

Codenza Python Guide



Codenza Development Team

Fall 2017

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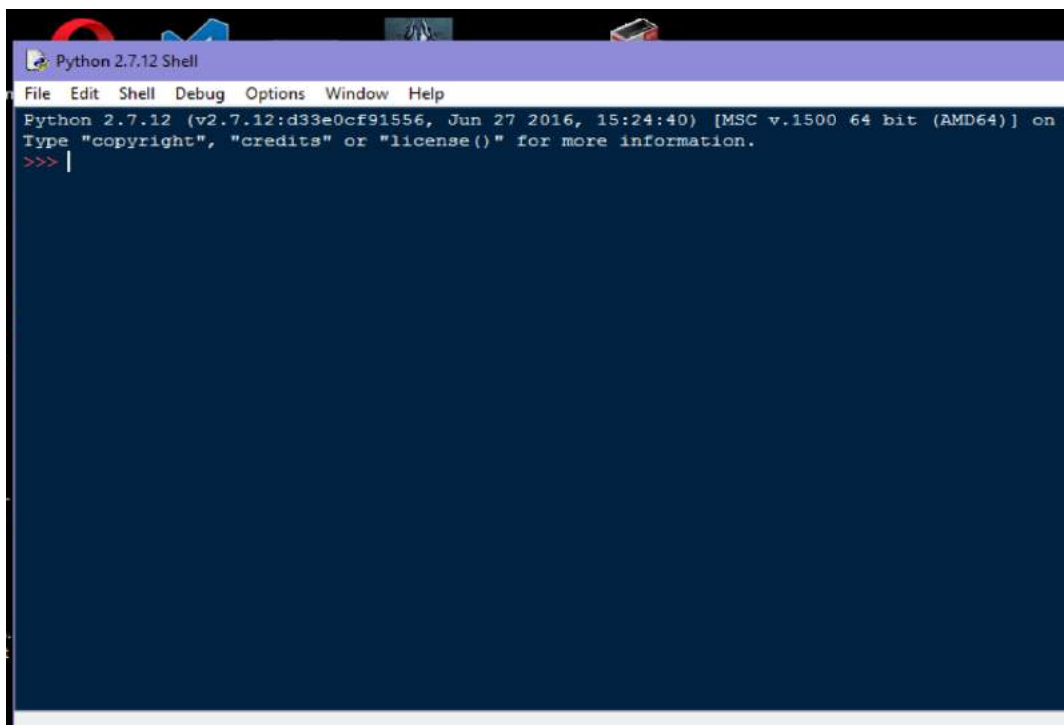
Beginner User

Download and install Python from the links below:-

Note: - Although you can download and install Python 3.x version to code and run your programs, features may differ with Python 2.x version, which is widely used.

<https://www.python.org/downloads/>

Default installation of python comes with an interactive shell environment and interpreter (IDLE), quite helpful if you don't want to install other IDE's.



Note: - Though you can download and install Python 3.x versions on Linux and Mac OS as well. They already include Python 2.x versions with their distributions. Although you will have to command line / terminal interface for that.

PyCharm IDE: -

It is a very popular IDE by the folks of JetBrains who create wonderful IDE's for a host of different programming languages. Though the IDE is a Paid One, there is a free version for Students / Teaching Faculty as well.

