Building Android apps with Jetpack Compose: prerequisites

To get the most out of this course, you need install Android Studio, and be able to run apps on a physical or virtual device.

Install Android Studio

Android Studio is the official IDE for Android app development. Check the system requirements [here](), then download the IDE from [here]().

Make sure you install version 2020.3.1 (Arctic Fox) or above, or you won't be able to create a Jetpack Compose project.

If you've previously installed an earlier version of Android Studio, we recommend that you restore the IDE's default settings, which resets any old settings Android Studio might be holding on to that could stop your code from running. To do this, go to the File menu, choose Manage IDE Settings, and then select the Restore Default Settings option.

Finally, open Android Studio and apply any updates it recommends.

Build a Compose project

Once you've installed Android Studio, it's a good idea to build and run a project to make sure Android Studio has been set up correctly.

To build the project, follow these steps:

1. Make sure the Projects option is selected, then click on "New Project".

2. On the next screen, make sure the Phone and Tablet option is highlighted, click on "Empty Compose Activity", then click on the Next button.

3. On the next screen enter a name of "Test Installation", a package name of "com.example.testinstallation", and accept the default save location. Notice that the language is set to Kotlin: this is because Jetpack Compose apps can only be developed using this language. Then choose a minimum SDK of API 21 (Android 5.0, known as Lollipop), which is the lowest version of Android Compose apps can run on. Finally, click on the Finish button.

4. Wait patiently for the app to build. Behind the scenes, Android Studio creates a complete folder structure including sample code, and downloads any necessary libraries.

Run the app

The final step is to make sure the app runs on a physical or virtual device.

Run the app on a physical device

If you have an Android device that's running Android 5.0 (Lollipop) or above, you can use it to run the app you've just built.

1. On your device, go to Settings → About Phone and tap the build number seven times (yes, really). This enables the developer options. Then, go to Settings → System → Advanced → Developer options, and turn on USB debugging.

2. Setup your computer to detect the device.
   If you're using a Mac, you can skip this step.
   If you're using Windows, you'll need to install a USB driver if one isn't already there. The latest instructions are [here].
   If you're using Ubuntu Linux, you need to create a udev rules file. The latest instructions on how to do this are [here].

3. Plug your device into your computer using a USB cable. You will probably be asked if you want to allow USB debugging. If so, check the "Always allow from this computer" option and choose OK.

4. Finally, select the device from the list of devices in Android Studio's top toolbar (if it's not there, on your device go to Settings → Connected devices, select USB, and choose the "File transfer" option). Then run the app by choosing "Run 'app'" from the "Run" menu. Android Studio will build the project, install the app on your device and launch it.

Run the app on a virtual device

If you don't have an Android device to hand, you can run the app on an Android Virtual Device (AVD) instead.

1. Open the AVD Manager by going to the Tools menu and selecting the "AVD Manager" option.

2. Click on the "Create Virtual Device" option.

3. On the "Select Hardware" screen, choose the Phone option, then select a device (for example "Pixel 3") from the list. This will create a virtual device that looks and behaves like this device. Then click on the Next button.

4. Next, you need to select a system image that specifies which version of Android you want to run on the device. Choose the system image with a release name of R and a target of Android 11.0 (you may be prompted to download this first). Then click on the Next button.

5. On the next screen, you'll be asked to verify the AVD configuration. Make a note of its name (you can replace it if you like), then click on the Finish button.

6. The AVD Manager creates the virtual device, and displays it in its list of AVDs. You may now close the AVD Manager.

5. Finally, select the virtual device from the list of devices in Android Studio's top menu. Then run the app by choosing "Run 'app'" from the "Run" menu. Android Studio will build the project, launch the AVD in an emulator, install the app and launch it.

7. Be patient! It can take a while for the AVD to load.

Congratulations! You've now installed Android Studio, and made sure that you can run Compose apps on a physical or virtual device. You're ready for the training.