

ANDROID WORKSHOP



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INTRODUCTION TO ANDROID

- **Android** is a software package and linux based operating system for mobile devices such as tablet computers and smartphones.
- It is developed by Google.
- Java language is mainly used to write the android code even though other languages can be used.

TOOLS AND SOFTWARE REQUIRED

- Java JDK5 or later version

Link - <https://www.oracle.com/java/technologies/javase-jdk16-downloads.html>

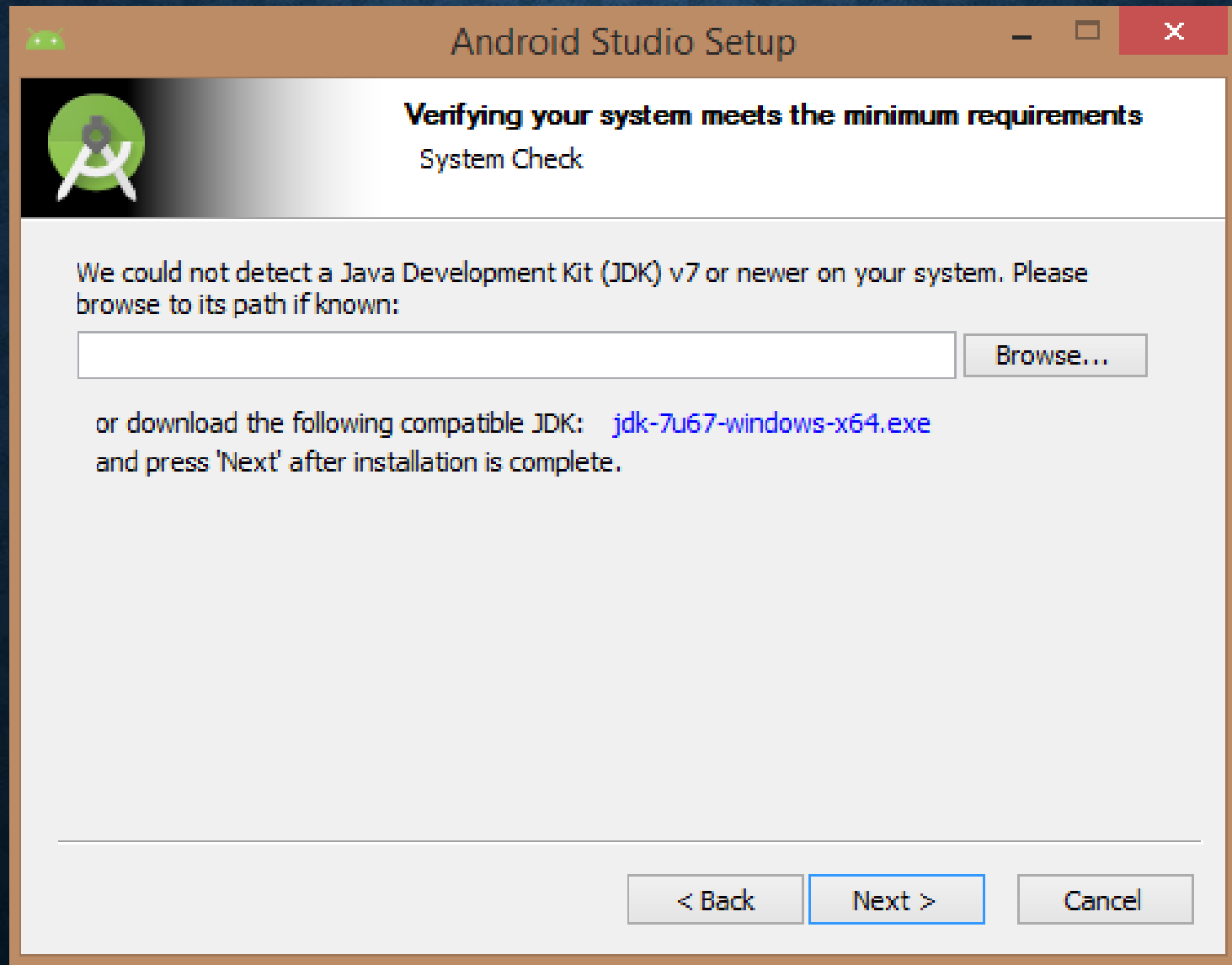
- Android Studio

Link - <https://developer.android.com/studio>

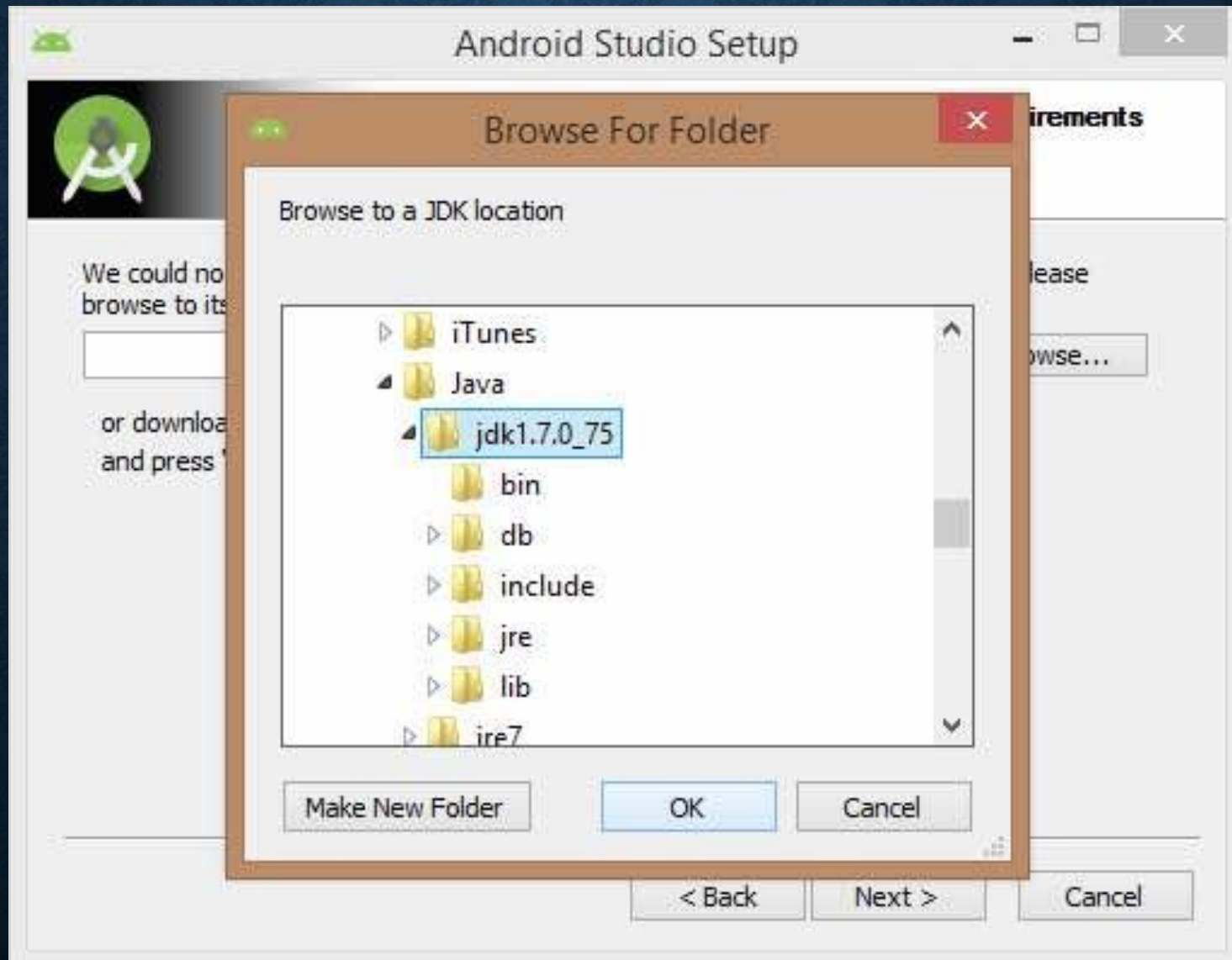
STEP 1



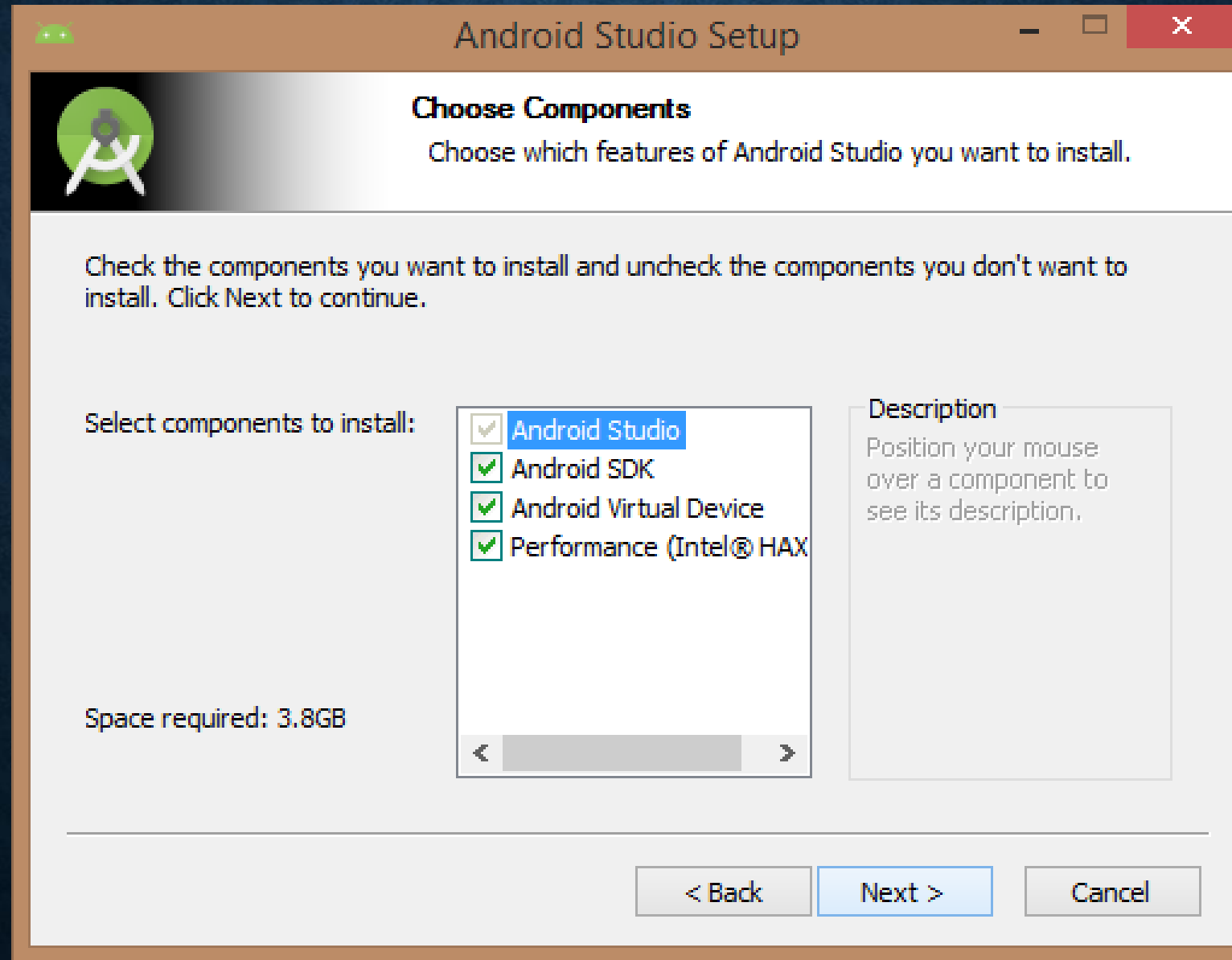
STEP 2




STEP 3



STEP 4

The image shows the 'Android Studio Setup' window. At the top, the title bar says 'Android Studio Setup' with standard window controls. Below the title bar is a header section with the Android Studio logo on the left and the text 'Choose Components' followed by 'Choose which features of Android Studio you want to install.' The main area contains instructions: 'Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.' Below this is a list of components to install, each with a checkbox and a description box to its right. The components are 'Android Studio', 'Android SDK', 'Android Virtual Device', and 'Performance (Intel® HAX)'. The first three are checked, and the last one is also checked. The 'Description' box for the first component contains the text: 'Position your mouse over a component to see its description.' At the bottom left, it says 'Space required: 3.8GB'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.



Choose Components

Choose which features of Android Studio you want to install.

Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.

Select components to install:

<input checked="" type="checkbox"/>	Android Studio	Description Position your mouse over a component to see its description.
<input checked="" type="checkbox"/>	Android SDK	
<input checked="" type="checkbox"/>	Android Virtual Device	
<input checked="" type="checkbox"/>	Performance (Intel® HAX)	