Download and install PyCharm IDE: -

<https://www.jetbrains.com/buy/opensource/?product=pycharm>

System Requirements: -

Windows: -

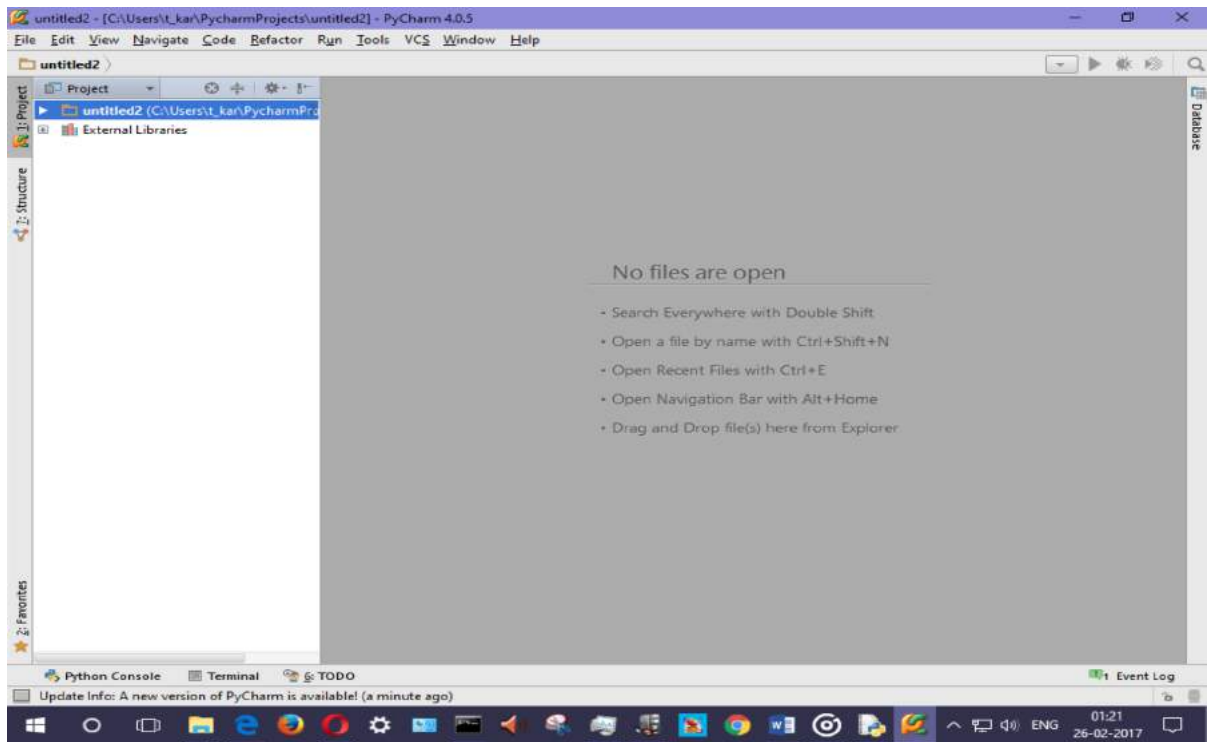
- Microsoft Windows 10/8/7/Vista/2003/XP (64-bit needed.)
- 1 GB RAM minimum.
- 2 GB RAM recommended.
- 1024x768 minimum screen resolution.
- Python 2.4 or higher.

Linux: -

- 512 MB RAM minimum, 1 GB RAM recommended.
- 1024x768 minimum screen resolution.
- Python 2.4 or higher.

