

# Software Engineering Basis & Practice

CURRICULUM PRACTICAL ASSIGNMENT 2

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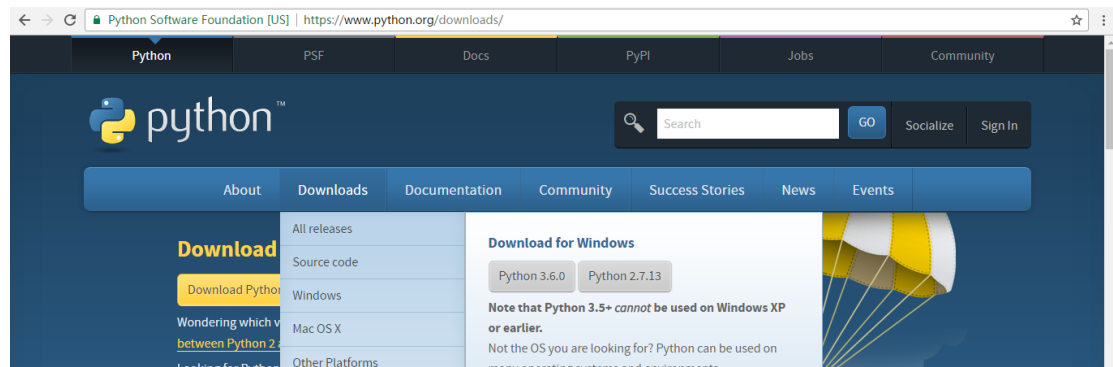
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## 1. Development Environment: Python 3.5.2

### Install Python 3.5.2

Go to the official website of Python: <https://www.python.org>;

Get into the column “DOWNLOAD”;



Find “Python 3.5.2” in “Release version”, and click on “Download”;

ATTENTION: choose the suitable version to your machine

Looking for a specific release?

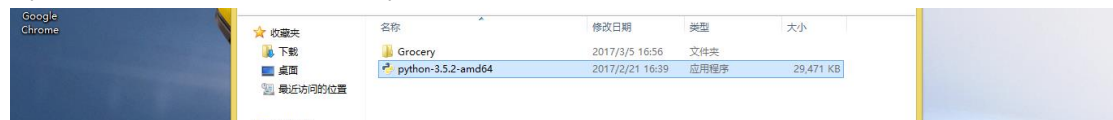
Python releases by version number:

Release version	Release date		Click for more
<a href="#">Python 2.7.13</a>	2016-12-17	<a href="#">Download</a>	<a href="#">Release Notes</a>
<a href="#">Python 3.4.5</a>	2016-06-27	<a href="#">Download</a>	<a href="#">Release Notes</a>
<a href="#">Python 3.5.2</a>	2016-06-27	<a href="#">Download</a>	<a href="#">Release Notes</a>
<a href="#">Python 2.7.12</a>	2016-06-25	<a href="#">Download</a>	<a href="#">Release Notes</a>

Version	Operating System	Description	MDS Sum	File Size	GPG
<a href="#">Gzipped source tarball</a>	Source release		3fe8434643a78630c61c6464fe7e72	20566643	<a href="#">SIG</a>
<a href="#">XZ compressed source tarball</a>	Source release		8906efbacfdcc7c3c9198aeefaf159e	15222676	<a href="#">SIG</a>
<a href="#">Mac OS X 32-bit i386/PPC installer</a>	Mac OS X	for Mac OS X 10.5 and later	5ae81eea42bb6758b6d775ebcaf32eda	26250336	<a href="#">SIG</a>
<a href="#">Mac OS X 64-bit/32-bit installer</a>	Mac OS X	for Mac OS X 10.6 and later	11a9f4fc3f6b93e3ffb26c383822a272	24566858	<a href="#">SIG</a>
<a href="#">Windows help file</a>	Windows		24b95be314f7bad1cc5361ae449adc3d	7777812	<a href="#">SIG</a>
<a href="#">Windows x86-64 embeddable zip file</a>	Windows	for AMD64/EM64T/x64, not Itanium processors	f1c24bb78bd6dd792a73d5ebfbd3b20e	6862200	<a href="#">SIG</a>
<a href="#">Windows x86-64 executable installer</a>	Windows	for AMD64/EM64T/x64, not Itanium processors	4da6dbc8e43e2249a0892d257e977291	30177896	<a href="#">SIG</a>
<a href="#">Windows x86-64 web-based installer</a>	Windows	for AMD64/EM64T/x64, not Itanium processors	c35b6526761a9cde4b6dccb4a3d7c60	970224	<a href="#">SIG</a>
<a href="#">Windows x86 embeddable zip file</a>	Windows		ad637a1db7cf91e344318d55c94ad3ca	6048722	<a href="#">SIG</a>

Open the executable installer on your machine;



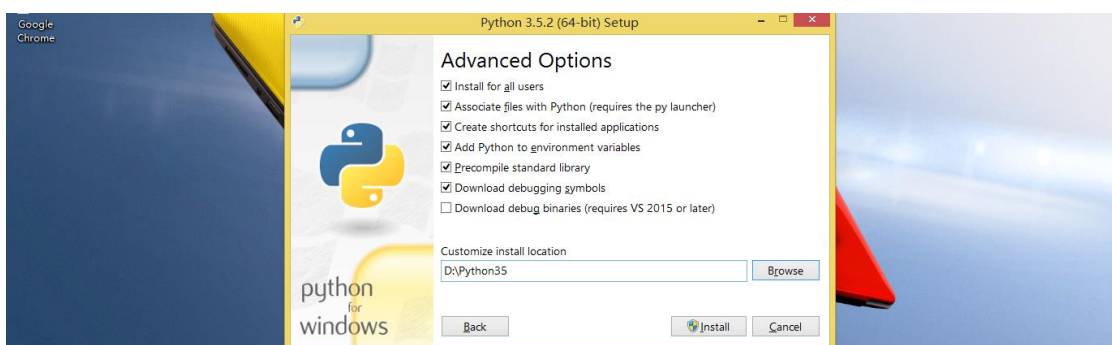
Select “Add Python 3.5 to PATH” and click on “Customize Installation”;



