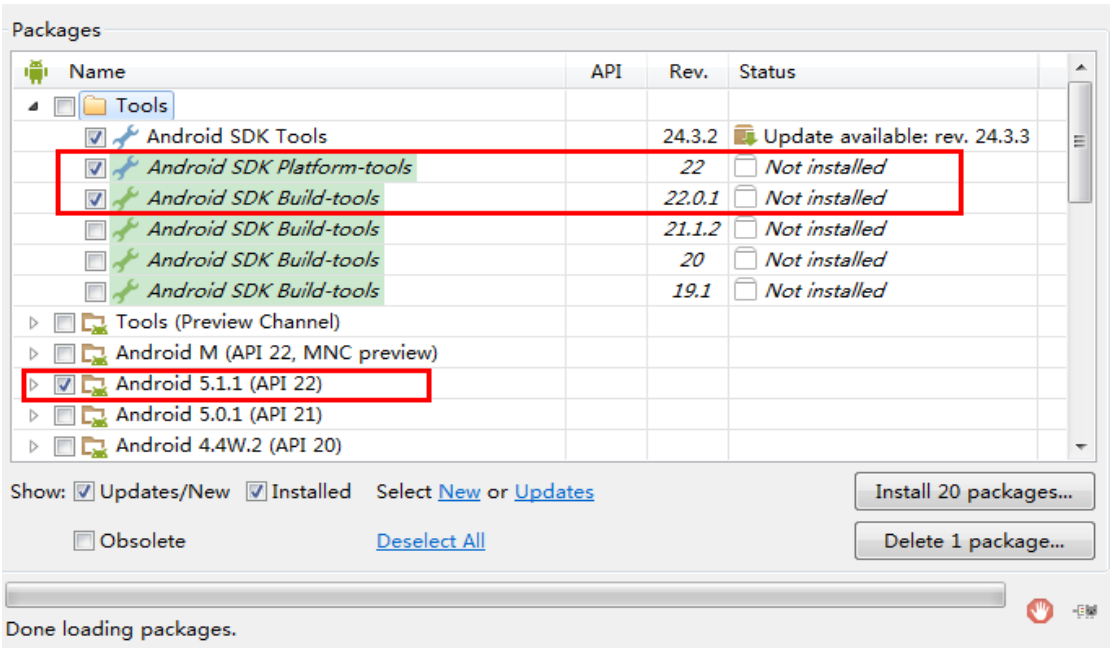
一、搭建 Android Studio 环境

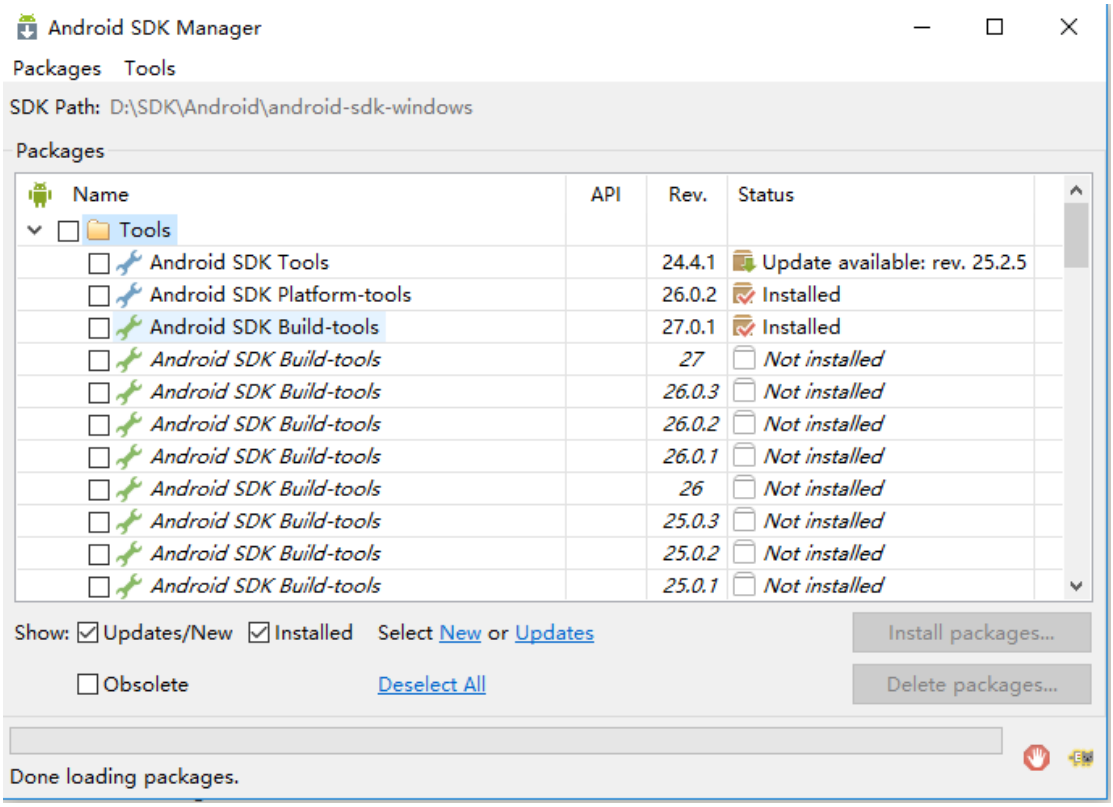
(一)下载安装配置 JDK
具体下载安装配置方法请参考：
http://blog.csdn.net/siwuxie095/article/details/53386227
（二）下载安装 SDK（参考
http://blog.csdn.net/dr_neo/article/details/49870587）