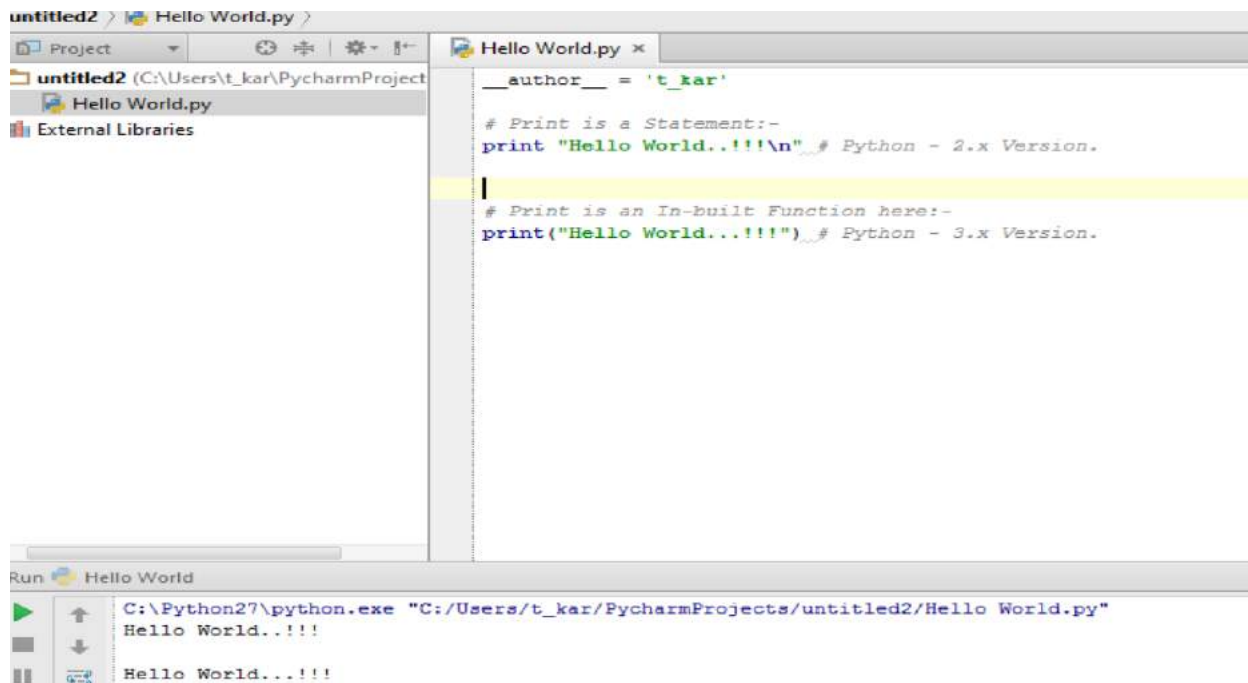
Mac OS: -

- macOS 10.8 or higher.
- 1 GB RAM minimum.
- 2 GB RAM recommended.
- Python 2.4 or higher.



Building and Executing the Program: -

Note: - There is no Compilation Step as Python is an Interpreted / Scripted Language.



PyDev IDE: -

PyDev is a Python IDE for Eclipse, from the Eclipse foundation. It is also a Solid Choice for many users who prefer Eclipse.

Download and install PyDev IDE: -

<http://www.pydev.org/download.html>

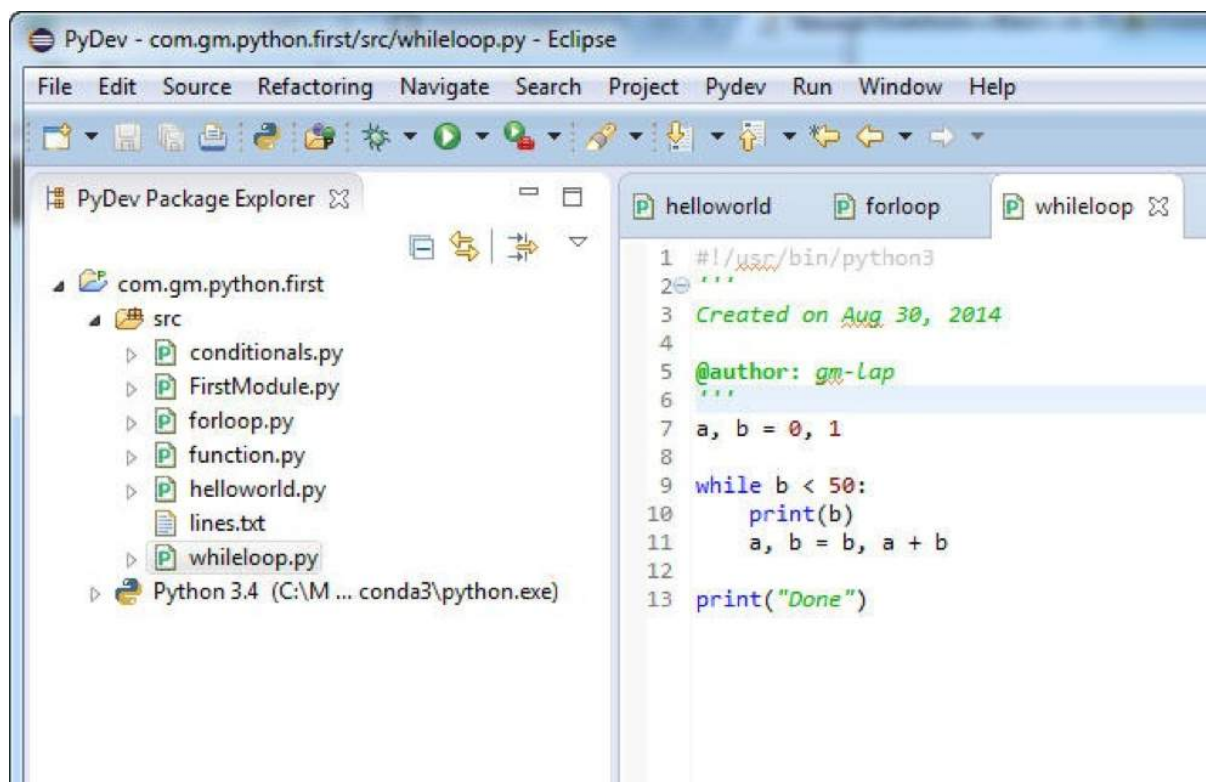
System Requirements: -

Java 8: Important: If you don't have java 8, the update process may appear to succeed, but PyDev will simply not show in the target installation.