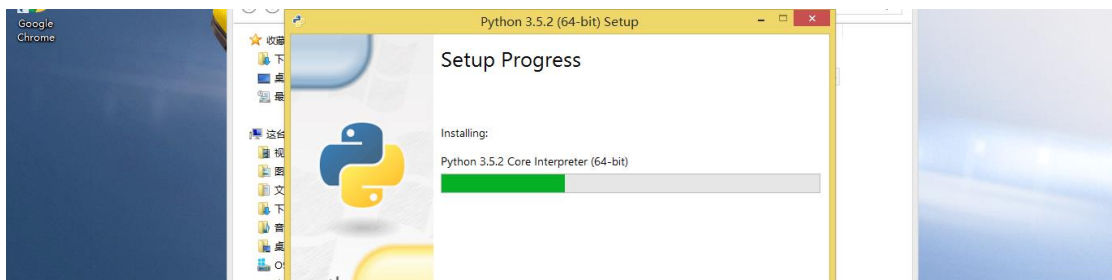
(the second page can be set as default)

Select “Install for all users” and “download debugging symbols”;

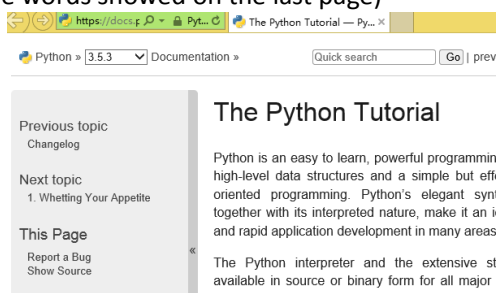
You can change the install path as you like;

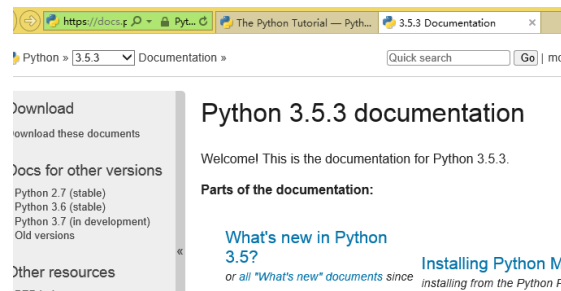


Click on “Install” and go for a cup of coffee;

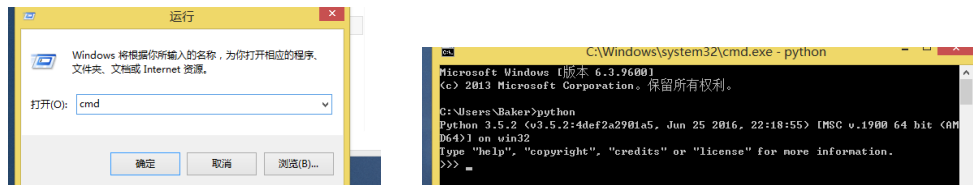


To get started with your Python, you can go to the recommended website(just click on the blue words showed on the last page)





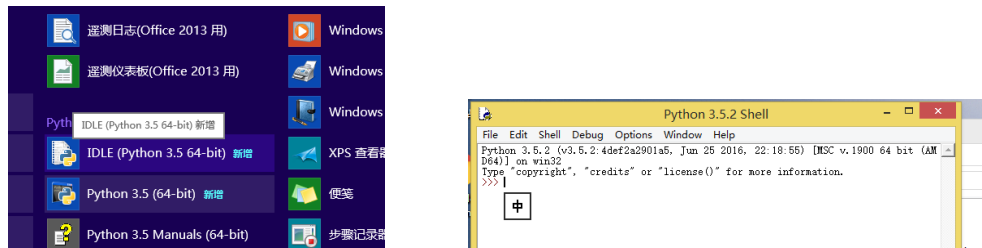
To identify that your Python has been installed indeed, open the command window(DOS);



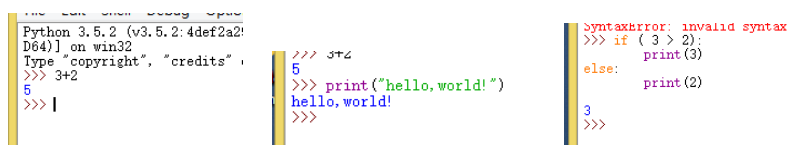
Put in "Python" and press "enter"; the symbol ">>>" means that Python has been installed. And you could also check the path in which the python has been added;

## Program in IDLE ( Shell )

Enter the start menu and find the item "IDLE", and a command window will emerge;



Type in some simple code to execute ;( 3+2 / print("hello world!") / etc.)



## 2. Extension Modules

### Install the Python extension packages

Download the extension packages to your machine;



Press "shift" and click the right button at the same time to open the menu, choose "open the

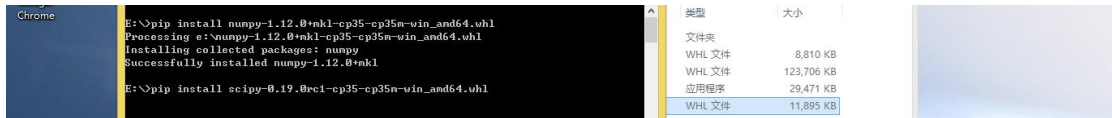
command window from here”;



Put in “pip install \*\*\*.whl” in the command window; then press “enter”;



Install the packages one by one;

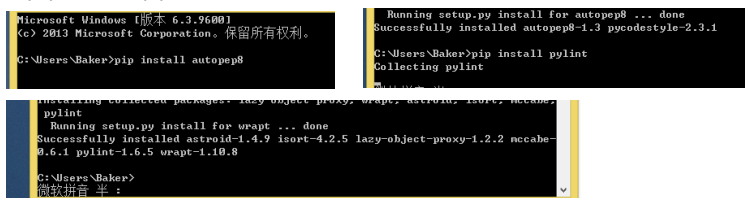


(sci, num, matplotlib)