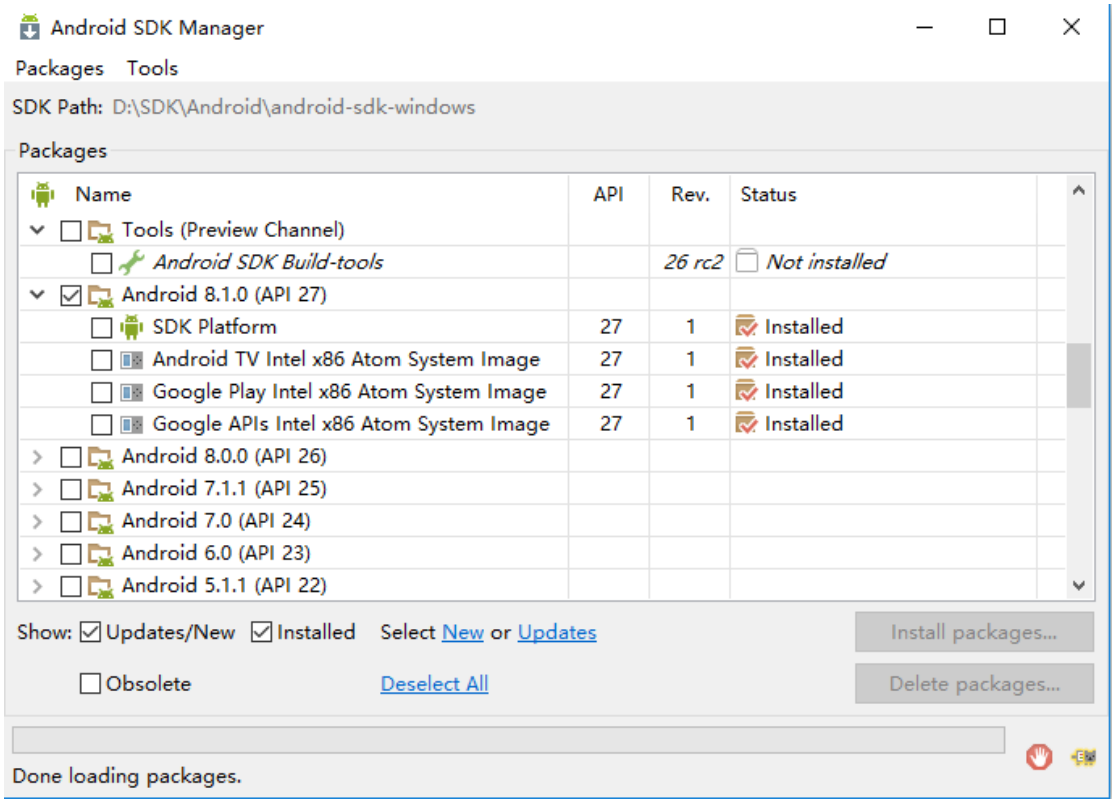
①到 http://www.androiddevtools.cn/下载 SDK，选择 Windows 环境下的.zip 安装包

②将其解压缩至 D:\SDK 目录下，然后就双击“SDK Manager.exe”，启动 SDK Manager，效果如下图，然后选择 install 20 packages，进行安装：


Packages
Name
API
Rev.
Status
Tools
Android SDK Tools
24.3.2
Update available: rev. 24.3.3
Android SDK Platform-tools
22
Not installed
Android SDK Build-tools
22.0.1
Not installed
Android SDK Build-tools
21.1.2
Not installed
Android SDK Build-tools
20
Not installed
Android SDK Build-tools
19.1
Not installed
Tools (Preview Channel)
Android M (API 22, MNC preview)
Android 5.1.1 (API 22)
Android 5.0.1 (API 21)
Android 4.4W.2 (API 20)
Show: Updates/New Installed
Select New or Updates
Install 20 packages...
Obsolete
Deselect All
Delete 1 package...
Done loading packages.