At least one of:

- [Python](#) (2.5 or newer)
- [Jython](#) (2.5 or newer)
- [IronPython](#) (2.6 or newer)

Eclipse 4.6 (Neon) onwards.



Configure Interpreter: -

After installing it, the first thing you must do is configure the Python and/or Jython and/or IronPython interpreter.

To configure the interpreter:

1. Go to: **window > preferences > PyDev > Interpreter - (Python/Jython/IronPython).**

2. Choose the interpreter you have installed in your computer (such as python.exe, jython.jar or ipy.exe).

Note that the Auto Config will try to find it in your PATH, but it can fail if it's not there (or if you want to configure a different interpreter).

On Windows it'll also search the registry and provide a choice based on the multiple interpreters available in your computer (searching in the registry).

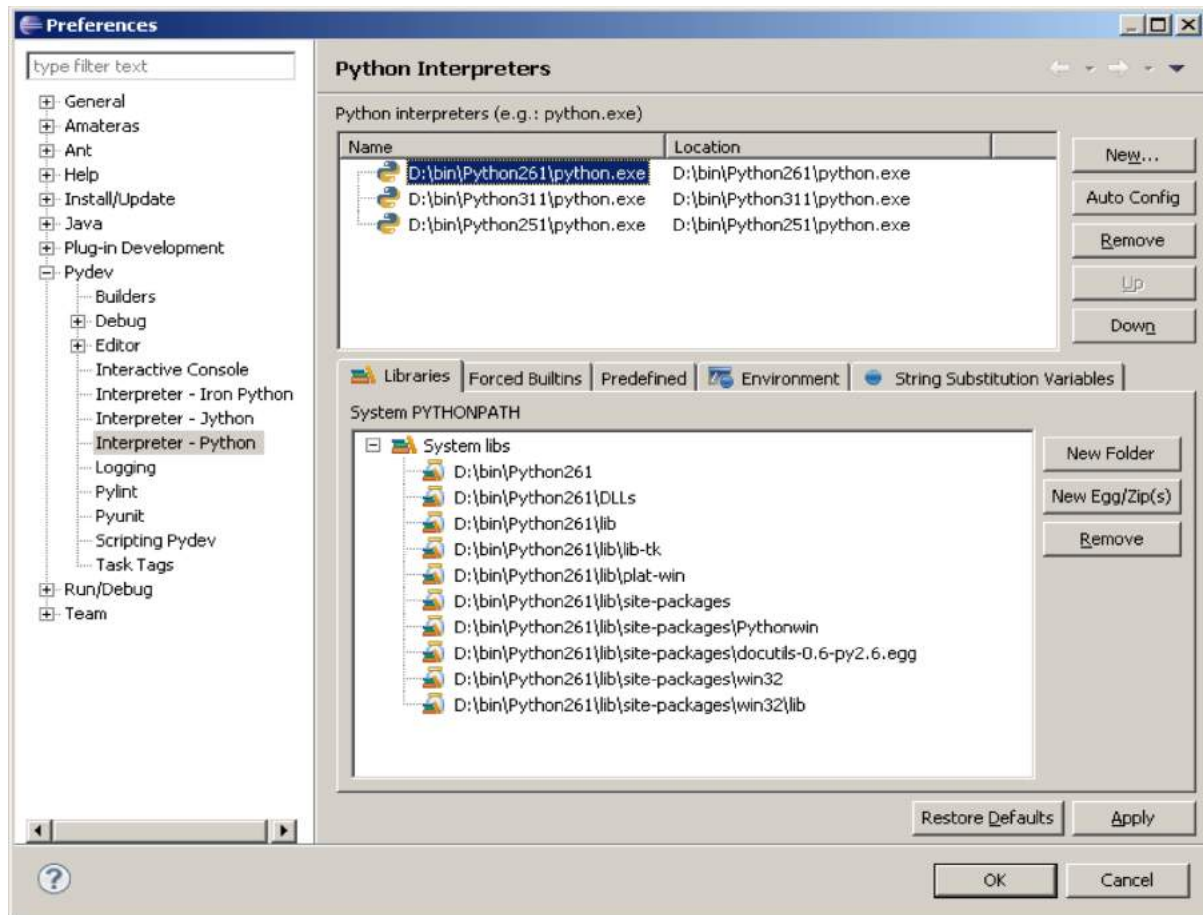
On Linux/Mac, usually you can do a 'which python' to know where the python executable is located.