Install the package PEP8 & PYLINT

> pip install autopep8

> pip install pylint

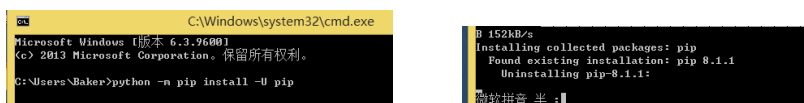


### 3. Interactive Environment: Jupyter Notebook

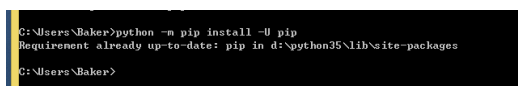
#### Update pip

To update the pip, open the command window;

> python -m pip install -U pip (second coffee time)



If you are not sure whether the update has been finished, or you just need to install the latest version, run the same command please;



#### Install Jupyter Notebook

After the pip has been undated,

>pip install jupyter (a third coffee)

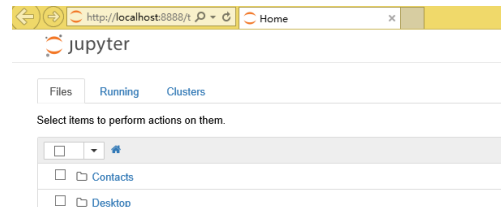
```
C:\Users\Baker>pip install jupyter
Collecting jupyter
  Downloading jupyter-1.0.0-py2.py3-none-any.whl
Collecting nbconvert<from jupyter>
  Downloading nbconvert-5.1.1-py2.py3-none-any.whl (372kB)
38% |#####| 143kB 93kB/s
41% |#####| 153kB 93kB/s
43% |#####| 163kB 88kB/s
46% |#####| 174kB 95kB/s
```

```
5.1.1 nbformat-4.3.0 notebook-4.4.1 pandocfilters-1.4.1 pic
e-too-lit-1.0.13 pygments-2.2.0 python-dateutil-2.6.0 pyzmq-1
.1 simplegeneric-0.8.1 six-1.10.0 testpath-0.3 tornado-4.4.2
idth-0.1.7 widgetsnbextension-2.0.0 win-unicode-console-0.5
C:\Users\Baker>_
微软拼音 丰 :
```

Then, start jupyter notebook;

>jupyter notebook

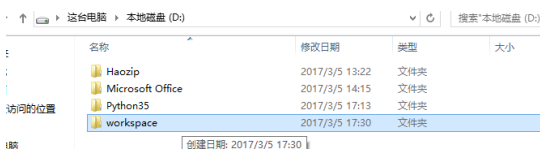
```
Successfully installed nbformat-4.3.0 notebook-4.4.1 pandocfilters-1.4.1
py-toolkit-1.0.13 pygments-2.2.0 python-dateutil-2.6.0 pyzmq-1.1
simplegeneric-0.8.1 six-1.10.0 testpath-0.3 tornado-4.4.2 width-0.1.7
widgetsnbextension-2.0.0 win-unicode-console-0.5
C:\Users\Baker>jupyter notebook
2个项目
```



## Quick-entrance to Jupyter notebook

To start jupyter more easily, you need to build a quick-entrance;

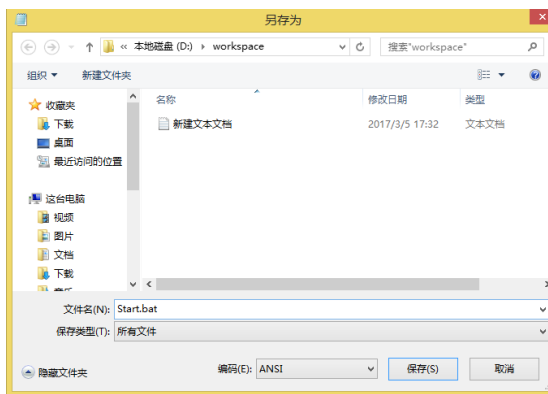
First, set a workspace (any folder will do, or you just build a new one);



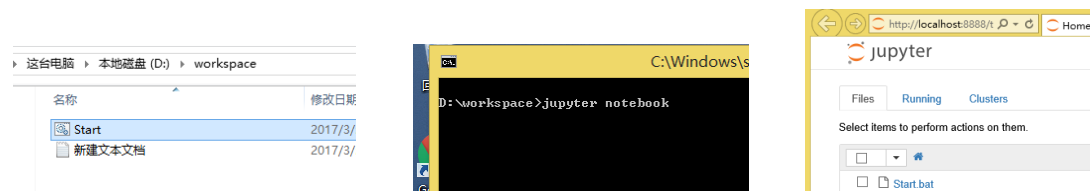
Build a txt file in the folder, and put in “jupyter notebook”;



Save the txt file as a bat file (add bat extension in the file name);



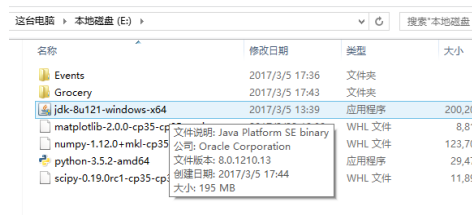
Run the new bat file, and a jupyter window would be build;



## 4. Integrated Development Environment: Eclipse IDE

### Install JDK

Download JDK installer from the official website: [www.oracle.com](http://www.oracle.com);

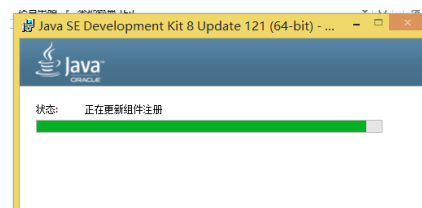
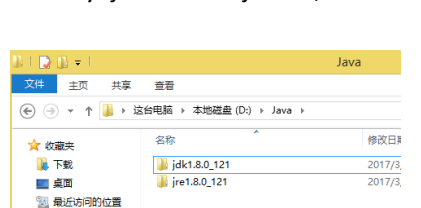


ATTENTION: choose the suitable version to your machine

Run the installer; (no need to change any setup except the installation directory)



You can set the installation directory as you like, but the parent directory must contain two subdirectory: `jdk***` and `jre***`;



If you change the first installation directory, you must change the second installation directory;

