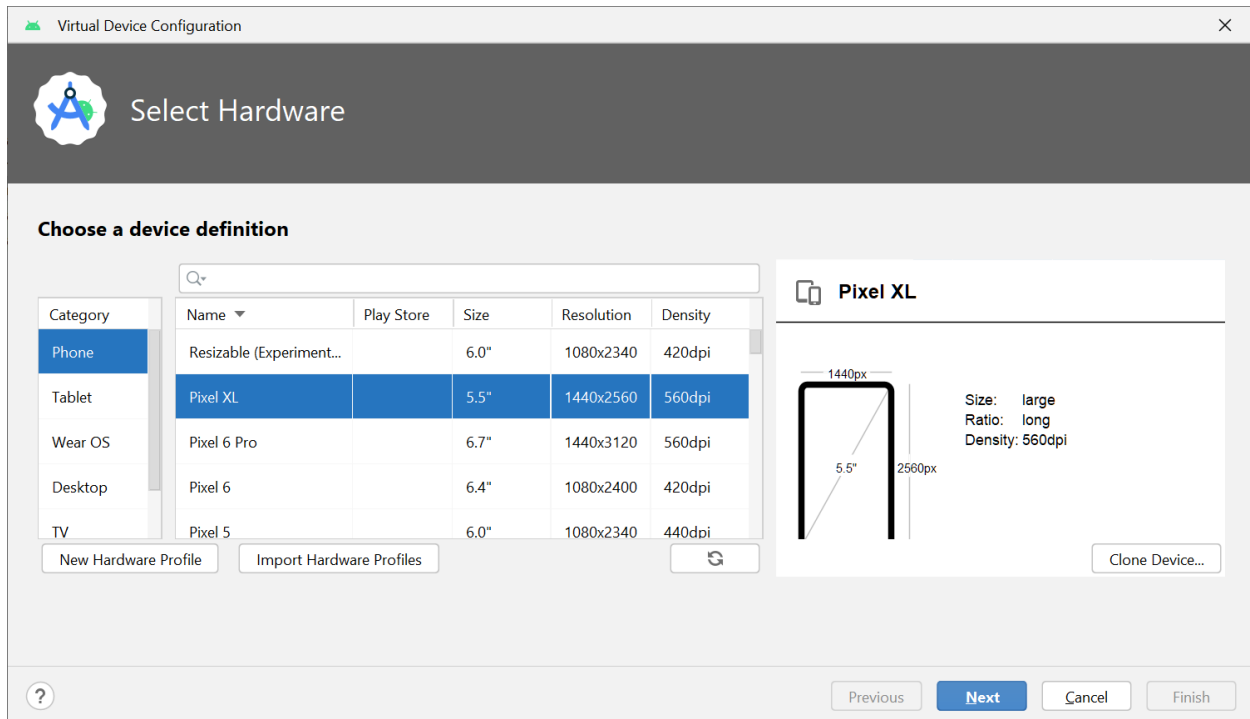## CEN 4360 Mobile Device Software Development

2. Create an Android Virtual Device
   a. https://developer.android.com/studio/run/managing-avds?hl=en
   b. Launch the Device Manager
   c. Click **Create device**

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d. The hardware profile defines the characteristics of a device as shipped from the factory. The Device Manager comes pre-loaded with certain hardware profiles, such as Pixel devices, and you can define or customize the hardware profiles as needed. Select the hardware configuration
    i. Phone
    ii. Pixel #