On Mac it's usually at some place resembling the image below (so, if you want to configure a different version of the interpreter manually, that's where you'd want to search):

3. Select the paths that will be in your SYSTEM PYTHONPATH.

IMPORTANT: Select only folders that will NOT be used as source folders for any project of yours (those should be later configured as source folders in the project).

IMPORTANT for Mac users: The Python version that usually ships with Mac doesn't seem to have the .py source files available, which are required for PyDev, so, using a different interpreter is recommended (i.e.: Download it from <http://python.org>). If you don't want to use a different interpreter, get the source files for the Python '/Lib' folder and add those to the system installation.



How to check if the information was correctly configured

The System libs must contain at least the Lib and the Lib/site-packages directory.

The Forced builtin libs must contain the modules built into the interpreter (and others whose analysis should be done dynamically. See: Forced Builtins).

Building and Executing the Program: -

Create a New Project by clicking **File > New > Project > PyDev > PyDev** project.

Next add a new source folder in the menu: **File > new > other > PyDev > source folder.**

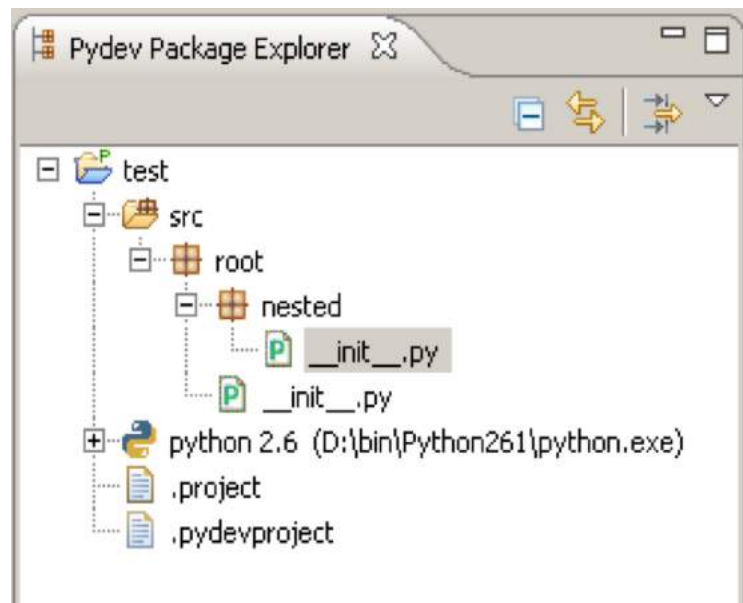
The project properties allow you to see the source folders and the external source folders that will be added to your PYTHONPATH.

Create your first module (now that the interpreter and the project are already configured).

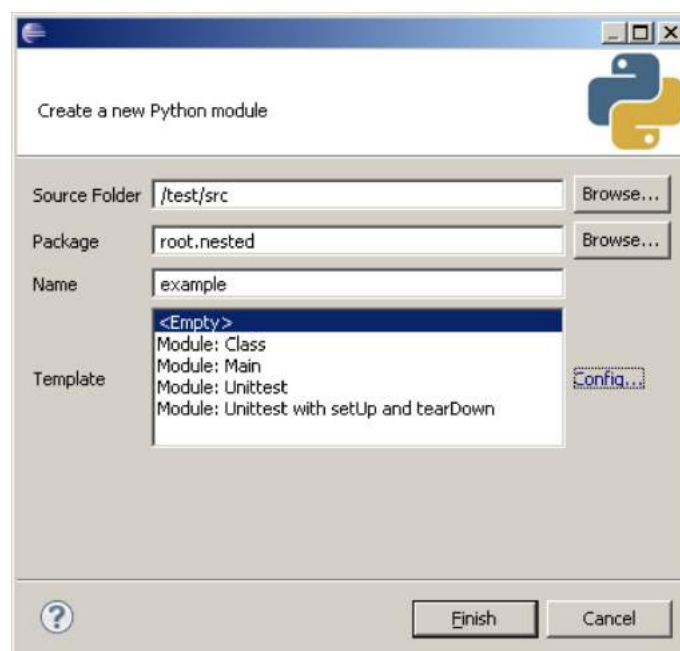
First, start creating a new package in a project named 'test' (it was created with the default 'src' folder, and all the code should be put underneath it).