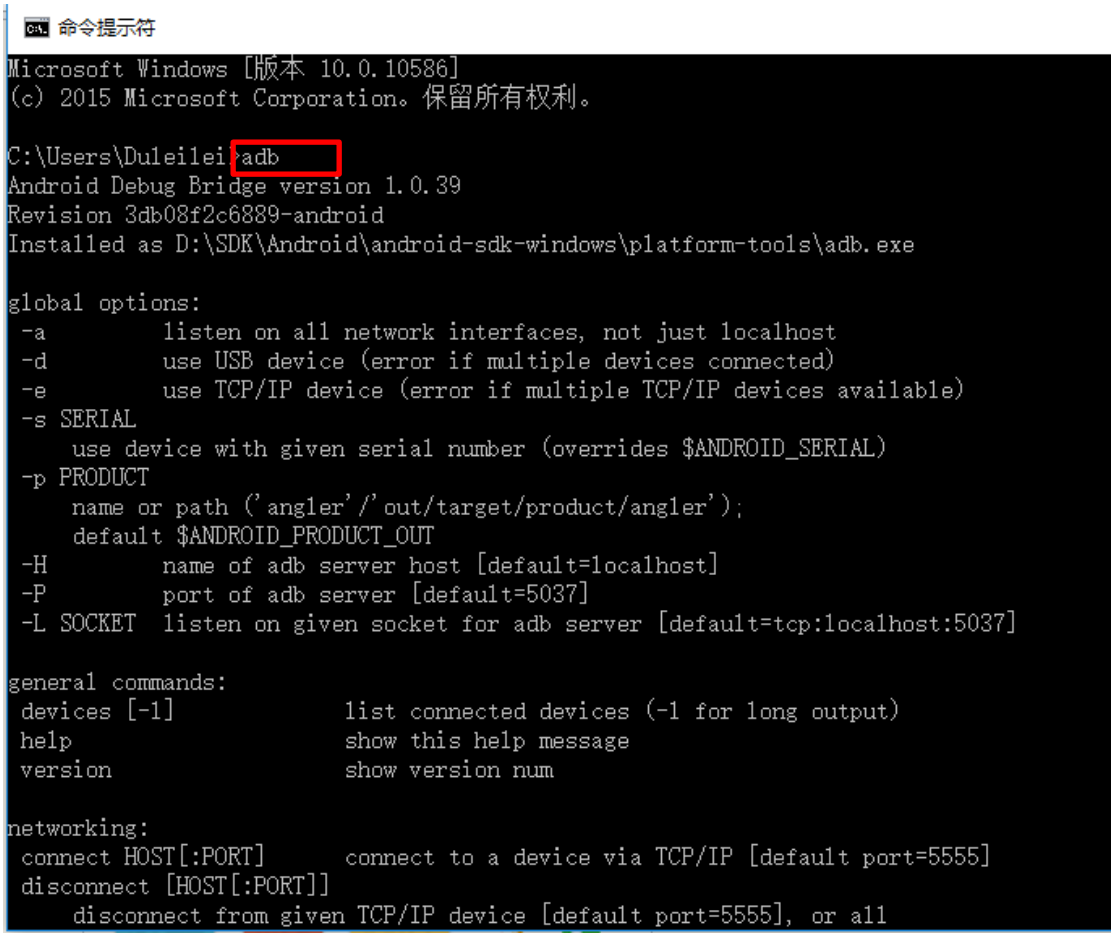
③安装好的效果图如下：


Android SDK Manager
Packages
Tools
SDK Path: D:\SDK\Android\android-sdk-windows
Packages
Name
API
Rev.
Status
Tools
Android SDK Tools
24.4.1
Update available: rev. 25.2.5
Android SDK Platform-tools
26.0.2
Installed
Android SDK Build-tools
27.0.1
Installed
Android SDK Build-tools
27
Not installed
Android SDK Build-tools
26.0.3
Not installed
Android SDK Build-tools
26.0.2
Not installed
Android SDK Build-tools
26.0.1
Not installed
Android SDK Build-tools
26
Not installed
Android SDK Build-tools
25.0.3
Not installed
Android SDK Build-tools
25.0.2
Not installed
Android SDK Build-tools
25.0.1
Not installed
Show: Updates/New Installed
Select New or Updates
Install packages...
Obsolete
Deselect All
Delete packages...
Done loading packages.



④接下来进行环境变量配置。首先，新建一个系统环境变量，变量名为 ANDROID_SDK_HOME，变量值为你的 SDK 安装路径；然后就是在系统的 Path 变量后，追加;% ANDROID_SDK_HOME%\platform-tools 和% ANDROID_SDK_HOME%\tools