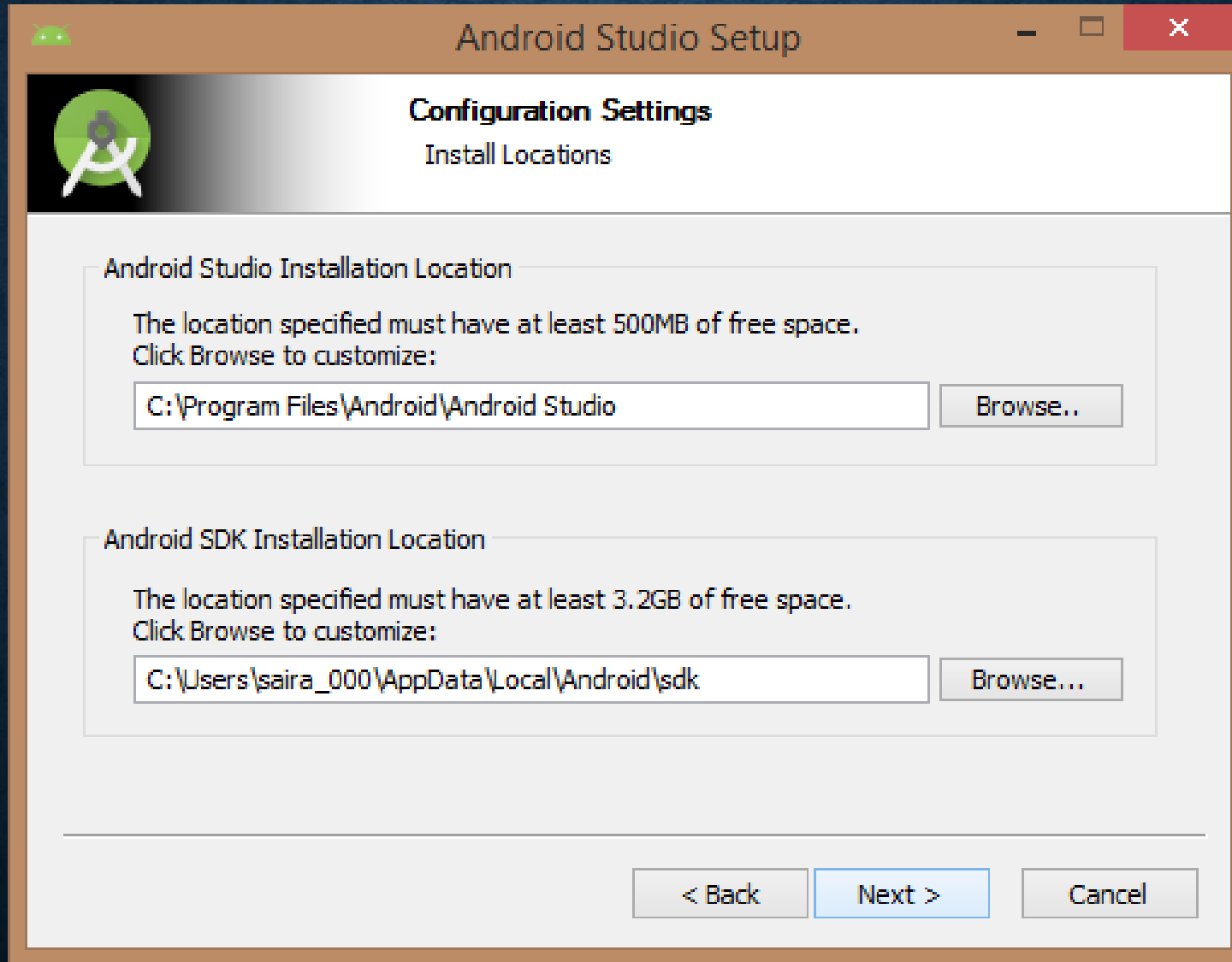
Space required: 3.8GB


< Back

Next >

Cancel

STEP 5

The image shows a screenshot of the 'Android Studio Setup' window. The window has a title bar with the text 'Android Studio Setup' and standard Windows window controls (minimize, maximize, close). The main content area is titled 'Configuration Settings' with the subtitle 'Install Locations'. It contains two sections: 'Android Studio Installation Location' and 'Android SDK Installation