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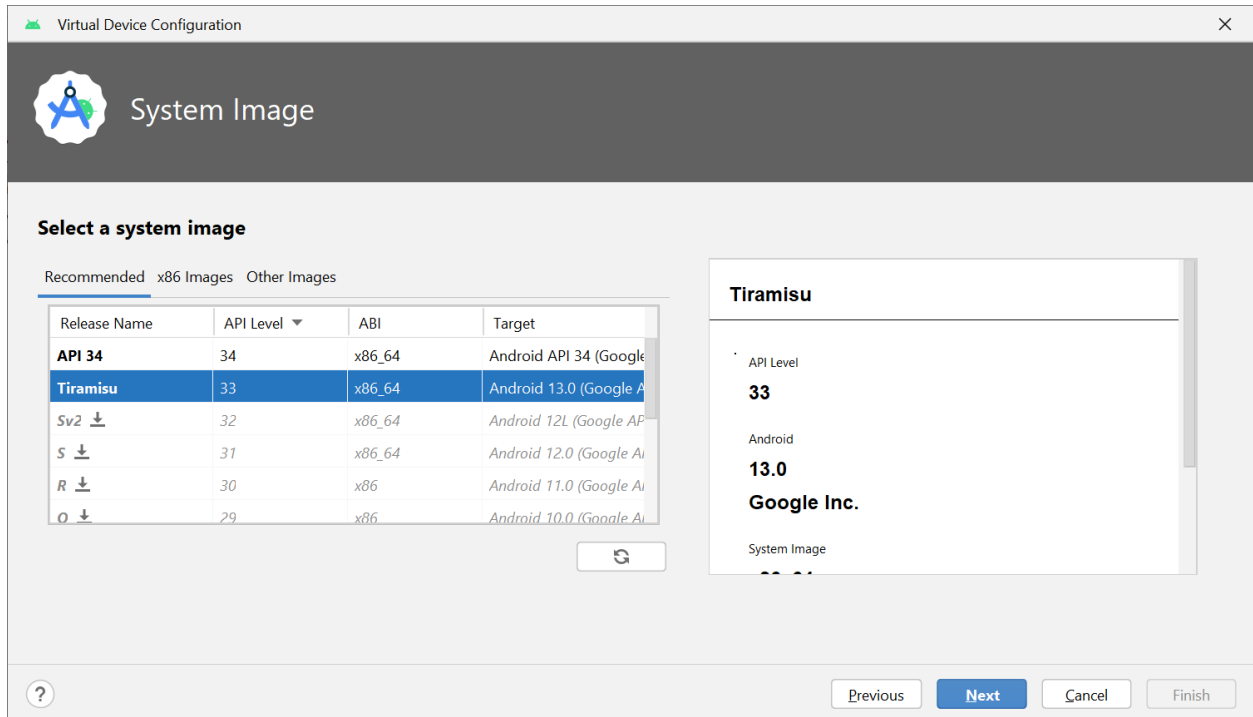## CEN 4360 Mobile Device Software Development

e. A system image labeled with Google APIs includes access to Google Play services. The Recommended tab lists recommended system images. The other tabs include a more complete list. The right pane describes the selected system image. The API level of the target device is important, because an app doesn't run on a system image with an API level that's lower than the one required by the app, as specified in the minSdk attribute in the app manifest file.

f. **If there is a download icon next to a system image, that image isn't currently installed on the development machine. Click the icon to download the system image. You must be connected to the internet to download system images.**

g. To determine which Android system images are installed, in a file browser, browse to the logged in user's AppData\Local\Android\Sdk\platforms folder. Example: C:\Users\markle\AppData\Local\Android\Sdk\platforms

‹ Users › markle › AppData › Local › Android › Sdk › platforms	∨ ↻	🔍 Search platforms

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Name	Date modified	Type	Size
📁 android-33	8/18/2023 8:48 PM	File folder	
📁 android-34	7/12/2023 3:45 PM	File folder	