⑤最后，进行测试。在命令行窗口中输入“adb” ，若出现下图所示内容，则说明安装配置成功。



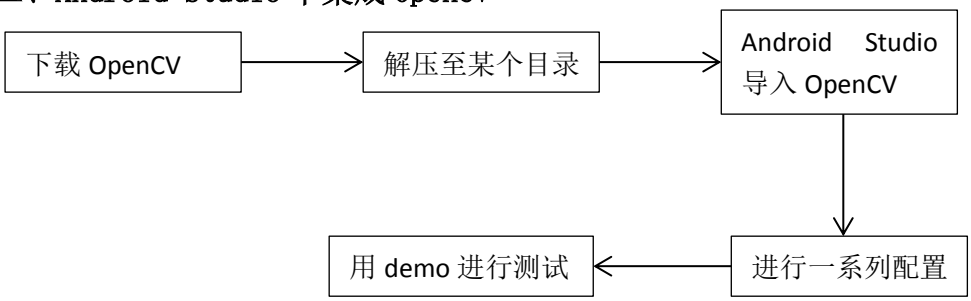
(三)下载安装配置 Android Studio

①到 http://www.android-studio.org/下载 Android Studio

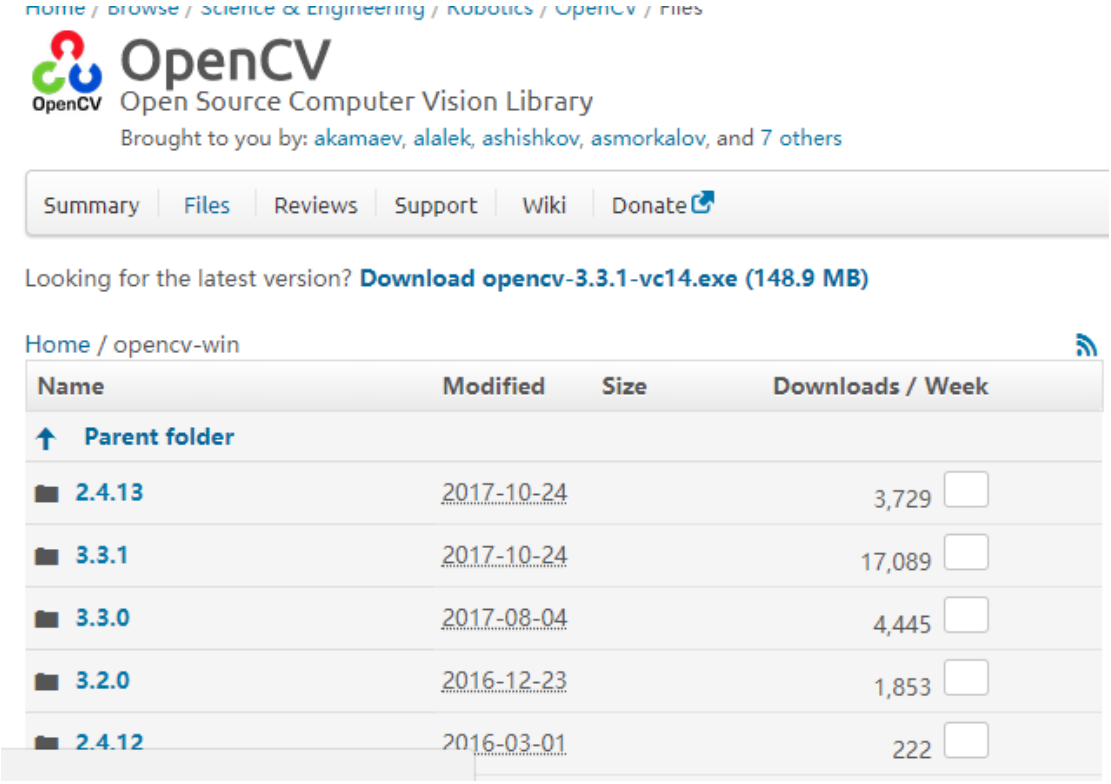
②下载完成后，开始安装，具体安装步骤请参考

http://blog.csdn.net/siwuxie095/article/details/53431818

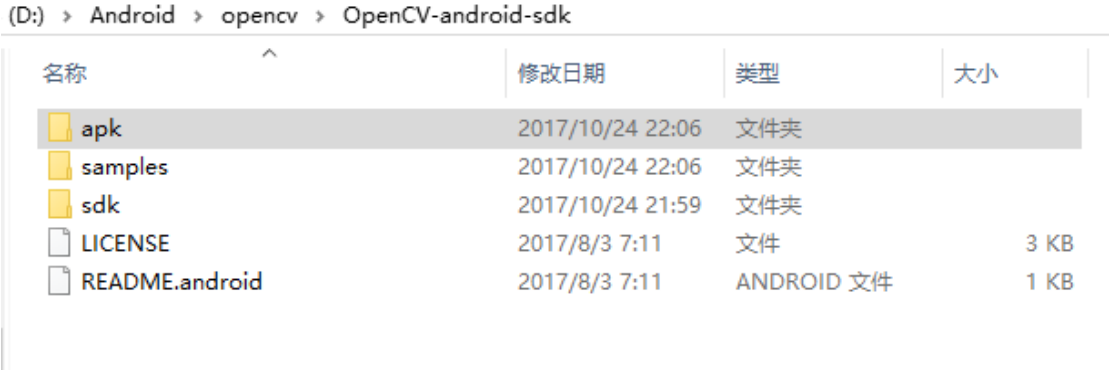
二、Android Studio 中集成 OpenCV



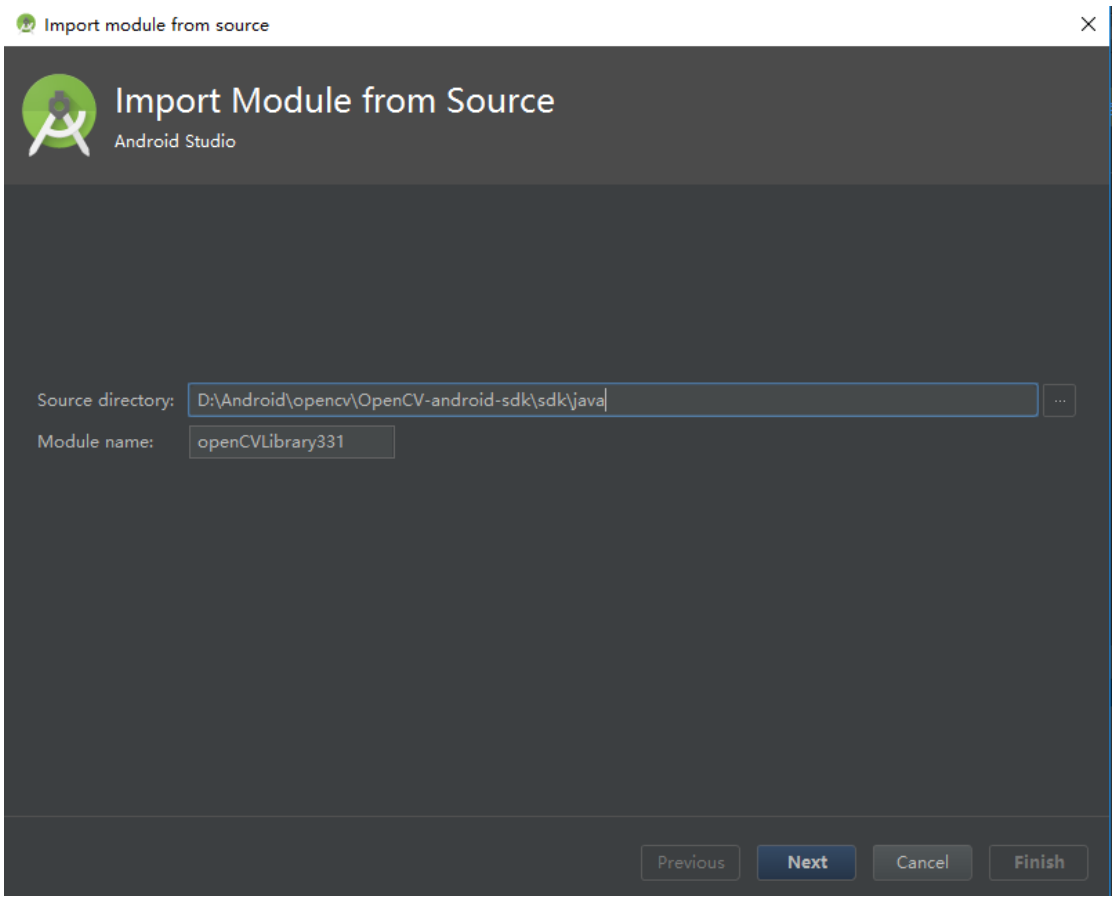
①到
https://sourceforge.net/projects/opencvlibrary/files/?source=navbar
下载 OpenCV3.3.1



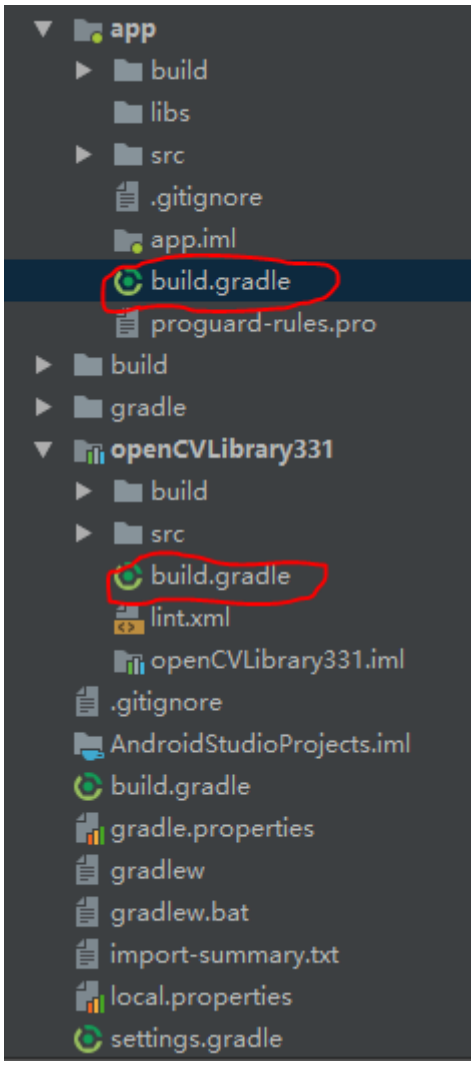
②安装解压到 D:\Android\opencv 目录下（也可以根据个人喜好选择其他安装目录）

