

Lab Report of Installing Android Studio and Hello World

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Abstract

This is the lab report for our IE304 course lab1:Installing Android Studio and Hello World. We installed Android Studio and run a Hello World program on an Android virtual machine.

1 Installation

- Install jdk
Download from the [link in Oracle](#). Then we just need to get the installation procedure done and install it in our desired directory.
- Configure jdk
After the jdk installation, we need to setup the environmental variables. We need to first configure the 'JAVA_PATH' to our installation path. Then we have to configure the 'CLASS_PATH' to the two java archives in lib folder: dt.jar and tools.jar.

Note that the path configuration in win7 system, which is in the [link](#) provided in the lab description pdf, is different from that in win10.
- Install Android Studio
Download from this [link](#), and then just follow the instructions will be fine.

There is a trivial problems I came across during the SDK installatino which are worth mentioning. There was a error report from the installation that my '**intel virtual technology**' option was set as 'disable', which would affect the usage of the virtual machine. We have to enable it in the BIOS.

2 Hello World

- Create a Hello World project
Firstly, open the android studio and select 'start a new Android Studio project'.

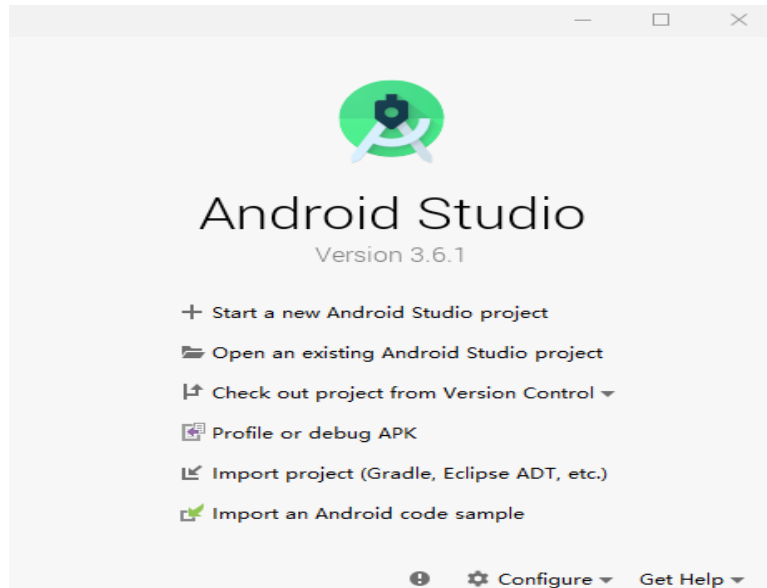


Figure 1: create the project

Secondly, choose 'Empty Activity'.

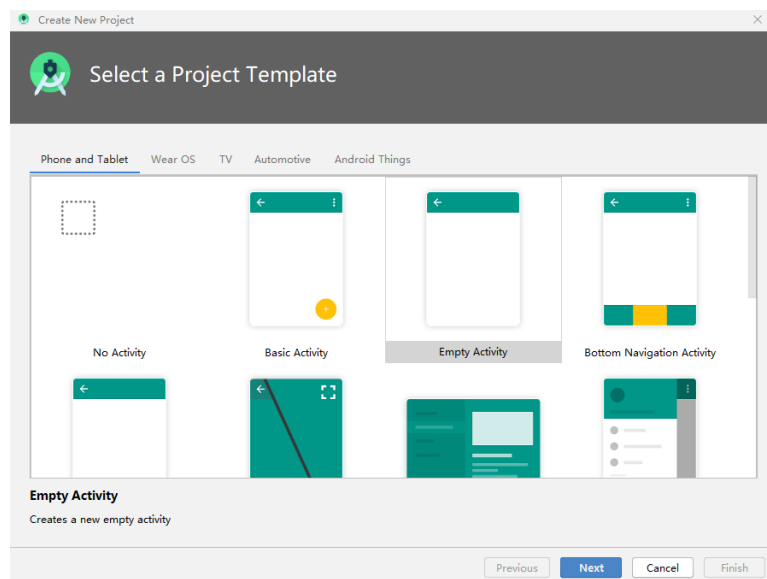


Figure 2: create the project

Then name the project, choose the save location and programming language.