So, let the 'src' folder be selected and go to the menu: **File > new > PyDev** package and fill the package name as below (the source folder should be automatically filled).

If everything goes ok, the structure below will be created (and the file /root/nested/_init_.py will be opened).



Now, let's create the 'example' module. Let the folder /root/nested selected and go to the menu: **File > new > PyDev module** and fill the module name as below (again, the other fields should be automatically filled).

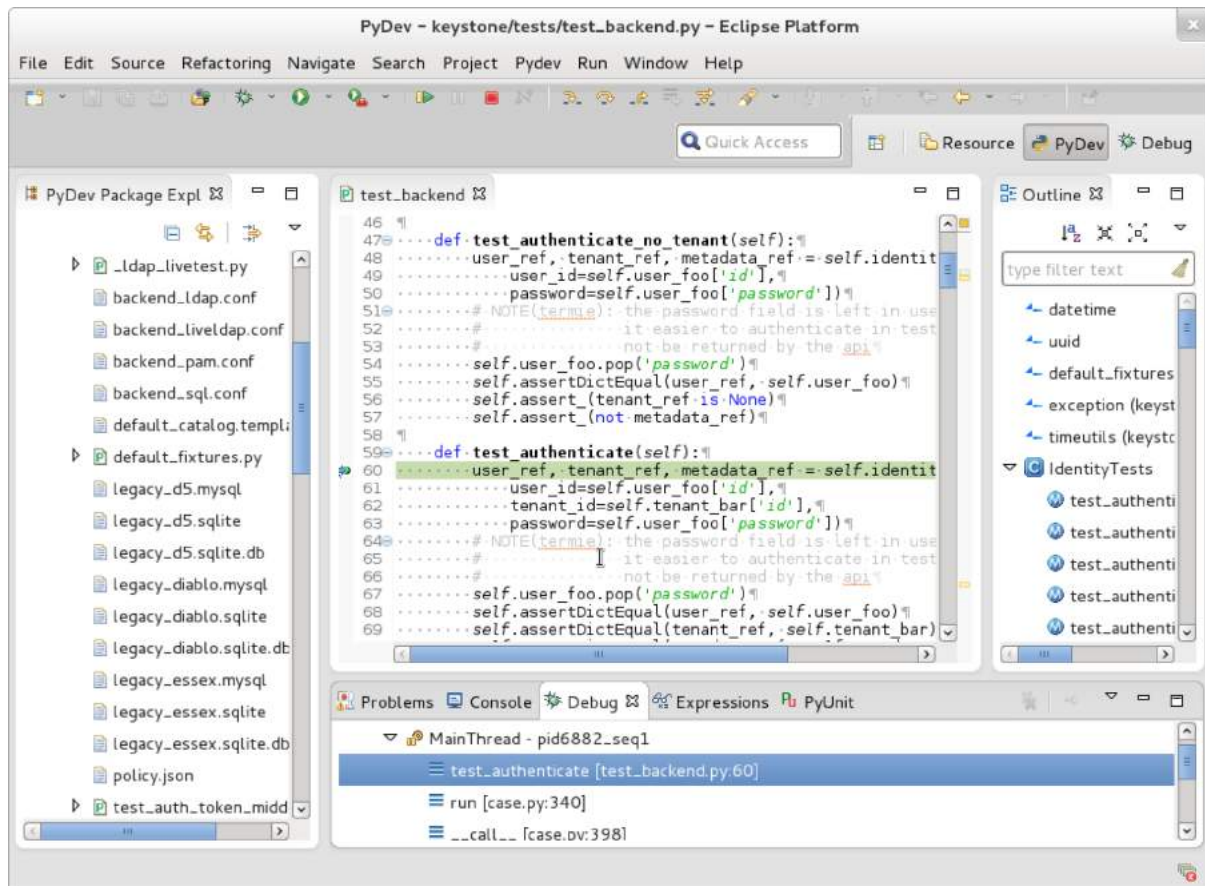


Write some Python Code such as a Print Statement for eg: -

```
print "Hello There...!!!"
```

Then, to run the file you can:

- ♣ Use a shortcut: **F9** to run based on the project configuration where the module is contained (or for debug mode **Shift+F9**).
- ♣ Go to the menu: **Alt + R + S + The number of the Run you wish** (It can be Python, Jython, unit-test, etc).
- ♣ Note: if you were using **unit-tests**, you could use: **Ctrl+F9** to run the unit-tests from the module (and even selecting which tests should be run -- and if **Shift** is pressed it's launched in debug mode).