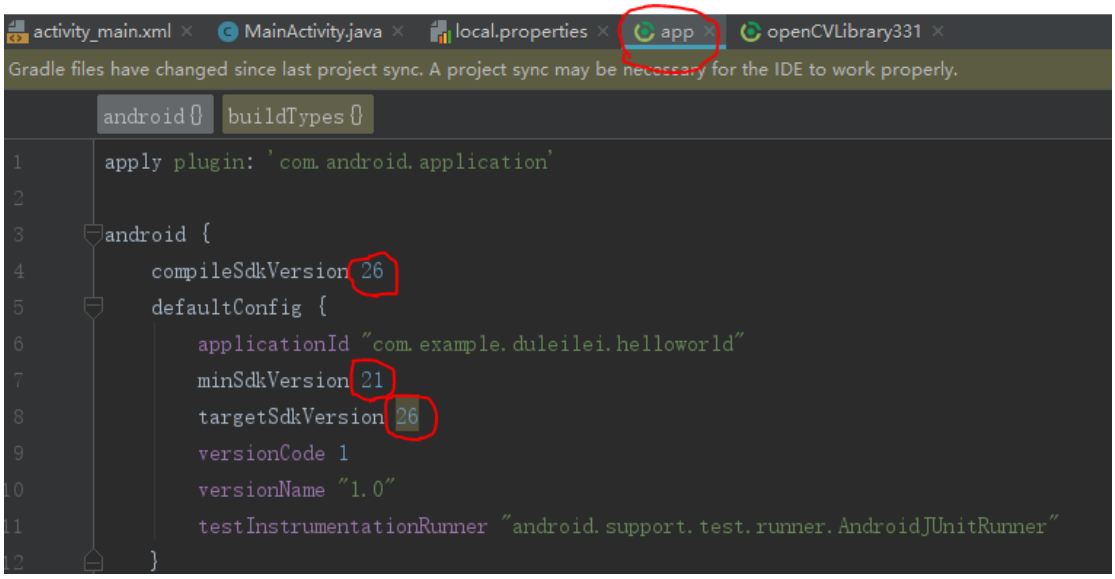


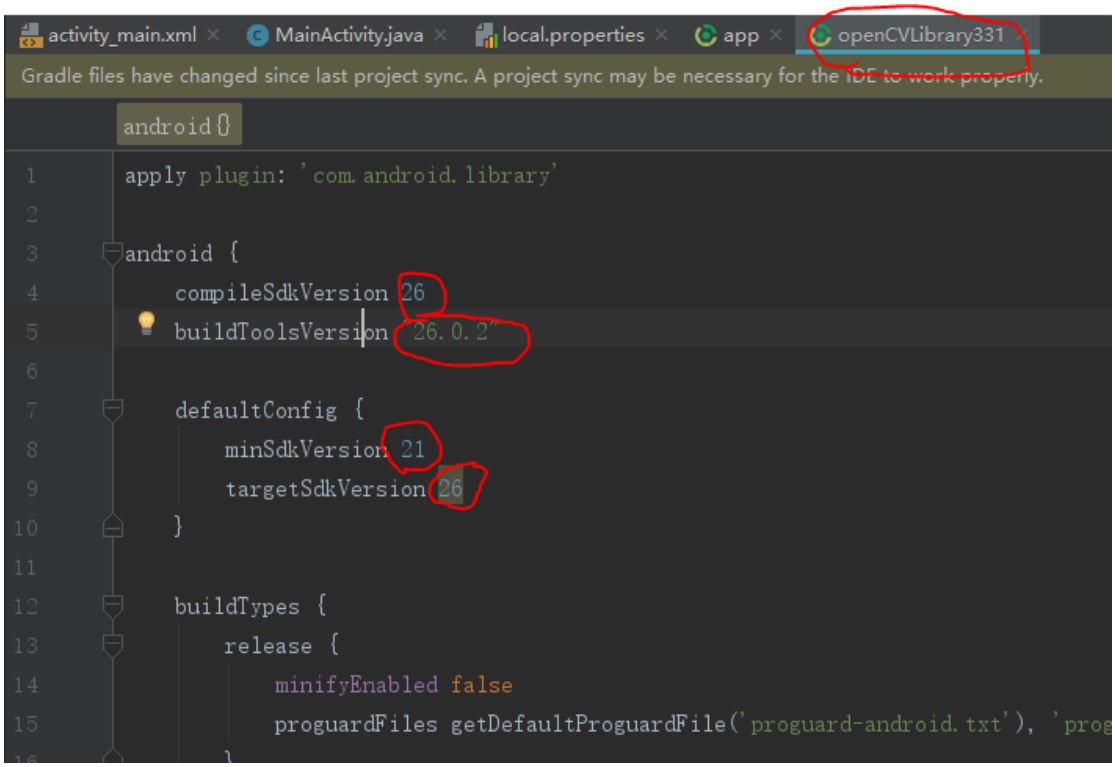
③将 OpenCV 引入 Android Studio，即在 Android Studio 中选择 File->Import Module，找到 OpenCV 解压的路径，选择 sdk/java 文件夹。



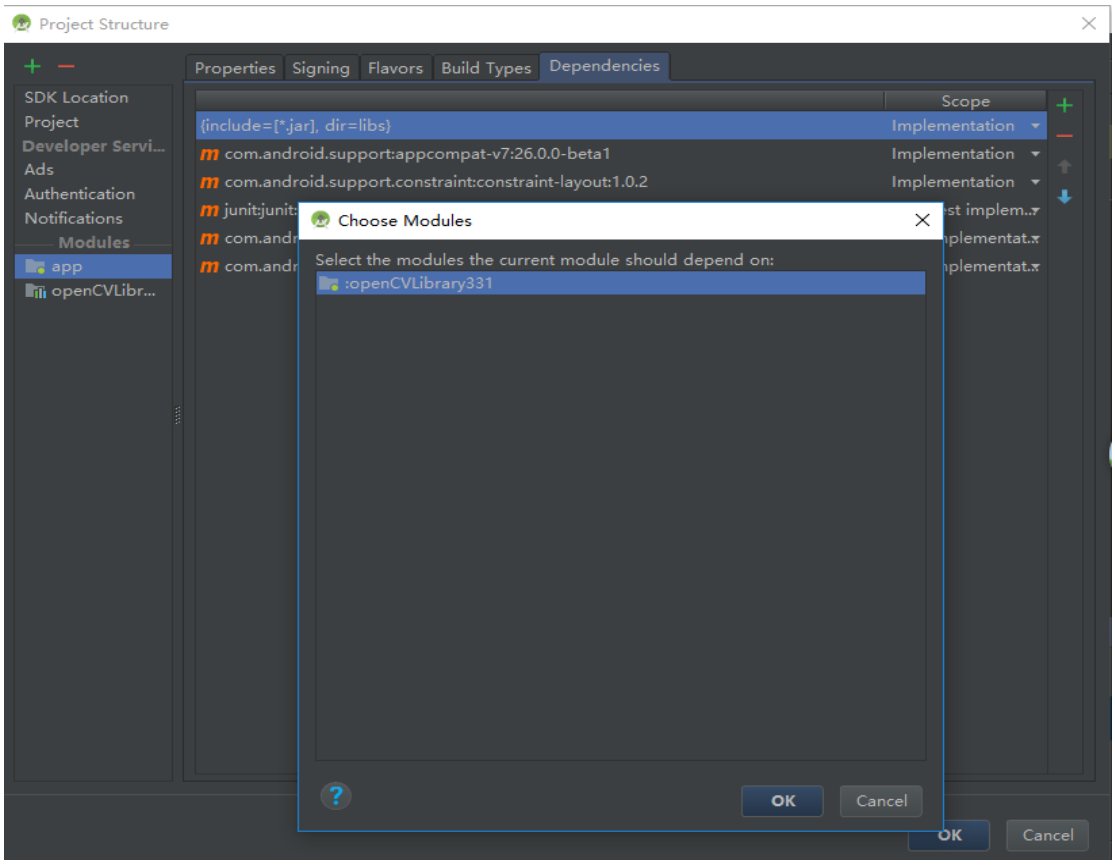
④在 Android Studio 中的左上角选择 Project 视图，在 oepnCVLibrary2411 文件夹里，打开 build.gradle，修改文件中的 compileSdkVersion、buildToolsVersion、minSdkVersion、targetSdkVersion，将其内容与 app 文件夹下的 build.gradle 中信息相一致。点击上方提示的黄色提示框内的 Try Again 进行更新。


