Unit-1: Building a sample Android application using Android Studio

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1.0 Learning Objectives

After studying this unit student should be able to:

- Create a new android studio project
- List the steps for creating an Android Application
- Configure project and SDK setting for Android Application
- Create an activity
- Run an Android Application

1.1 Introduction

With all the tools and the SDK downloaded and installed, it is now time to start your engine! As in all programming books, the first example uses the ubiquitous Hello World application. This will enable you to have a detailed look at the various components that make up an Android project.

So, without any further ado, let's dive straight in! Generally a program is defined in terms of functionality and data, and an Android application is not an exception. It performs processing, show information on the screen, and takes data from a variety of sources.

To Develop Android applications for mobile devices with resource constraint requires a systematic understanding of the application lifecycle. This unit introduces you with the most important components of Android applications and provides you with a more detailed understanding of how to create and run an Android application.

1.2 Building a sample Android application using Android Studio

Before developing sophisticated Android application, it is necessary to check whether all of the required development packages are installed and functioning correctly. The simple way to realize this aim is to create an Android application and compile and run it. This topic will explain how to create a simple Android application project using Android Studio. Once the project has been created, a later chapter will

explore the use of the Android emulator environment to perform a test run of the application.

1.3 Creating a New Android Project

The first step in the application development process is to create a new project within the Android Studio environment. Launch Android Studio so that the “Welcome to Android Studio” screen appears as shown Figure:

Figure-35

To create the new project, simply click on the Start a new Android Studio project option to display the first screen of the New Project wizard as shown in Figure:

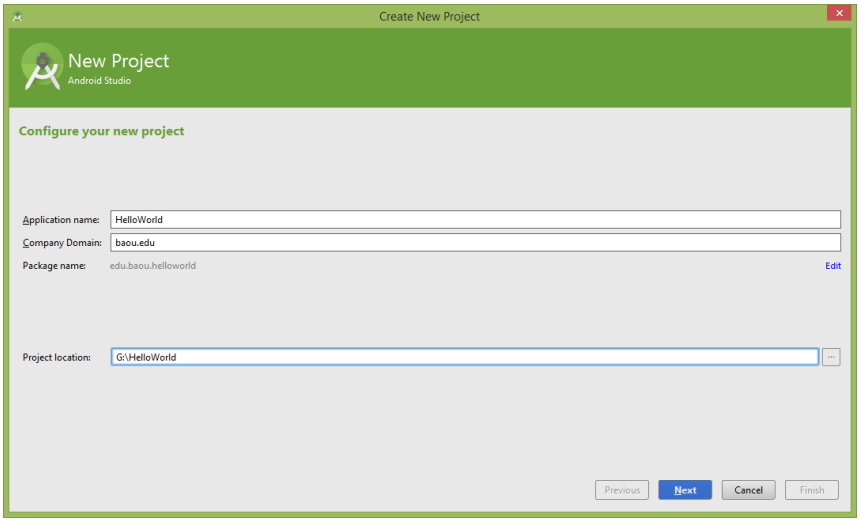

Figure-36

In the New Project window, set the Application name field to HelloWorld. The application name is the name by which the application will be referenced and

identified within Android Studio and is also the name that will be used when the completed application goes on sale in the Google Play store.

The Package Name is used to uniquely identify the application within the Android application ecosystem. It should be based on the reversed URL of your domain name followed by the name of the application. For example, if your domain is www.baou.edu, and the application has been named HelloWorld, then the package name might be specified as follows:
edu.baou.HelloWorld

The Project location setting will default to a location in the folder named AndroidStudioProjects located in your home directory and may be changed by clicking on the button to the right of the text field containing the current path setting.

Click Next to proceed.

1.4 Defining the Project and SDK Settings

On the form factors screen, enable the Phone and Tablet option and set the minimum SDK setting to API 8: Android 2.2 (Froyo). The reason for selecting an older SDK release is that this ensures that the finished application will be able to run on the widest possible range of Android devices. The higher the minimum SDK selection, the more the application will be restricted to newer Android devices.

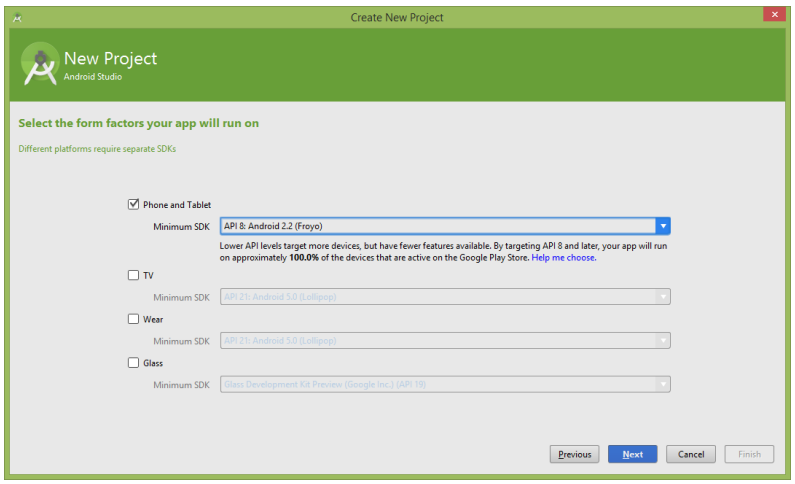

Figure-37

Click Next to proceed.