nts

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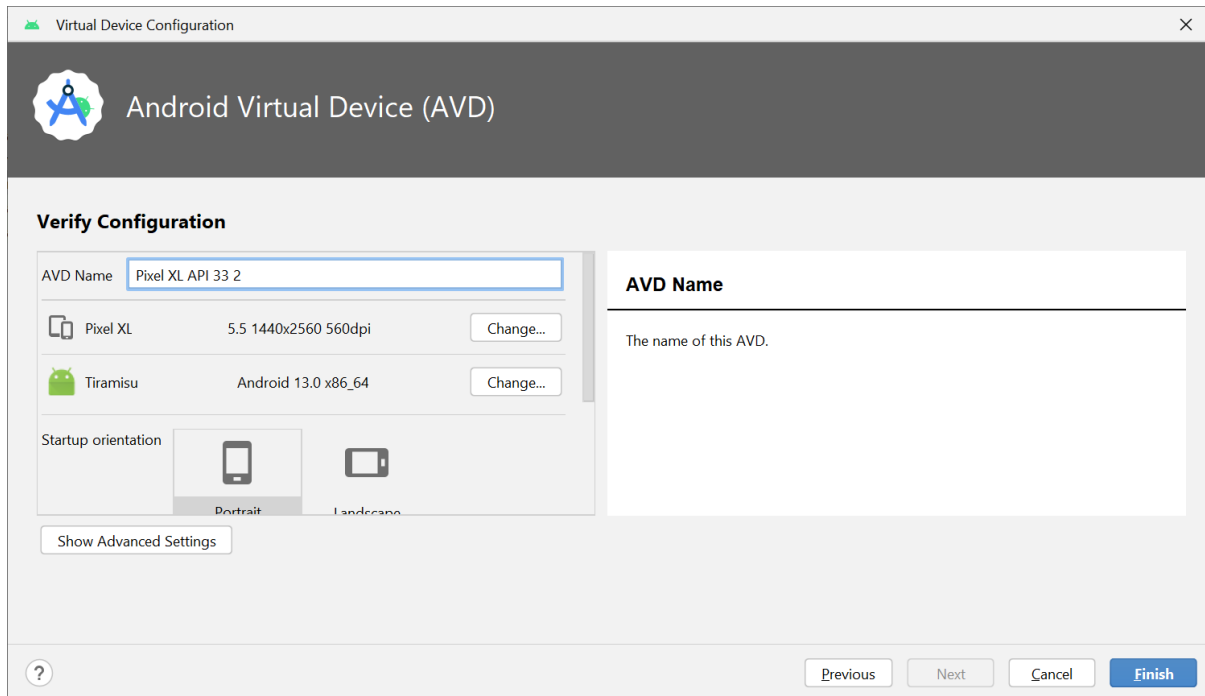### CEN 4360 Mobile Device Software Development