app
build
libs
src
.gitignore
app.iml
build.gradle
proguard-rules.pro
build
gradle
openCVLibrary331
build
src
build.gradle
lint.xml
openCVLibrary331.iml
.gitignore
AndroidStudioProjects.iml
build.gradle
gradle.properties
gradlew
gradlew.bat
import-summary.txt
local.properties
settings.gradle

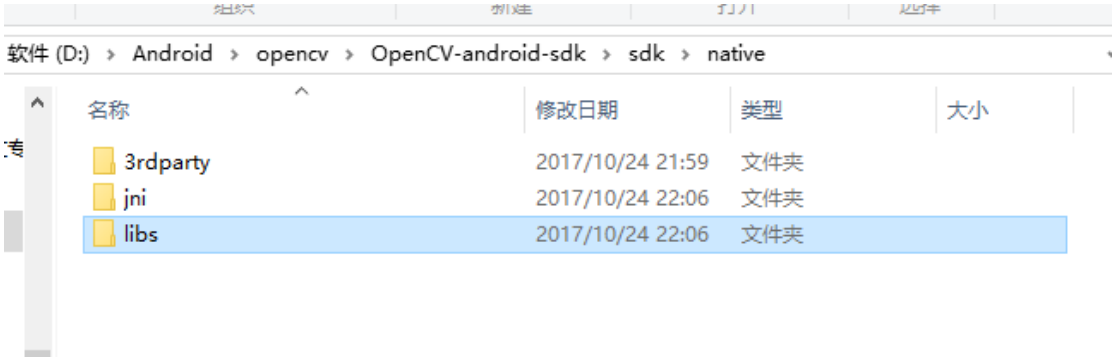

activity_main.xml
MainActivity.java
local.properties
app
openCVLibrary331
Gradle files have changed since last project sync. A project sync may be necessary for the IDE to work properly.
android {}
buildTypes {}
apply plugin: 'com.android.application'
android {
compileSdkVersion 26
defaultConfig {
applicationId "com.example.duleilei.helloworld"
minSdkVersion 21
targetSdkVersion 26
versionCode 1
versionName "1.0"
testInstrumentationRunner "android.support.test.runner.AndroidJUnitRunner"
}

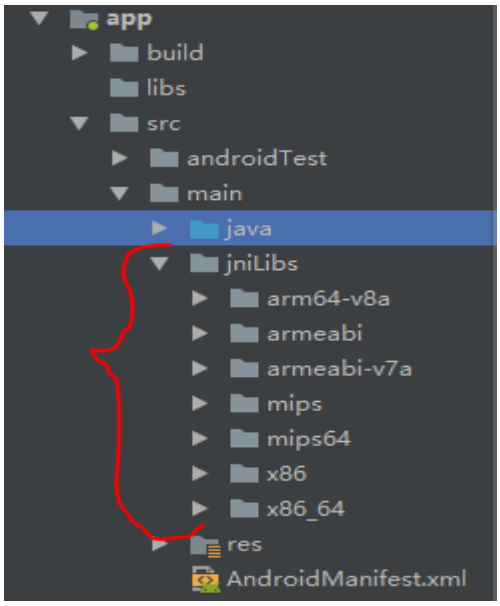


⑤添加 Module Dependency，右键 app 文件夹，选择 Open Module Settings，在 app module 的 Dependencies 一栏中，点击右上角的绿色加号，将 openCVLibrary331 添加进去，点击确定。



⑥在 OpenCV 的解压包中，将 sdk-->native-->libs 文件夹复制，粘贴在 Project 视图下 app-->src-->main 目录下，并将其重命名为 jniLibs。



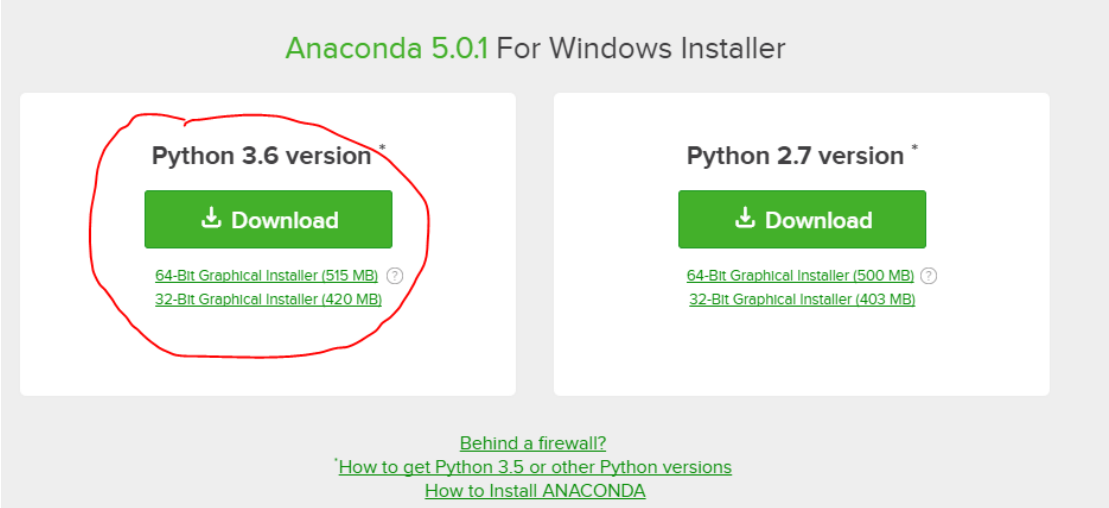


⑦至此，OpenCV 集成到 Android Studio 中的配置工作已全部完成，现在开始进行 demo 测试，测试成功！说明 OpenCV 已成功集成到 Android Studi