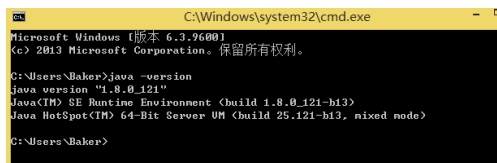


Be sure that both of the installation directory are in the same parent directory;





To confirm that the installation has been finished,  
>java -version



If your machine return the version number, JDK installation is finished successfully;

## Eclipse IDE

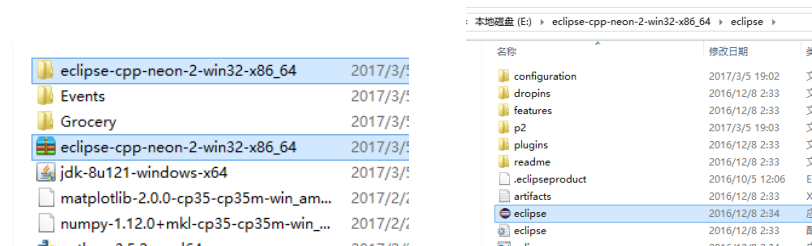
Download Eclipse IDE from the official website;



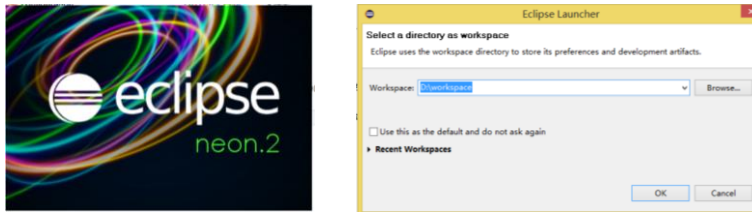
ATTENTION: choose the correct version to your machine



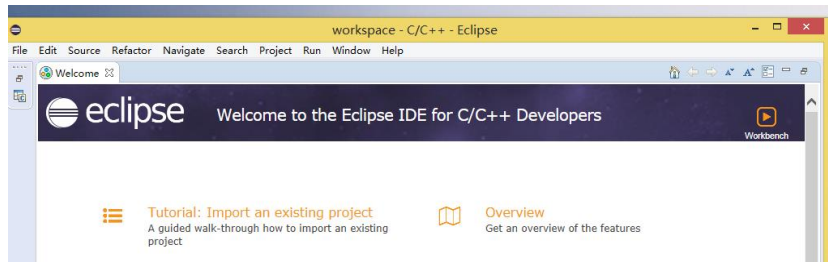
Unzip the package (any directory will do), and run the exe file "eclipse";



Choose a folder as workspace; (optional)

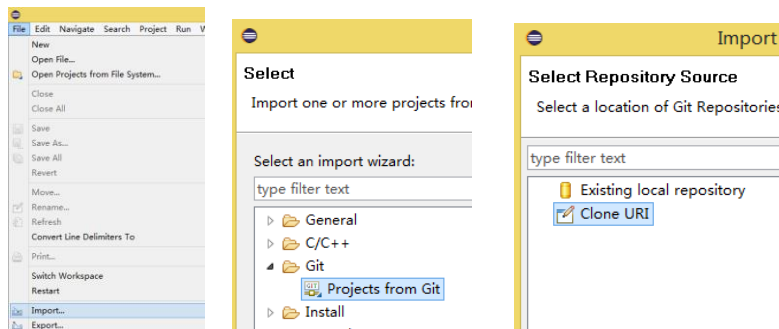


Then you'll see the welcome page;

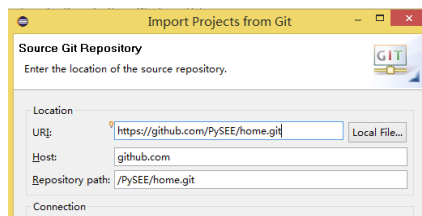


To import your work on Github,

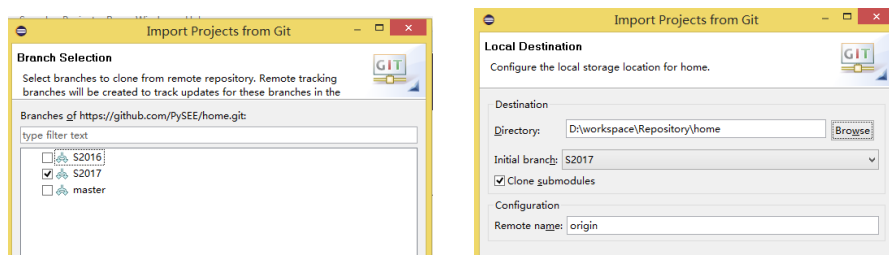
File -> Import -> Git -> Projects from Git -> Clone URI



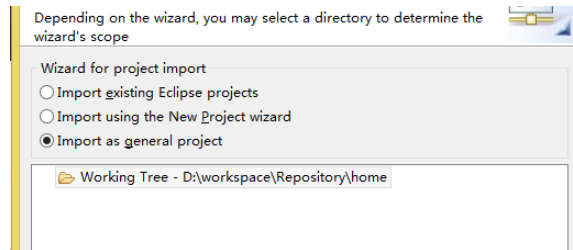
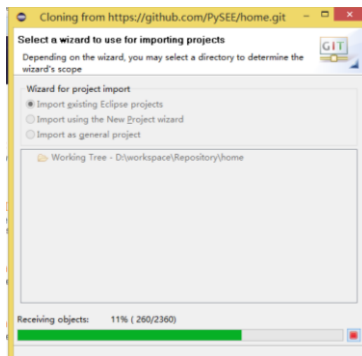
Copy the address of the repository that you want to clone to URI, then click on next;



Choose the branch and select a directory as local storage;



Then, a fourth coffee;



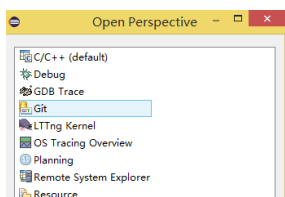
Select “import as general project” and then, finish;