Location'. Each section has a text box for the installation path and a 'Browse...' button. The 'Android Studio Installation Location' text box contains 'C:\Program Files\Android\Android Studio'. The 'Android SDK Installation Location' text box contains 'C:\Users\saira_000\AppData\Local\Android\sdk'. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted in blue.

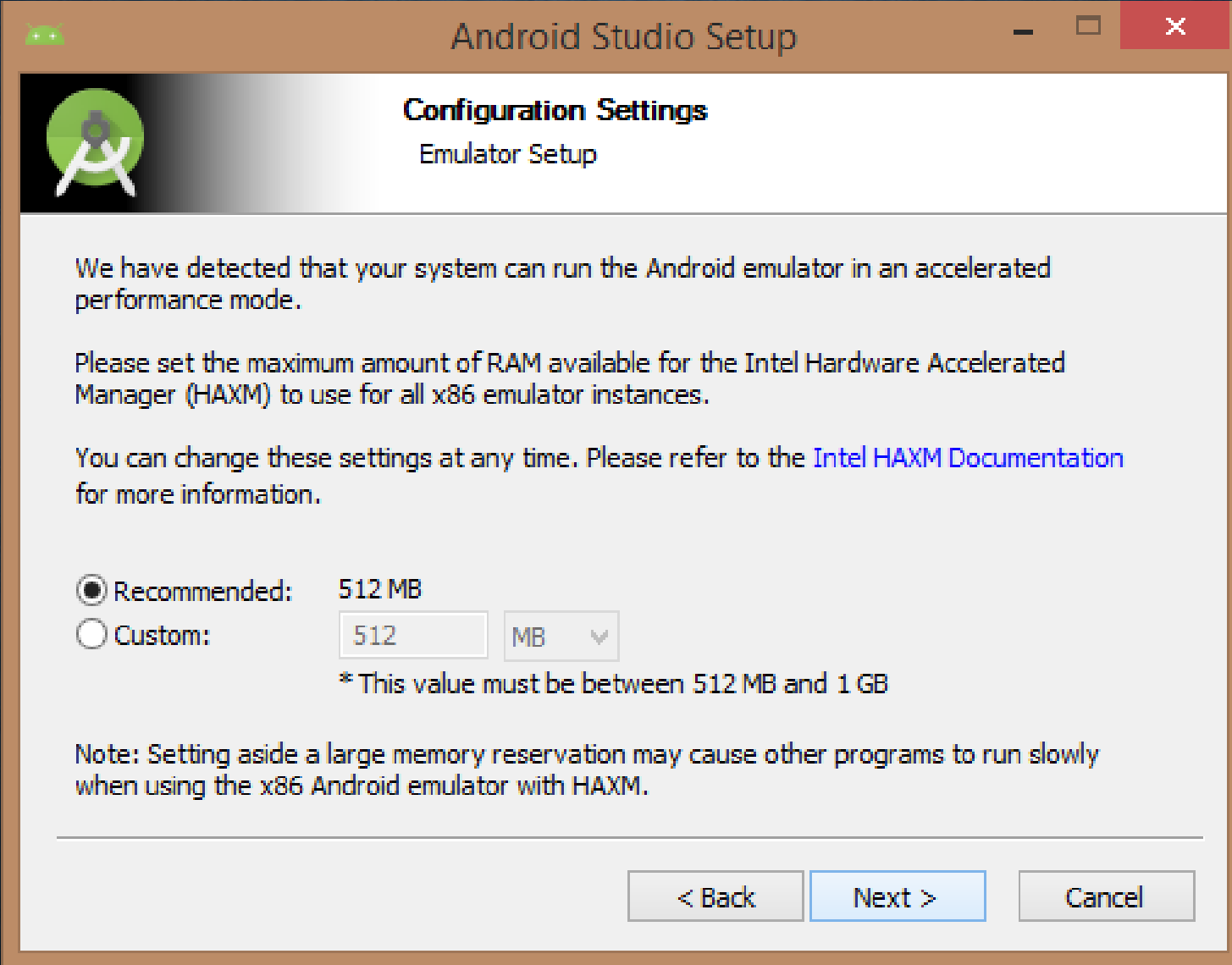
The Android Studio logo, which is a green circle with a white 'A' and a green robot head.