1.5 Creating Activity

The next step is to define the type of initial activity that is to be created for the application. A range of different activity types is available when developing Android applications. For sack of simplicity we select the option to create a Blank Activity and Click Next to proceed.

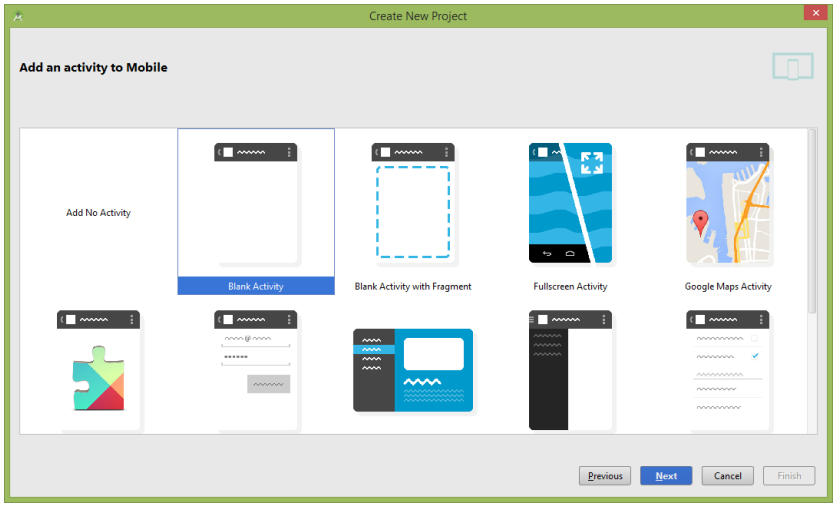

Figure-38

On the final screen name the activity and title HelloWorldActivity. The activity will consist of a single user interface screen layout which, for the purposes of this example, should be named activity_hello_world as shown in Figure and with a menu resource named menu_hello_world:

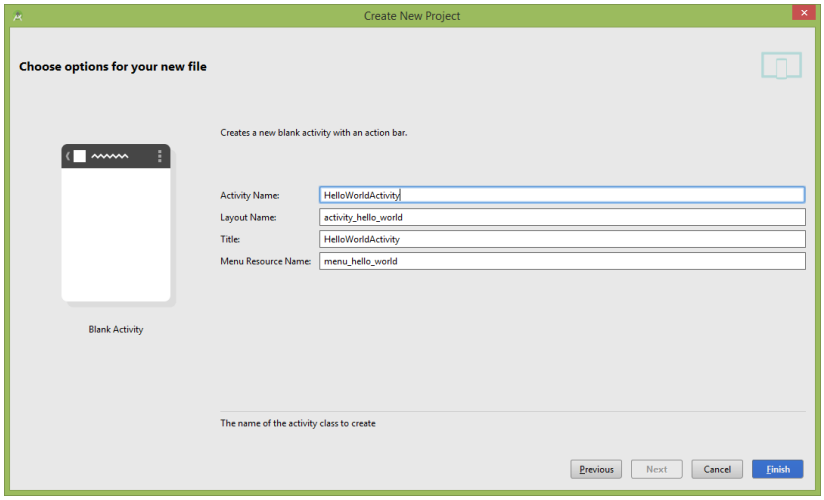

Figure-39

Finally, click on Finish to initiate the project creation process.

1.6 Running a HelloWorld Application

1. Press Shift+F10 or ‘Run App’ button in taskbar. It will launch following dialog box.

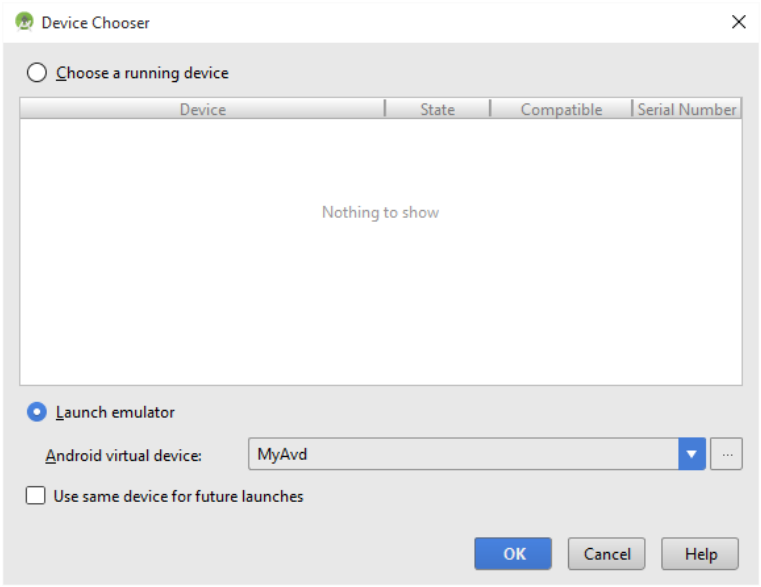

Figure-40

2. Select Launch emulator option and select your Android virtual device and Press OK.
3. The Android emulator starts up, which might take a moment
4. Press the Menu button to unlock the emulator.
5. The application starts, as shown in Figure below.