Maybe you’re still facing the welcome. Click on the logo in the right-top corner

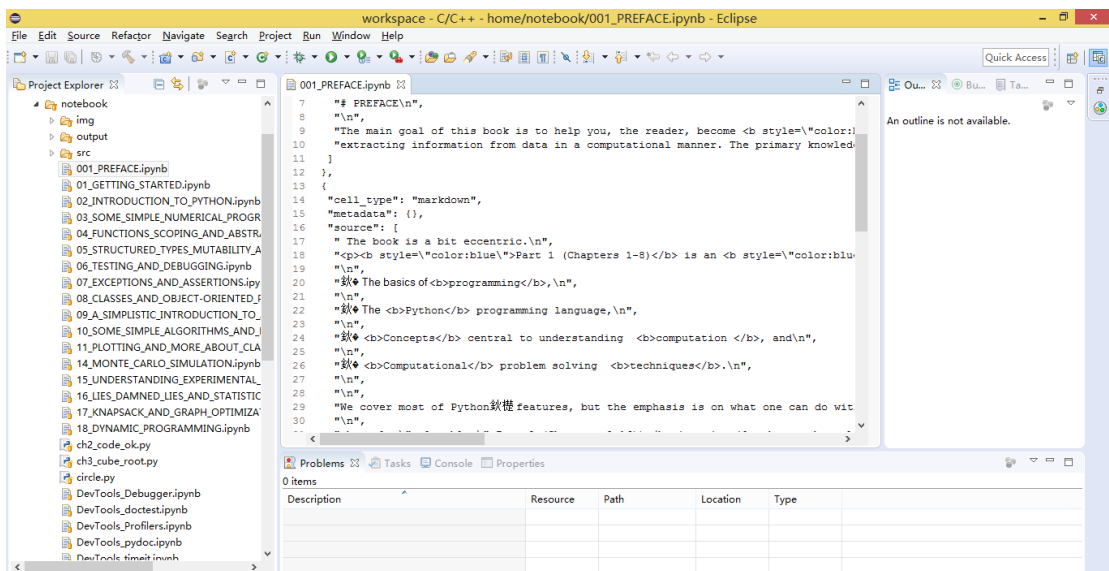


Click on the logo “Open Perspective” nearby;

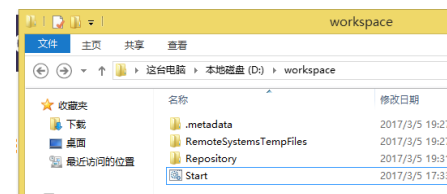
Choose “Git”;



Then you would see a Git view with the directory on the left side;



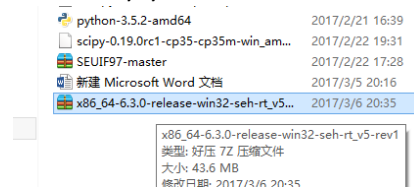
And in the workspace directory, you will find the repository that you cloned from Github.



## Run a little program

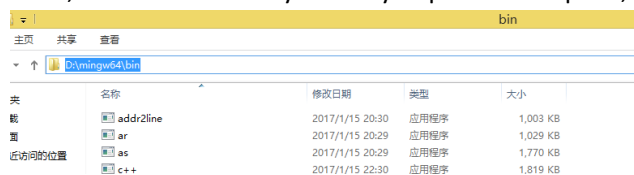
Firstly, you need to install a GCC compiler, download the package to your machine;

ATTENTION: choose the correct version,

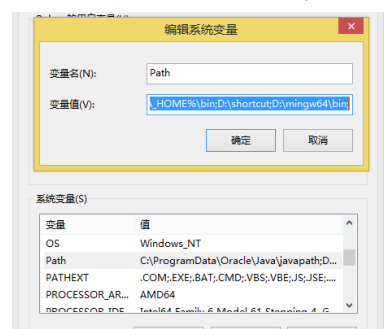


Unzip the package to the installation directory as you like;

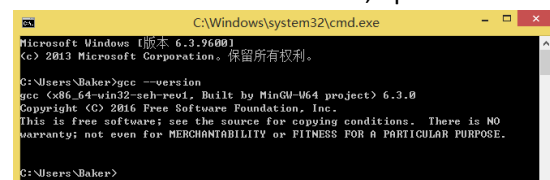
Then, enter the directory where you put the unzip file, find “bin” directory and copy its path;



Add the path into the environment variable “Path” (in command window or change the environment variable artificially);

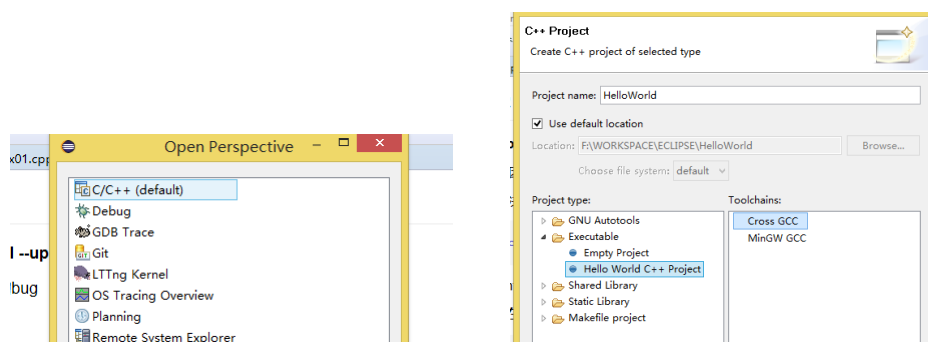


To confirm the installation, open the command window and type in “gcc --version”;