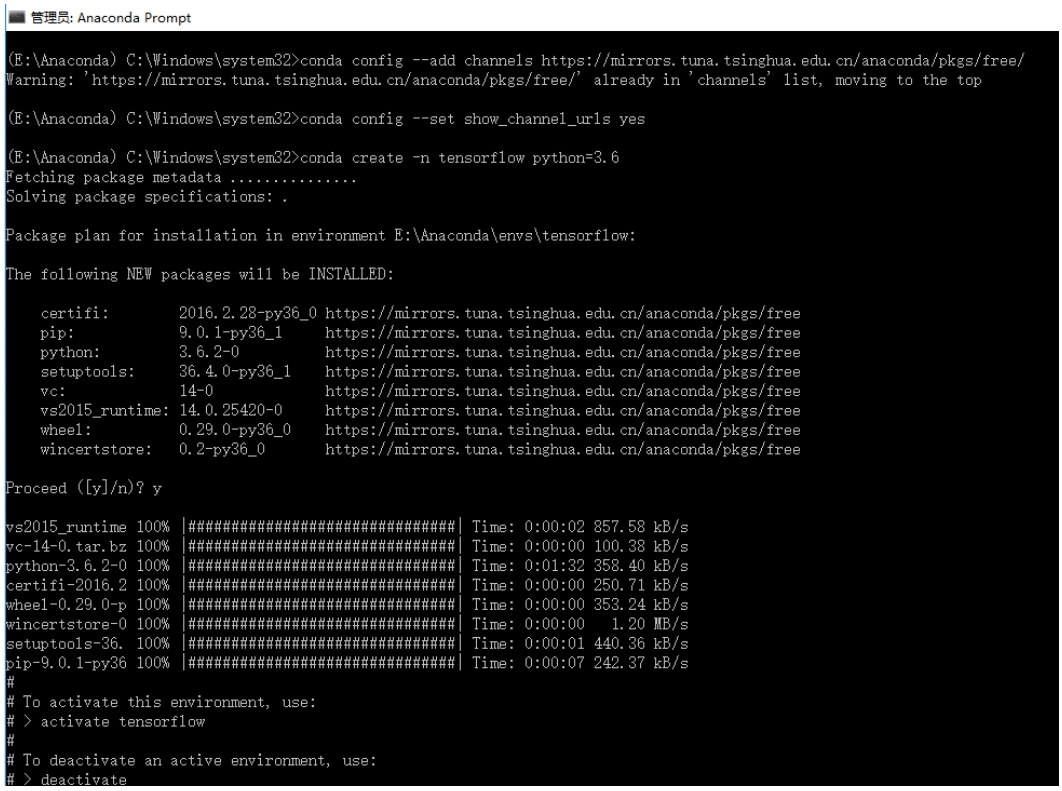
三、Android Studio 运行 tensorflow 的 demo
(参考 http://www.cnblogs.com/afangxin/p/6992050.html 和
http://m.blog.csdn.net/Ouyangjianxiu/article/details/78143700)

①下载安装 anaconda

下载地址 https://www.continuum.io/downloads/



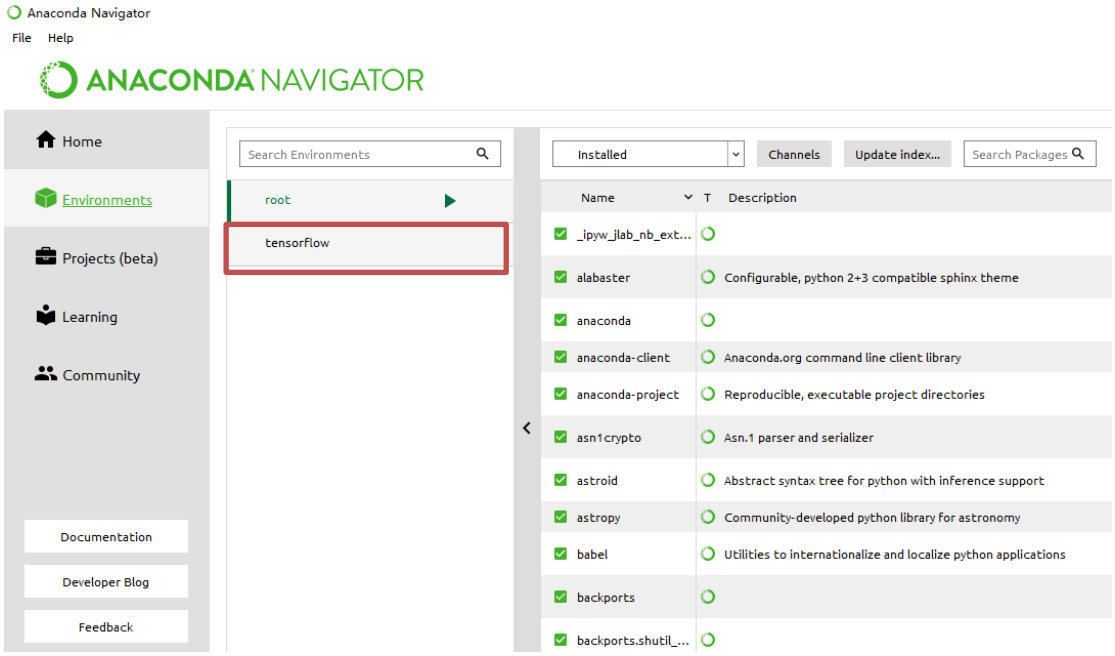
②安装 TensorFlow
打开 Anaconda Prompt，输入操作指令



```
#
# To activate this environment, use:
# > activate tensorflow
#
# To deactivate an active environment, use:
# > deactivate
#
# * for power-users using bash, you must source
#


(E:\Anaconda) C:\Windows\system32>conda create -n tensorflow python=3.6
```