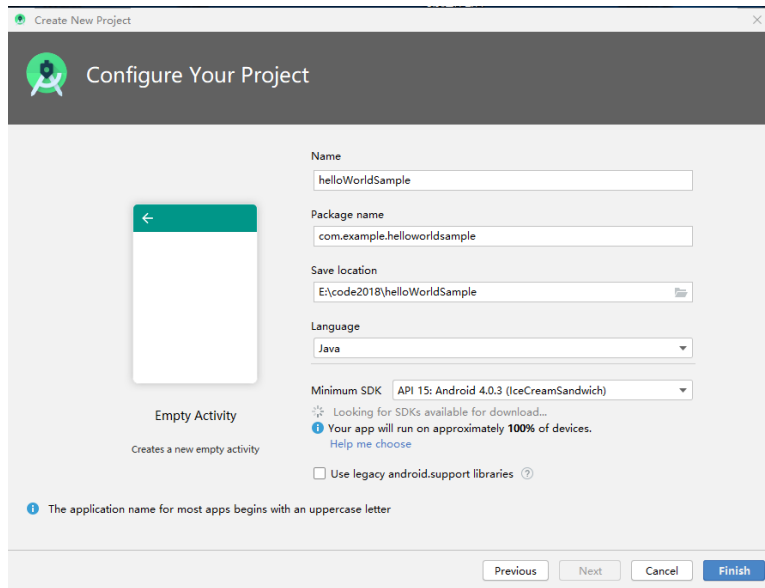


Figure 3: create the project

- Run the project

Firstly, click the icon of 'Make project' and then click the icon of 'Run app'. After that the app will successfully run on the virtual machine.