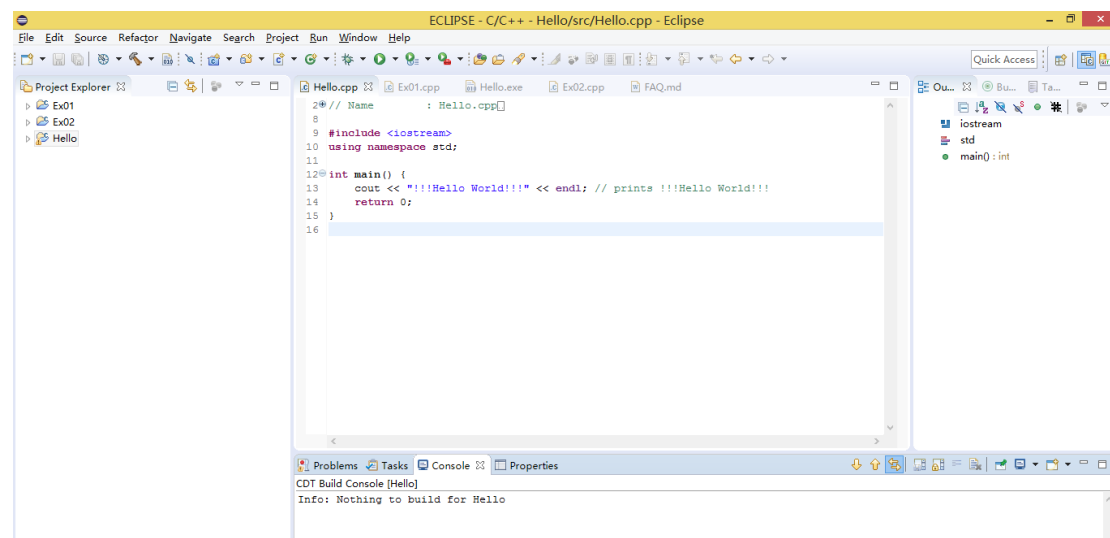


The response indicates that GCC has been installed successfully.

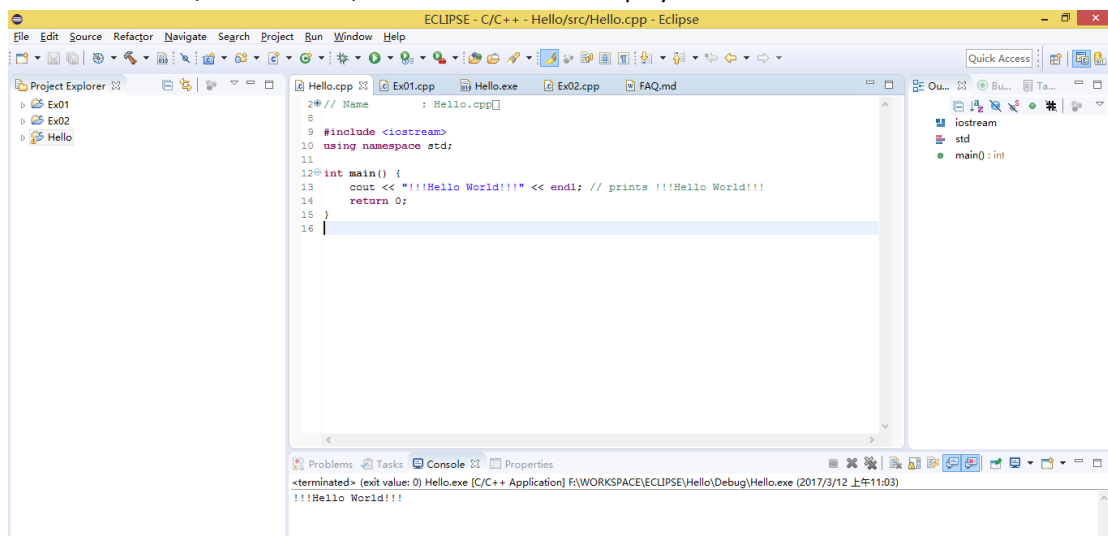
Back to Eclipse IDE, change into a C/C++ perspective, File -> New -> C++ Project;



To build a program as soon as possible, I choose a “Hello World C++ Project” and “MinGW GCC”; Then, just click on “Next” until “Finish”, a sample program would be built;



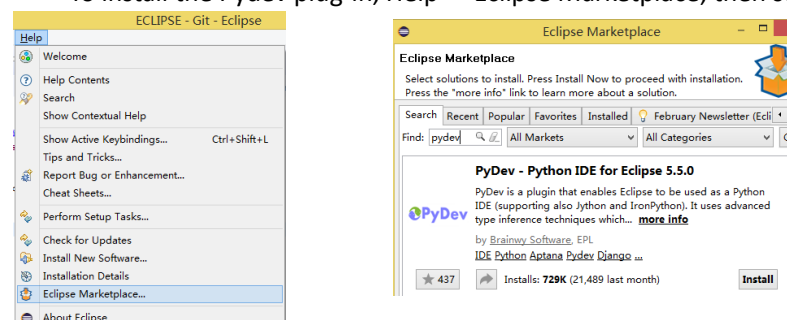
To run the program, you need to build an exe file at first;  
 Project -> Build Project, then you can see the errors and warnings from the bottom (like VC);  
 If there's no error, Run -> Run, the result will be displayed at the bottom view "Console"



## Eclipse Extension

### Pydev

To install the Pydev plug-in, Help -> Eclipse Marketplace; then search for "pydev"

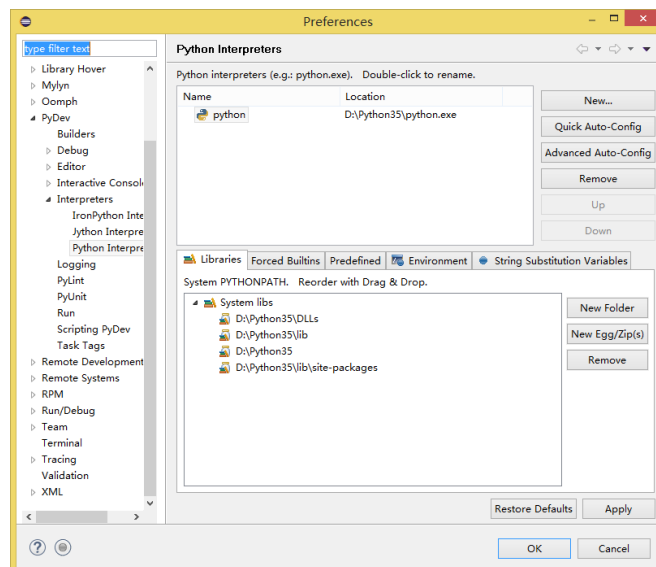


Click on “install” and go as guided.