Configuration Settings
Install Locations

Android Studio Installation Location
The location specified must have at least 500MB of free space.
Click Browse to customize:

Android SDK Installation Location
The location specified must have at least 3.2GB of free space.
Click Browse to customize:

STEP 6

The image shows a screenshot of the 'Android Studio Setup' window. The window has a title bar with the text 'Android Studio Setup' and standard window controls (minimize, maximize, close). Below the title bar is a header section with the Android Studio logo on the left and the text 'Configuration Settings' and 'Emulator Setup' on the right. The main content area contains several paragraphs of text: 'We have detected that your system can run the Android emulator in an accelerated performance mode.', 'Please set the maximum amount of RAM available for the Intel Hardware Accelerated Manager (HAXM) to use for all x86 emulator instances.', and 'You can change these settings at any time. Please refer to the [Intel HAXM Documentation](#) for more information.' Below this text are two radio button options: 'Recommended: 512 MB' (which is selected) and 'Custom:'. The 'Custom' option has a text input field containing '512' and a dropdown menu showing 'MB'. Below these options is a note: '* This value must be between 512 MB and 1 GB'. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted in blue.

Android Studio Setup

Configuration Settings

Emulator Setup

We have detected that your system can run the Android emulator in an accelerated performance mode.

Please set the maximum amount of RAM available for the Intel Hardware Accelerated Manager (HAXM) to use for all x86 emulator instances.

You can change these settings at any time. Please refer to the [Intel HAXM Documentation](#) for more information.

☒ Recommended: 512 MB

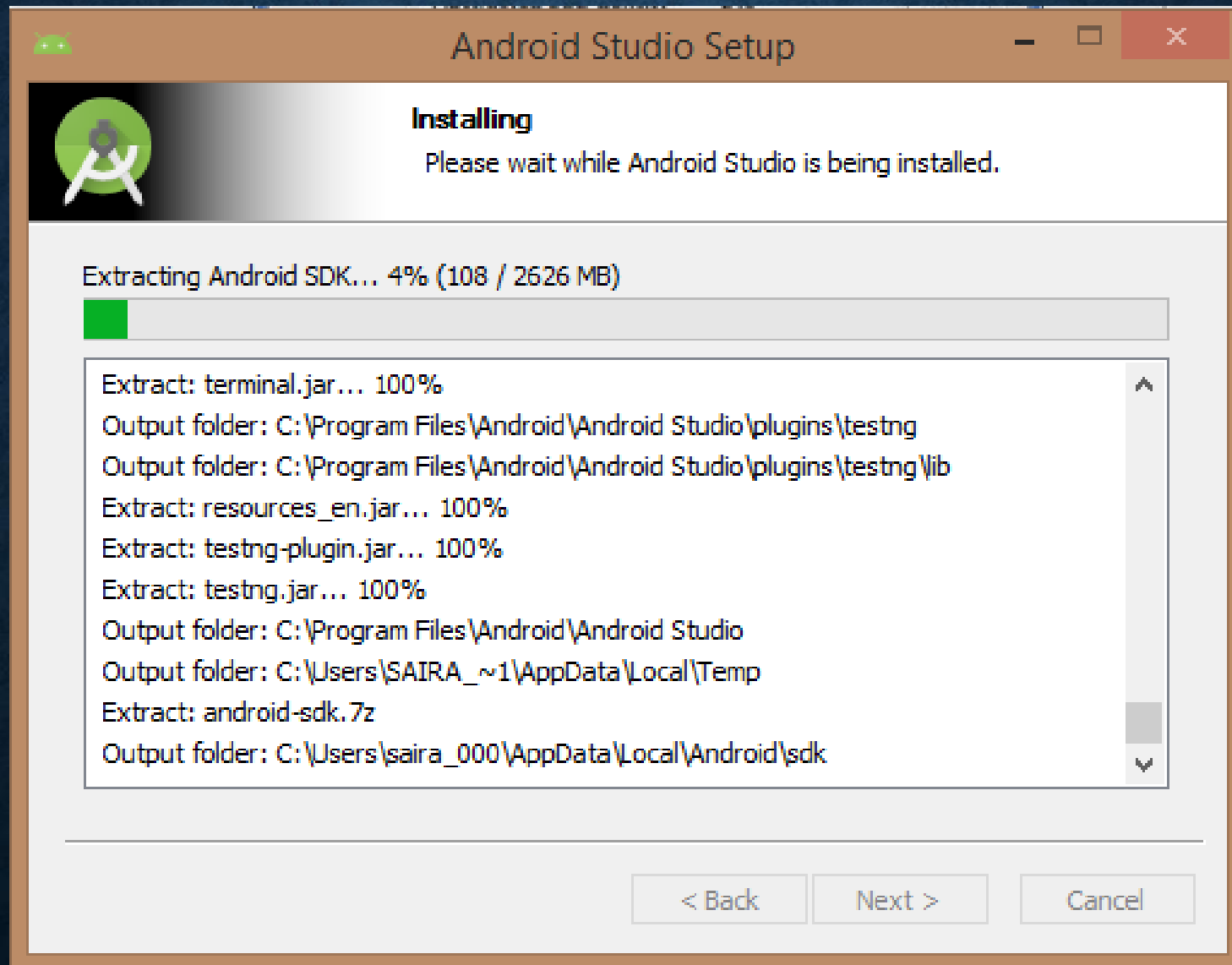
☐ Custom:

* This value must be between 512 MB and 1 GB

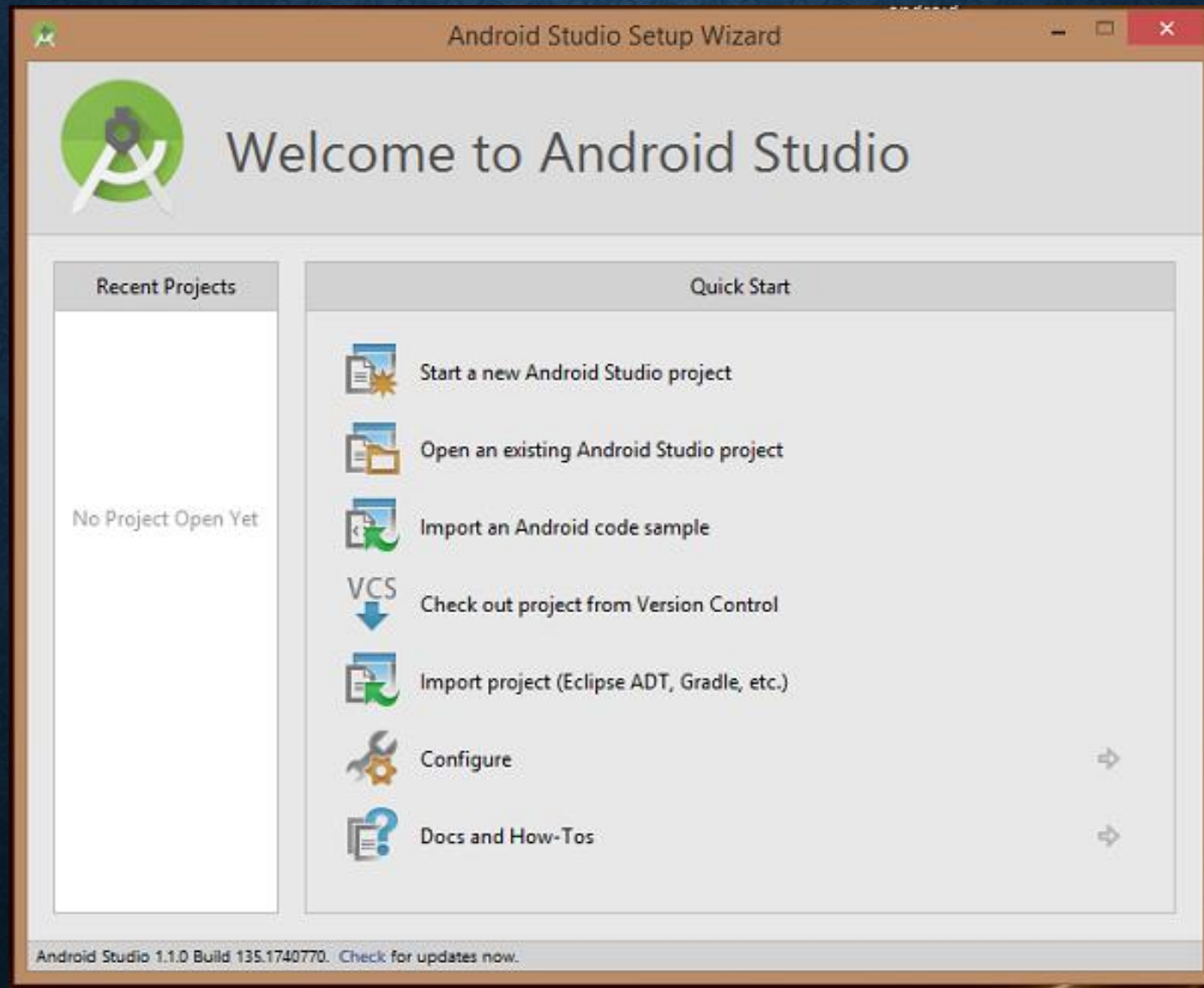
Note: Setting aside a large memory reservation may cause other programs to run slowly when using the x86 Android emulator with HAXM.