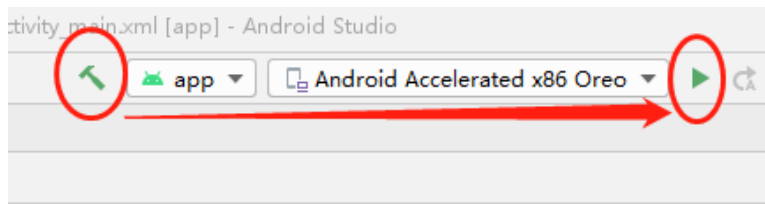


Figure 4: run the project

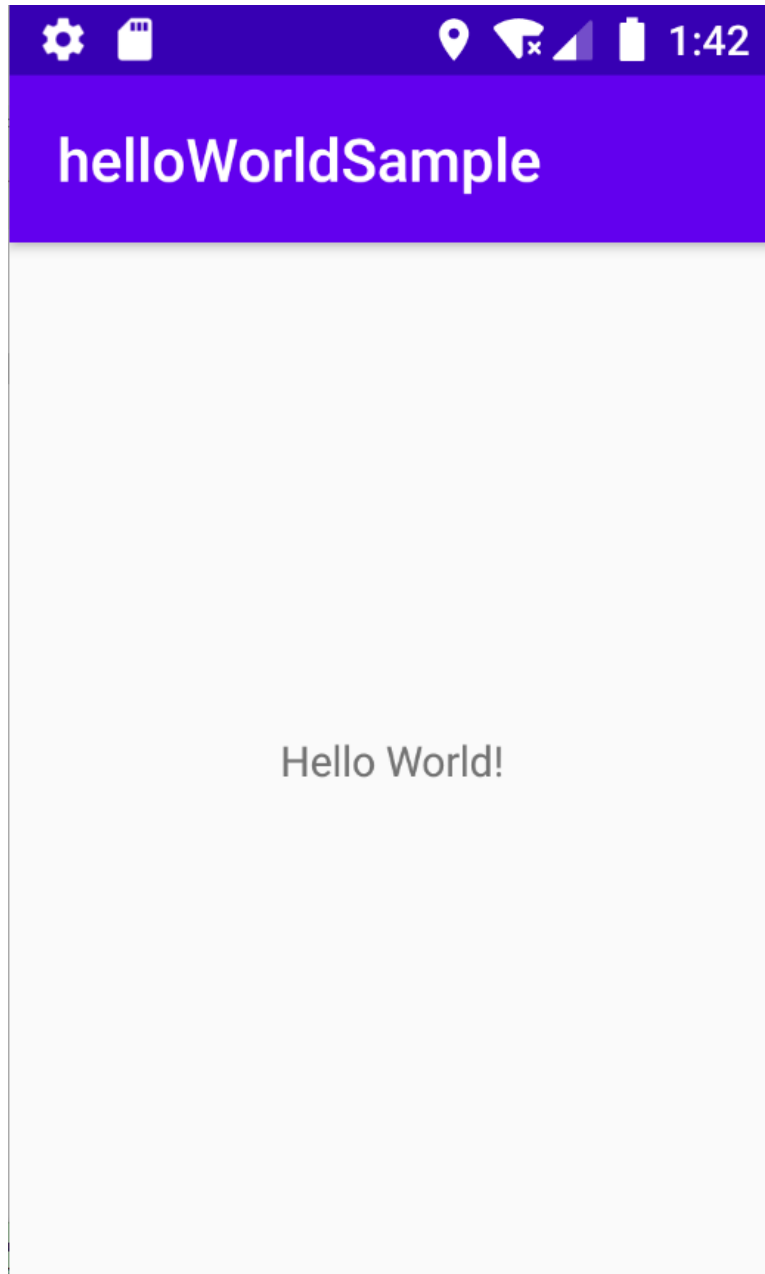


Figure 5: successfully run on virtual machine

- Structure of the project

In the Project mode, the project structure is displayed, including '.gradle' and '.idea' which are automatically generated by Android Studio and 'gradle' which is the configuration file for gradle wrapper. Through the path 'app' → 'src' → 'main' and you can see some of the important files in the project.

java place the source code MainActivity.java of the project.

res place all program resources such as layouts, styles, drawables and so on.

AndroidManifest.xml is the configuration file of the project, which includes the declaration of activity modules and so on.

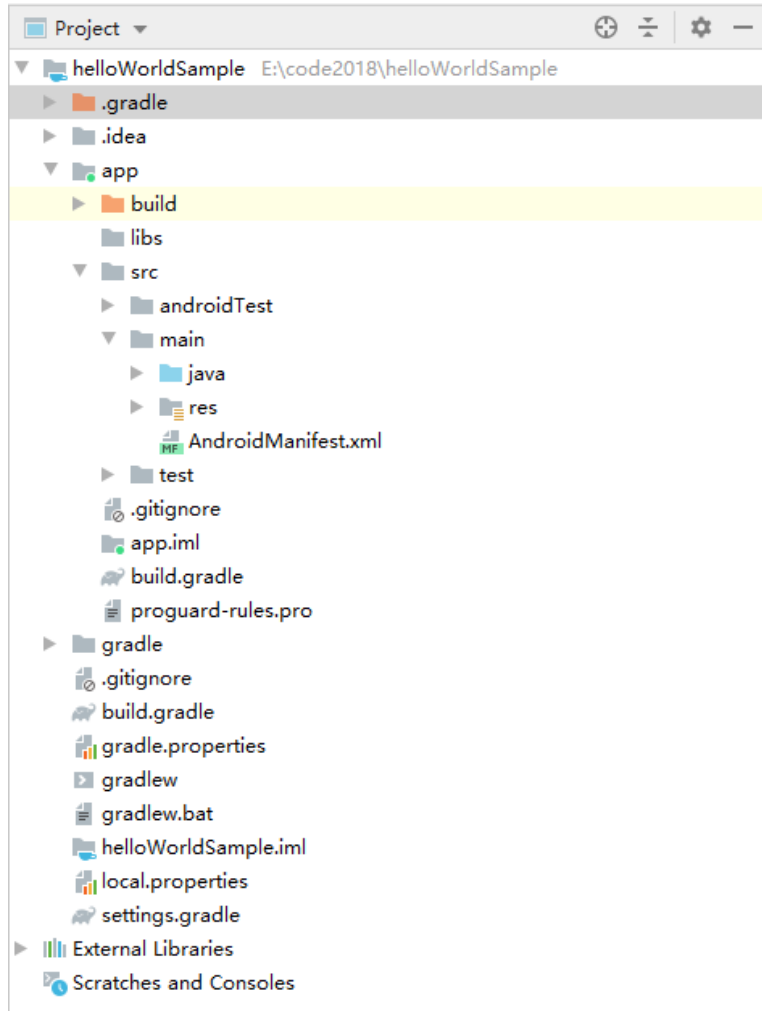


Figure 6: Project mode

3 Modifications on Hello World

- Target

We aim to add extra information about our group into this android program, and show the detailed information on the screen of the virtual machine.

- Code implementation

To show more detailed information and interesting things on the virtual machine, we need to perform modification on the code in file app/res/layout/activity_main.xml. We mainly modify the text position, text size and text content. The detailed code is shown in Fig. 7.

```
<TextView
    android:id="@+id/textView2"
    android:layout_width="399dp"
    android:layout_height="105dp"
    android:text="Hello World! This is Group 2 of IE304!"
    android:textSize="24sp"
    android:visibility="visible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.221"
    tools:visibility="visible" />

<EditText
    android:id="@+id/editText3"
    android:layout_width="152dp"
    android:layout_height="131dp"
    android:ems="10"
    android:gravity="start|top"
    android:inputType="textMultiLine"
    android:text=" Chen Yuan,\n Liang Youzhi,\n Qian Rui,\n Wang Jionghao,\n Lei Zixing"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/textView2" />
```

Figure 7: code of modified Hello World

- Final results

The final results for the modified version of Hello World is shown in Fig. 8. We present the “Hello World” and the number of our group at the center of the screen, as well as our names bellow.