    h.   Select the system image
        i.   Tiramisu

i. Verify configuration

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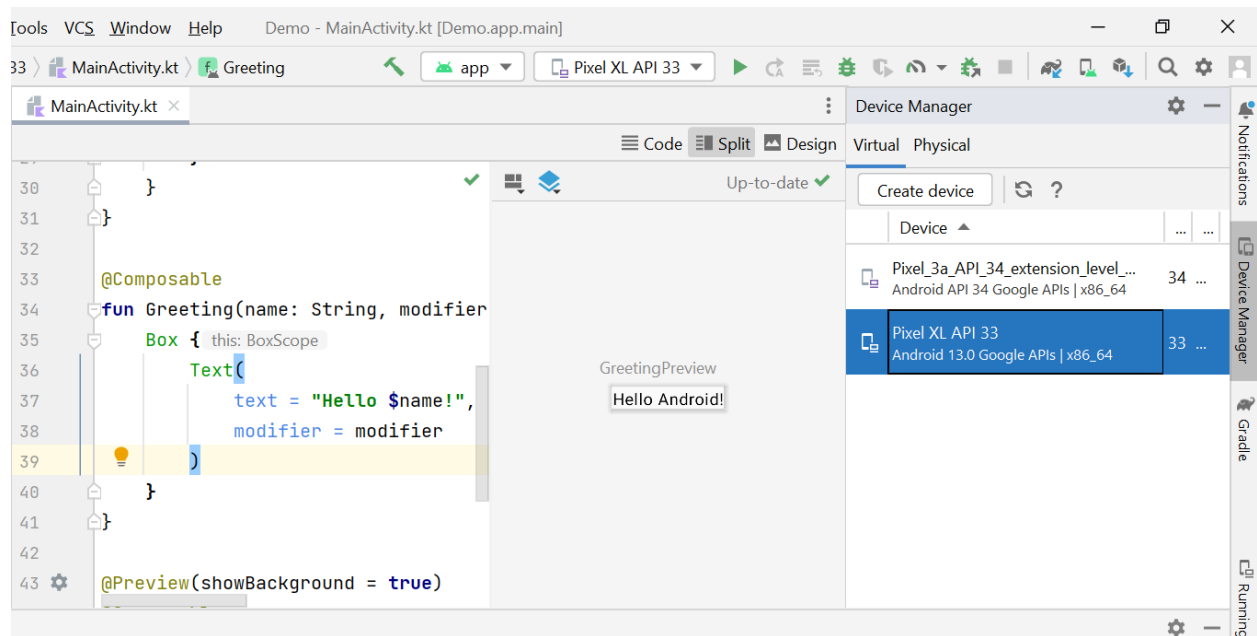3. Test Android app in Preview and emulator
   a. Test Android app in Preview
      i. Build the application
      ii. Build & Refresh the application then the Preview is updated
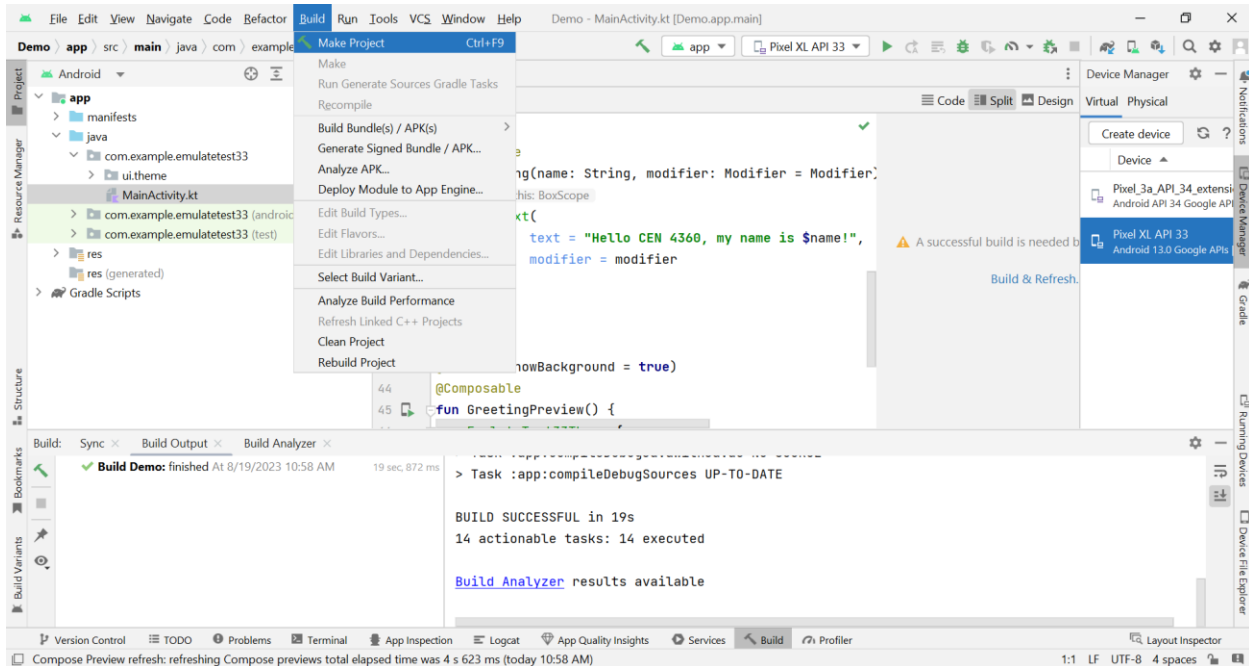
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b. Test Android app in emulator
   i. Select the desired emulator in the Device Manager window
   ii. Click the Run app button
   iii. To navigate the emulator screen,
   https://developer.android.com/studio/run/emulator?hl=en

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