< Back Next > Cancel



STEP 7




STEP 8



STEP 9

 Create New Project 


 **New Project**
Android Studio

Configure your new project

Application name:

Company Domain:

Package name: [Edit](#)

Project location: 

Please enter an application name (shown in launcher)

Previous


Next

Cancel

Finish

STEP 10

Create New Project

 Target Android Devices

Select the form factors your app will run on
Different platforms may require separate SDKs

☒ Phone and Tablet

Minimum SDK: API 23: Android 6.0 (Marshmallow)

Lower API levels target more devices, but have fewer features available.
By targeting API 23 and later, your app will run on approximately 4.7% of the devices that are active on the Google Play Store.
[Help me choose](#)

☐ Wear

Minimum SDK: API 21: Android 5.0 (Lollipop)

☐ TV

Minimum SDK: API 21: Android 5.0 (Lollipop)

☐ Android Auto

☐ Glass

Minimum SDK: Glass Development Kit Preview (API 19)

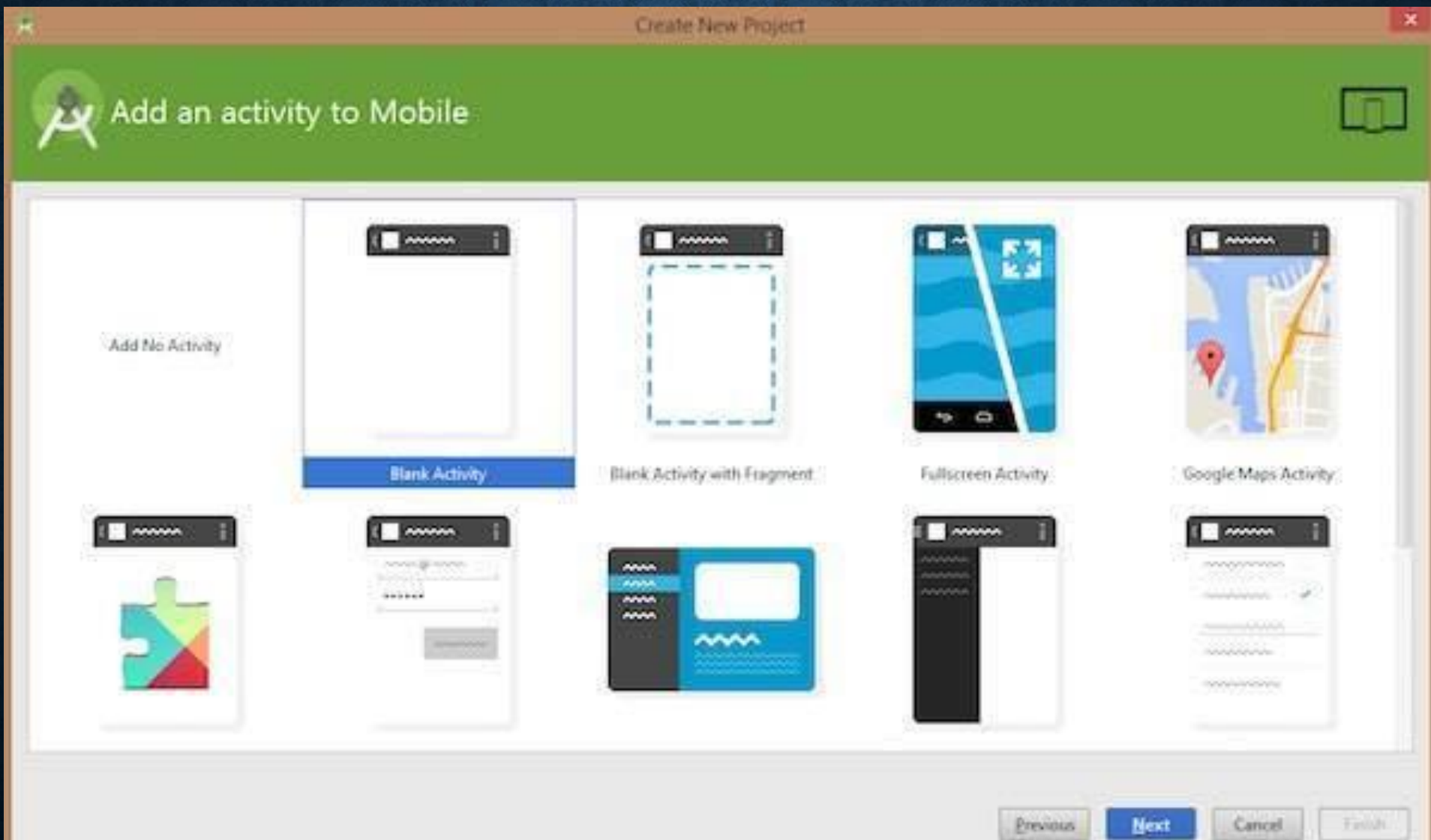
Previous

Next

Cancel

Finish

STEP 11



HELLO WORLD ANDROID EXAMPLE

USER DESIGN INTERFACES

USER INTERFACES

- **TextView**
- **EditText**
- **Button**
- **ImageView**
- **Toast alerts**
- **CheckBox**
- **RadioButton**