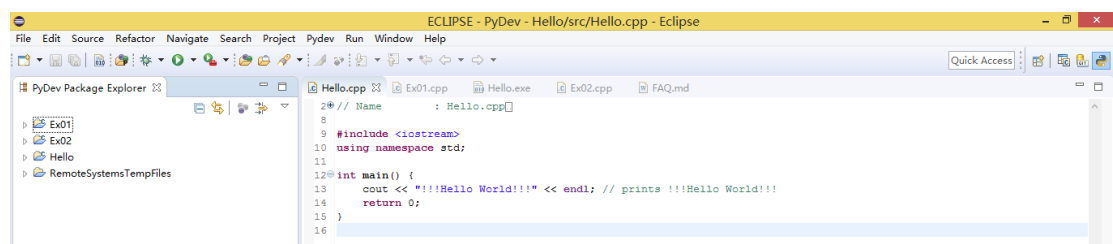
To set up the Pydev interpreters, Windows -> Preferences;

Look for the directory, Pydev -> Interpreters -> Python Interpreters(click on it);

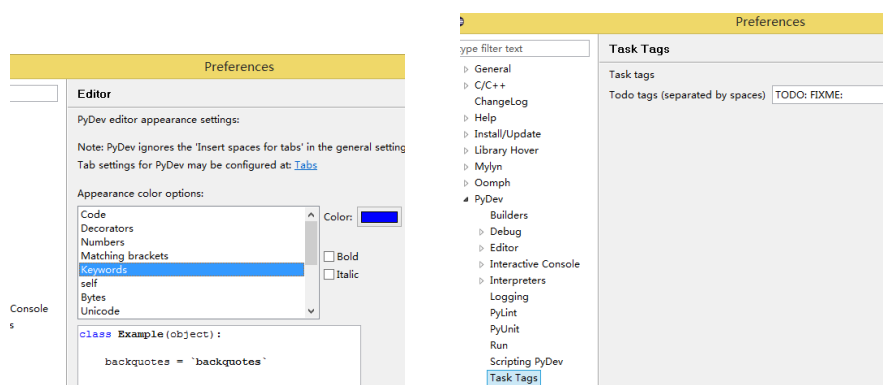
Click the button “Advanced Auto-Config”, select all items and go on.



Then, add a Pydev perspective (just like adding a Git perspective)



Also, you can make some personal setup to improve the experience while you're coding with Pydev. For instance, the colors of contents and different tags;

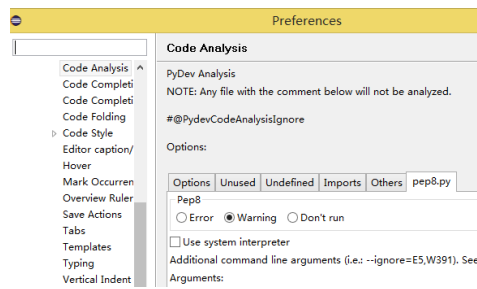


## PEP8

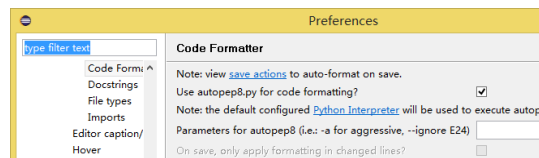
To let the machine check out your code automatically, you need to use PEP8.

Window -> Preferences -> Pydev -> Editor -> Code Analysis;

turn to pep8.py and select Warning/Error to enable pep8;



Then, search for “code formatter” through the input box at the left-top corner;  
Select “use autopep8.py for code formatting”;

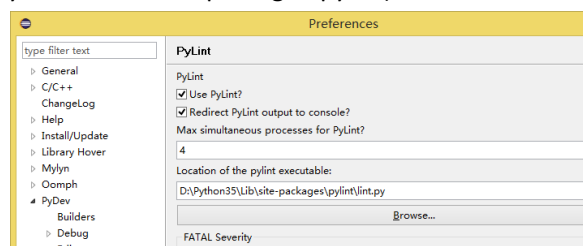


## PYLINT

Use pylint to regulate your code style.

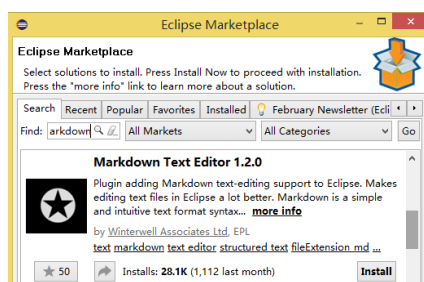
Window -> Preferences -> Pydev -> Pylint, select “Use Pylint”;

Look for the directory that your pylint was installed to locate the file “pylint.py”; (normally, `**\Python35\Lib\site-packages\pylint`) Then click on “Browse” to find the file “pylint.py”;



No need to change other setups.

## MARKDOWN



The markdown plug-in would allow you to edit markdown file on Eclipse.

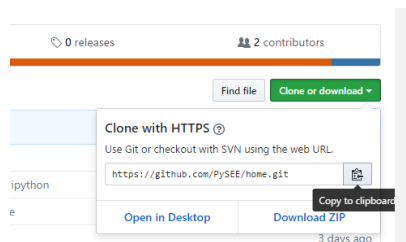
Help -> Eclipse Marketplace, search for “markdown”;

Install the Markdown Text Editor as guided.

## 5. FAQ

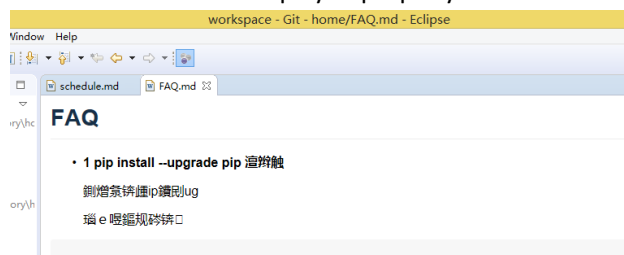
### How to acquire the URI of the repository that I want to clone?

On the right side of the repository view, there is a green button “Clone or download”. Click on it and you will see the URI of the repository, then click on the button to copy the URI.