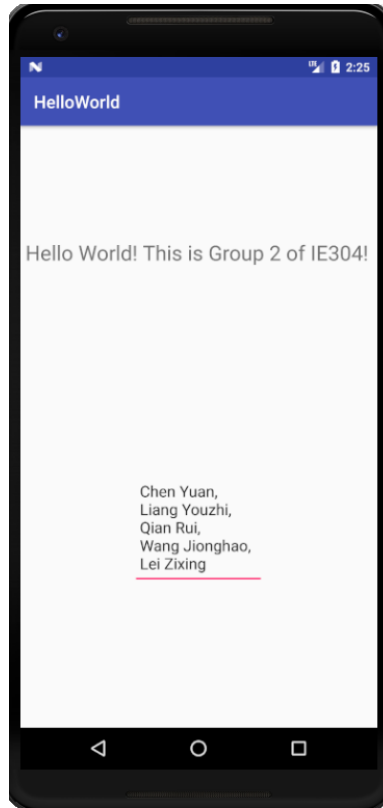


Figure 8: successfully run the modified version on virtual machine

4 Realization and improvement of CONTACT

- Target

In this part, we aim to establish a contact in android program. The contact includes the company, the name, the telephone number and the email number of the contacts. Additionally, we add the function of showing the photo of the contacts on the screen.

- Code implementation

To realize the above functions, we edit `contact_editor.xml` and `contact_Editor.java`. The detailed code can be seen in this [github link](#) and the code that we submitted.

The basic idea of our revision is to add two button and a `imageview` in `xml` files and provided a operation logic for those unit. When the users click the button, we can ask the system to open camera or file system to get a photo for the contact, then transfer the photo to `imageview` and display it.

- Final results

The final results for the modified version of contact is shown in Fig. 9. 10. 11. We successfully present the company, the name, the telephone number, the email, and the photo of the contacts on the screen.

个人通讯录 - 修改

公司 Apple Inc

姓名 Tim Cook

手机 10086

邮箱 timcook@applecom

保存 取消 拍照 从相册选取



Figure 9: basic information

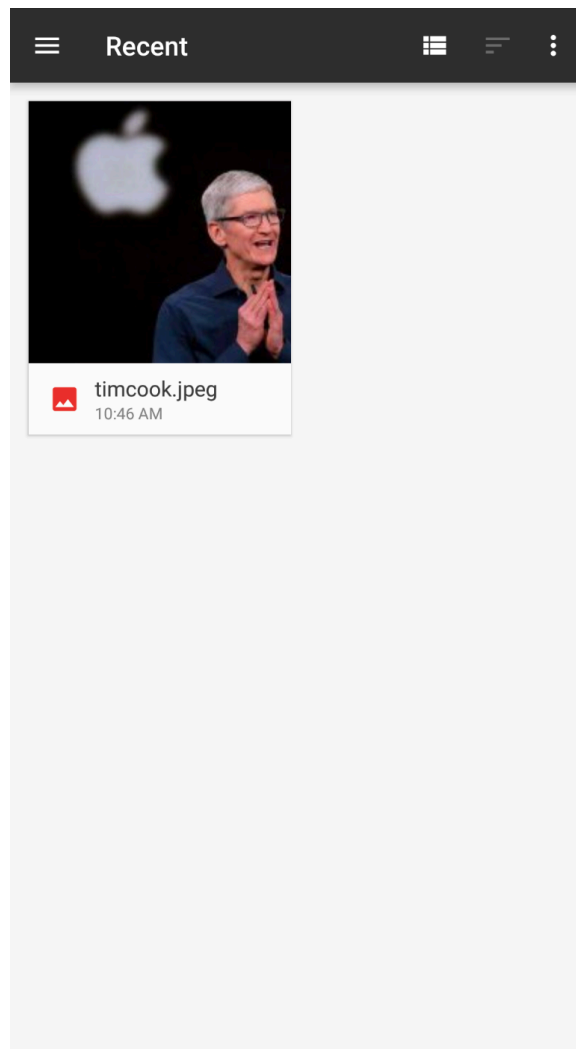


Figure 10: additionnal function adding photo

个人通讯录 - 修改

公司

Apple Inc

姓名

Tim Cook

手机

10086

邮箱

timcook@applecom

保存

取消

拍照

从相册选取




Figure 11: full information