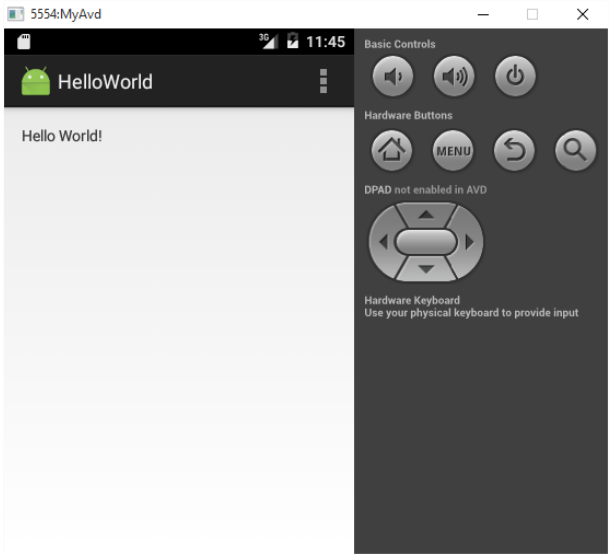

Figure-41

6. Click the Home button in the Emulator to end the application.

7. Pull up the Application Drawer to see installed applications. Your screen looks something
8. like Figure shown below

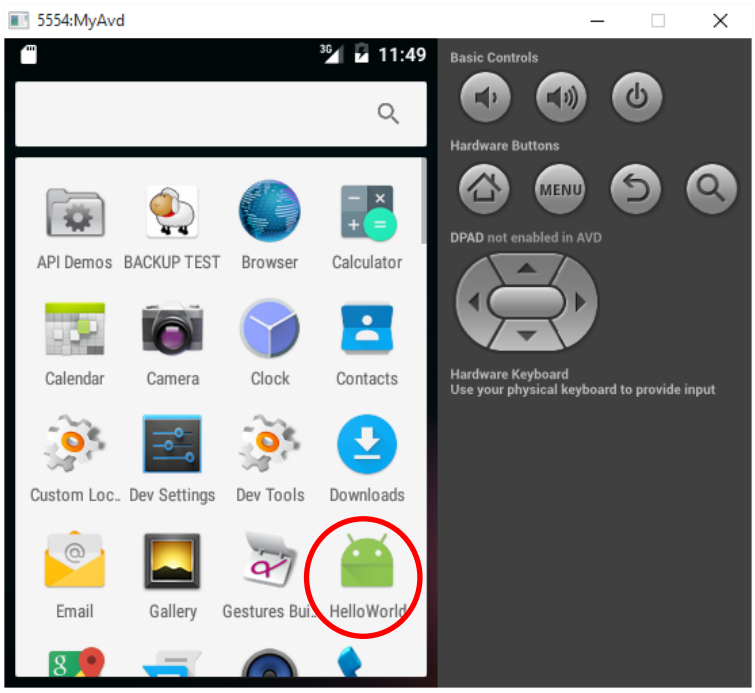

Figure-42

Recall that earlier you created a few AVDs using the AVD Manager. So which one will be launched by Android Studio when you run an Android application? Android studio will check the target that you specified (when you created a new project), comparing it against the list of AVDs that you have created. The first one that matches will be launched to run your application.

If you have more than one suitable AVD running prior to debugging the application, Android Studio will display the Android Device Chooser window, which enables you to select the desired emulator/device to debug the application.

Check your progress-1

a) What is reason for selecting an older version SDK for android application?
b) What is short cut key for running an application?
c) The Package Name is used to uniquely identify the application within the Android application ecosystem (True/False)

d) _____ should be based on the reversed URL of your domain name followed by the name of the application.

1.7 Let's sum up

This chapter has provided a brief overview of Android Application Development steps, and highlighted some of its capabilities. If you have followed the sections on downloading the tools and SDK, you should now have a working system one that is the Hello World application. In the next chapter, you will learn about the concepts of A Framework for a Well-Behaved Application in Android.

1.8 Check your Progress: Possible Answers

1-a) The reason for selecting an older SDK release is that this ensures that the finished application will be able to run on the widest possible range of Android devices

1-b) Shift+F10

1-c) True

1-d) Package Name

1.9 Further Reading

- https://developer.android.com/training/basics/firstapp

1.10 Assignment

- Write steps for creating an Android Application

1.11 Activities

- Create HelloWorld Application in Android Studio