CodeRunner IDE: -

An advanced, highly flexible, and easy-to-use **programming editor for your Mac**. CodeRunner supports a large number of languages, and delivers big IDE features while remaining lightweight and clutter-free.

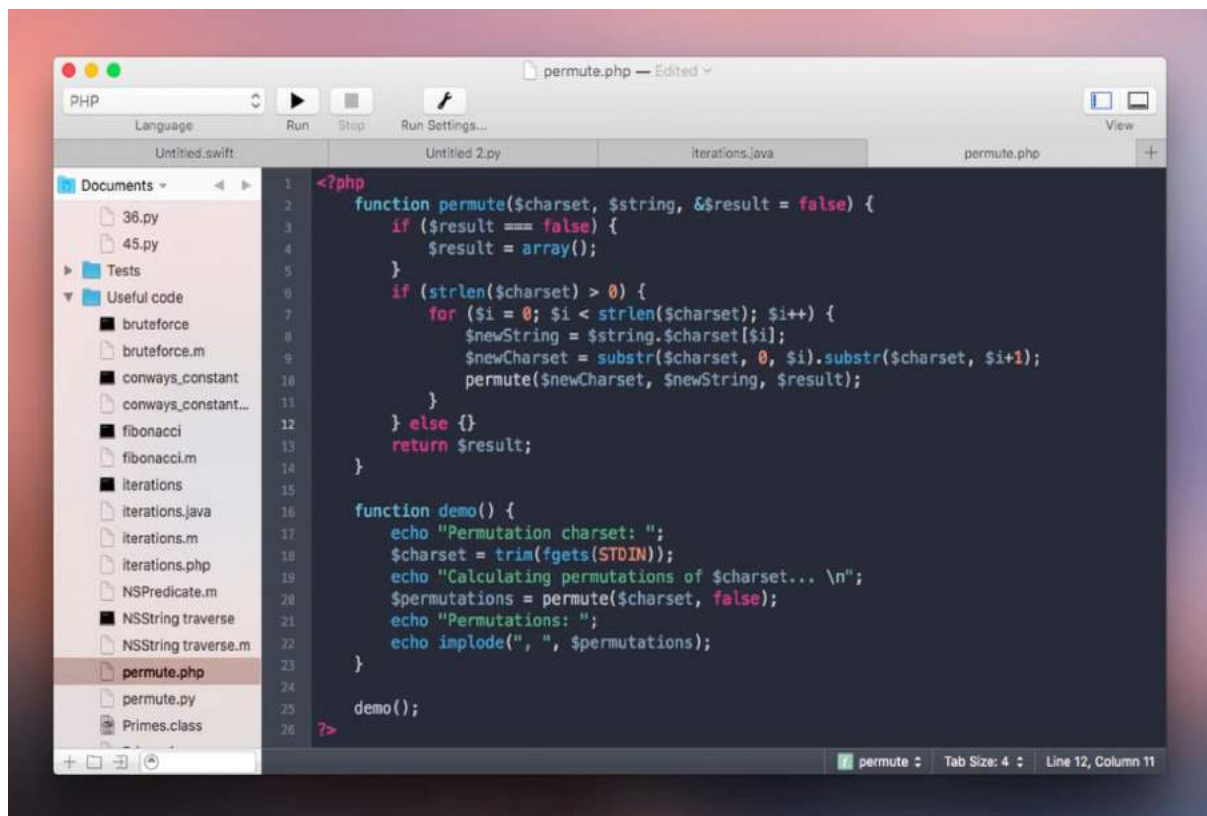
System Requirements: -

Mac OS – 10.7+ (latest version preferred).

Xcode (latest version preferred).

Xcode Command Line Tools.