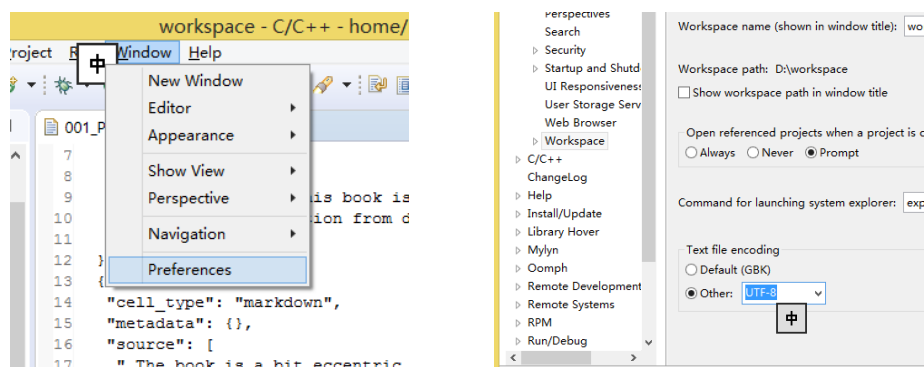


### How to correct the font showed in the Git view?

If the text cannot be displayed properly in the Git view as below,

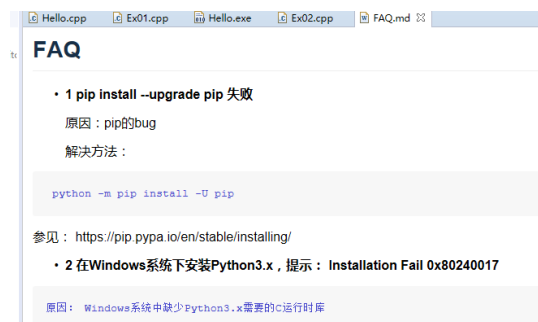


Window -> Preference -> Workspace;



Then find the column “Text file encoding” and select “Other”. Change the item to “UTF-8”; Click on “Apply” and “OK”, and restart Eclipse. The problem should be solved then.





## Additional: How to use JDK to play with JAVA

### Set up the environment variable

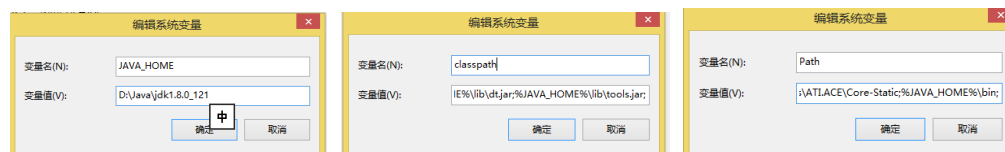
After JDK has been installed, you need to change the environment variable “Path” to execute java command. Advanced system setup -> Environment variable;



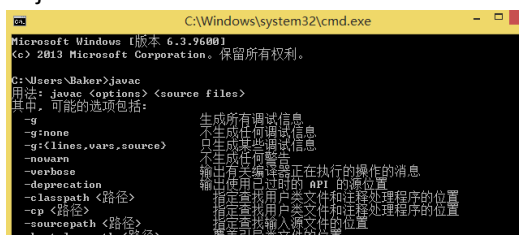
Build a new variable named “JAVA\_HOME”, and assign it a value as “\*\*/jdk1.8.0\_121;”(the first JDK installation directory);

Then, build another new variable named “classpath”, assign it “;%JAVA\_HOME%\lib\dt.jar;%JAVA\_HOME%\lib\tools.jar;”

Finally, edit the variable “Path”, add “;%JAVA\_HOME%\bin;” to the end of its value;



Then, confirm the change; to identify the effect of the operation, open the command window, >javac



The response indicate that you can write code in JAVA now.

## Run a little program in JAVA

Build a new txt file, and put in the code as below:

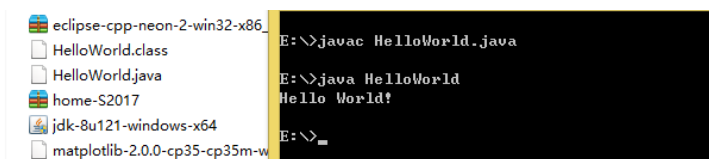
```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello World!");  
    }  
}
```

Save the file as HelloWorld.java; (PAY ATTENTION TO THE CAPITAL)

Open the command window from the directory where you lay the HelloWorld.java,

>javac HelloWorld.java , (to generate a class "HelloWorld" ) if there's no feedback,

>java HelloWorld , then you will see "Hello World!" printed on the screen.



## 6. Summary & Experience

### A LONG job

To tell the truth, it is not difficult to install the software, but it does take a while to finish all of them. It would take me at least one hour to do the job (4 cups of coffee in all), which makes me understand that patience is a must for an IT worker.

Moreover, this is an interesting journey of self-learning. Nearly all of the problems I confronted with could be found on the internet. And all I have to do is to act as guided. Then, the job was successfully finished. And I'm able to help others to solve the problems I met cause te solution has been memorized. Maybe that is how we learn.

### The internet is more powerful than I thought

I used to play games or search for informations on the internet before this. However, right now, I get to know that the network was built for greater goals --- to connect people and their works, to make it faster to convey resources and informations, to improve work efficiency and push the human society forward. Github stand for an idea, an idea to take advantage of the most talented ones to finish the most difficult jobs. It is a symbol of an ideal work style, which could realize the best allocation of resources to the most extent. That is what the internet is built for.

### The modern work style --- interconnection and collaboration

Through the Git, I realize that communication and interconnection has become the main

stream of modern work, especially for IT. Today, few jobs could be done by oneself, collaboration has been the insurance of the accomplishment of works. Therefore, the form of collaboration is the key to improve work efficiency. Git succeed in get everybody into play while ensure the speed and quality of the work.

## There will never be a destination on the way of learning

Apart from C++, there are more tools waiting for us to explore, like Python and Java. Thus, there is always much more interests waiting for us to experience. It really made me excited when my first JAVA program ran successfully. There will never be an end of learning, especially for IT workers.

## This is a digital world

This is a new world. And it is new to everyone every day. Since it develops too fast. Github provoked a new working style. And along with the spread of the new idea, a more closely connected world is coming soon --- a digital connected world.

## 7. Reference

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