UI LAYOUTS

- **LinearLayout**
- **AbsoluteLayout**
- **TableLayout**
- **RelativeLayout**

INTENT

- **Android Intent** is the message that is passed between components such as activities, content providers, broadcast receivers, services etc.
- It is generally used with **startActivity()** method to invoke activity, broadcast receivers etc.
- There are two types of intents in android: **implicit and explicit**.
- **Implicit Intent** doesn't specify the component. In such case, intent provides information of available components provided by the system that is to be invoked.
- **Explicit Intent** specifies the component. In such case, intent provides the external class to be invoked.

IMPLICIT INTENT EXAMPLE

EXPLICIT INTENT EXAMPLE

ANDROID PERMISSIONS

- App permissions help support user privacy by protecting access to the following:
- **Restricted data**, such as system state and a user's contact information.
- **Restricted actions**, such as connecting to a paired device and recording audio.

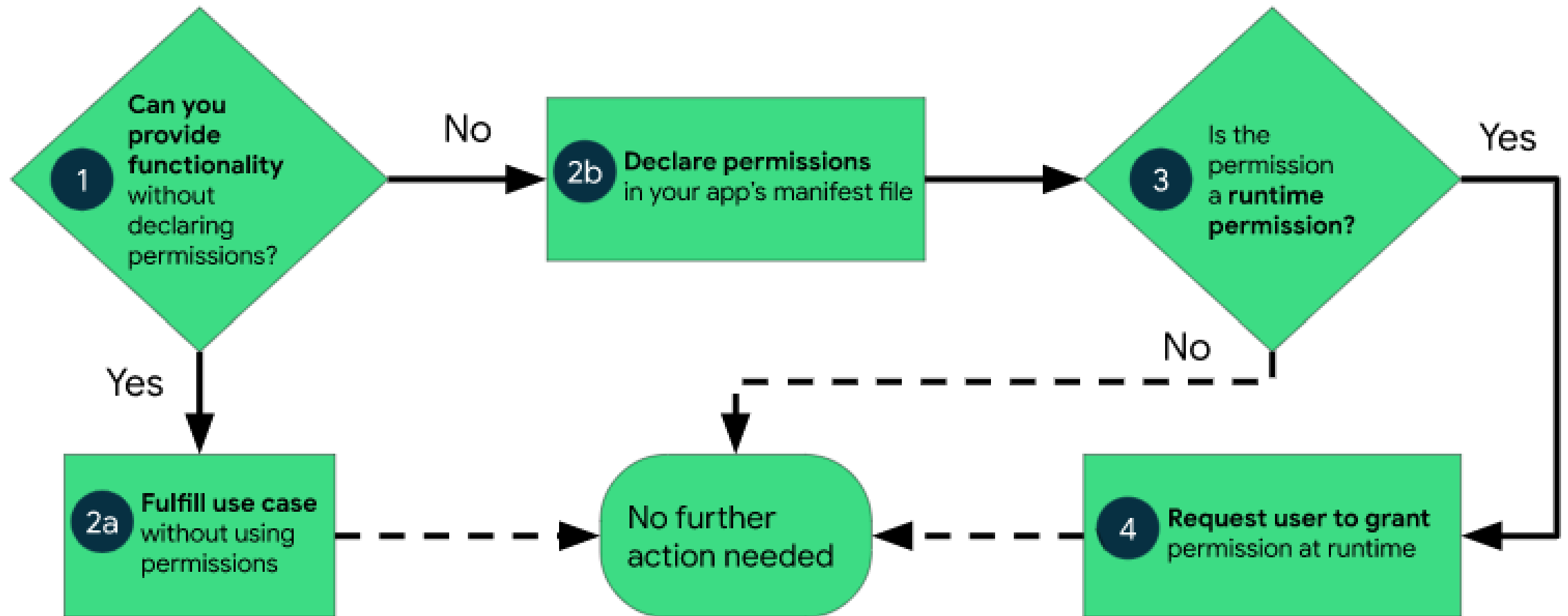
Example

```
<!--Declaring the required permissions-->
```

```
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
```

```
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
```

```
<uses-permission android:name="android.permission.CAMERA" />
```

CAMERA EXAMPLE

ANDROID DATABASE

- **SQLite** is an **open-source relational database**
- i.e. used to perform database operations on android devices such as
- Storing
- manipulating
- retrieving persistent data from the database.

SIMPLE ANDROID APPLICATION USING SQLITE

THANK YOU

For any query regarding android programming please
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