③给 TensorFlow 单独创建一个环境



④测试安装结果

```
C:\Users\Dulei1ei>python -m pip install -U pip
Collecting pip
  Downloading pip-9.0.1-py2.py3-none-any.whl (1.3MB)
    100% |████████████████████████████████| 1.3MB 135kB/s
Installing collected packages: pip
  Found existing installation: pip 7.1.2
    Uninstalling pip-7.1.2:
      Successfully uninstalled pip-7.1.2
Successfully installed pip-9.0.1

C:\Users\Dulei1ei>
```

```
(E:\Anaconda) C:\Windows\system32>activate tensorflow

(tensorflow) C:\Windows\system32>pip install --upgrade --ignore-installed tensorflow
Collecting tensorflow
  Downloading tensorflow-1.4.0-cp36-cp36m-win_amd64.whl (28.3MB)
    100% |████████████████████████████████| 28.3MB 16kB/s
Collecting enum34>=1.1.6 (from tensorflow)
  Downloading enum34-1.1.6-py3-none-any.whl
Collecting six>=1.10.0 (from tensorflow)
  Downloading six-1.11.0-py2.py3-none-any.whl
Collecting tensorflow-tensorboard<0.5.0,>=0.4.0rc1 (from tensorflow)
  Downloading tensorflow_tensorboard-0.4.0rc3-py3-none-any.whl (1.7MB)
    100% |████████████████████████████████| 1.7MB 108kB/s
Collecting wheel>=0.26 (from tensorflow)
  Downloading wheel-0.30.0-py2.py3-none-any.whl (49kB)
    100% |████████████████████████████████| 51kB 127kB/s
Collecting numpy>=1.12.1 (from tensorflow)
  Downloading numpy-1.13.3-cp36-none-win_amd64.whl (13.1MB)
    100% |████████████████████████████████| 13.1MB 44kB/s
Collecting protobuf>=3.3.0 (from tensorflow)
  Downloading protobuf-3.5.0.post1-py2.py3-none-any.whl (389kB)
    100% |████████████████████████████████| 389kB 187kB/s
Collecting html5lib==0.9999999 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading html5lib-0.9999999.tar.gz (889kB)
    100% |████████████████████████████████| 890kB 220kB/s
Collecting werkzeug>=0.11.10 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Werkzeug-0.12.2-py2.py3-none-any.whl (312kB)
    100% |████████████████████████████████| 317kB 199kB/s
Collecting markdown>=2.6.8 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Markdown-2.6.9.tar.gz (271kB)
    100% |████████████████████████████████| 276kB 170kB/s
Collecting bleach==1.5.0 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading bleach-1.5.0-py2.py3-none-any.whl
Collecting setuptools (from protobuf>=3.3.0->tensorflow)
  Downloading setuptools-37.0.0-py2.py3-none-any.whl (481kB)
    100% |████████████████████████████████| 491kB 107kB/s
```

```
Collecting markdown>=2.6.8 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading Markdown-2.6.9.tar.gz (271kB)
    100% |████████████████████████████████| 276kB 170kB/s
Collecting bleach==1.5.0 (from tensorflow-tensorboard<0.5.0,>=0.4.0rc1->tensorflow)
  Downloading bleach-1.5.0-py2.py3-none-any.whl
Collecting setuptools (from protobuf>=3.3.0->tensorflow)
  Downloading setuptools-37.0.0-py2.py3-none-any.whl (481kB)
    100% |████████████████████████████████| 491kB 107kB/s
Building wheels for collected packages: html5lib, markdown
  Running setup.py bdist_wheel for html5lib ... done
  Stored in directory: C:\Users\Duleilei\AppData\Local\pip\Cache\wheels\6f\85\6c\56b8e1292c6214c4eb73b9dda50f53e8e977bf65989373c962
  Running setup.py bdist_wheel for markdown ... done
  Stored in directory: C:\Users\Duleilei\AppData\Local\pip\Cache\wheels\bf\46\10\c93e17ae86ae3b3a919c7b39dad3b5ccf09aeb066419e5c1e5
Successfully built html5lib markdown
Installing collected packages: enum34, six, html5lib, werkzeug, numpy, markdown, wheel, bleach, setuptools, protobuf, tensorflow-tensorboard, tensorflow
Successfully installed bleach-1.5.0 enum34-1.1.6 html5lib-0.9999999 markdown-2.6.9 numpy-1.13.3 protobuf-3.5.0.post1 setuptools-37.0.0 six-1.11.0 tensorflow-1.4.0 tensorflow-tensorboard-0.4.0rc3 werkzeug-0.12.2 wheel-0.30.0
```

Anaconda Prompt - python

```
(E:\Anaconda) C:\Users\Duleilei>activate tensorflow

(tensorflow) C:\Users\Duleilei>python
Python 3.6.2 |Continuum Analytics, Inc.| (default, Jul 20 2017, 12:30:02) [MSC v.1900 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import tensorflow as tf
>>> hello=tf.constant("Hello,TensorFlow!")
>>> sess=tf.Session()
2017-11-24 13:42:53.742403: I C:\tf_jenkins\home\workspace\rel-win\M\windows\PY\36\tensorflow\core\platform\cpu_feature_guard.cc:137] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX
>>> print(sess.run(hello))
b'Hello,TensorFlow!'
>>>
```

```
(tensorflow) C:\Windows\system32>activate tensorflow

(tensorflow) C:\Windows\system32>ipython
Python 3.6.2 |Continuum Analytics, Inc.| (default, Jul 20 2017, 12:30:02) [MSC v.1900 64 bit (AMD64)]
Type 'copyright', 'credits' or 'license' for more information
IPython 6.1.0 -- An enhanced Interactive Python. Type '?' for help.

In [1]: import tensorflow as tf

In [2]:
```

⑤在 AndroidStudio 下测试 TensorFlow 的测试用例
(参考 http://blog.sina.com.cn/s/blog_6204ca300102x2w2.html, http://blog.csdn.net/offbye/article/details/78369711)
最后，手机上成功安装.apk 程序