Note: - Though it is a paid software , it is also available as a Trial Software.



```
<?php
1 function permute($charset, $string, &$result = false) {
2     if ($result == false) {
3         $result = array();
4     }
5     if (strlen($charset) > 0) {
6         for ($i = 0; $i < strlen($charset); $i++) {
7             $newString = $string.$charset[$i];
8             $newCharset = substr($charset, 0, $i).substr($charset, $i+1);
9             permute($newCharset, $newString, $result);
10        }
11    } else {}
12    return $result;
13 }
14
15
16 function demo() {
17     echo "Permutation charset: ";
18     $charset = trim(fgets(STDIN));
19     echo "Calculating permutations of $charset... \n";
20     $permutations = permute($charset, false);
21     echo "Permutations: ";
22     echo implode(" ", $permutations);
23 }
24
25 demo();
26
```

Building and Executing a Program: -

Click File -> New -> Select Programming Language (Python).

The image shows a screenshot of the CodeRunner application window. The title bar includes the Apple logo, the application name 'CodeRunner', and a menu bar with 'File', 'Edit', 'Text', 'Run', 'View', 'Window', and 'Help'. The window title is 'Untitled 5'. Below the title bar is a toolbar with a dropdown menu set to 'Python', and buttons for 'Run', 'Stop', and 'Run Settings...'. The main area contains a code editor with the following Python code:

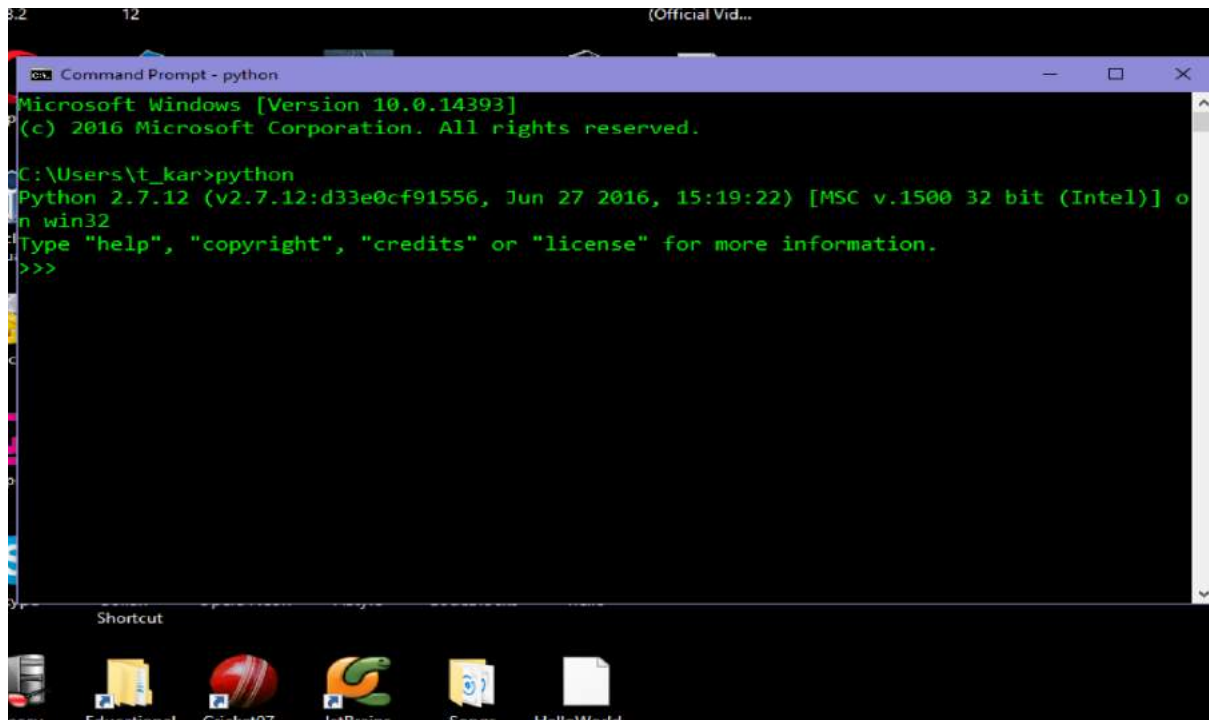
```
1 #!/usr/bin/python
2
3 # Store input numbers
4 num1 = input('Enter first number: ')
5 num2 = input('Enter second number: ')
6
7 # Add two numbers
8 sum = float(num1) + float(num2)
9
10 # Display the sum
11 print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))
```

Below the code editor, the execution output is displayed:

```
Enter first number: 4
Enter second number: 5
The sum of 4 and 5 is 9.0
```

Expert User: -

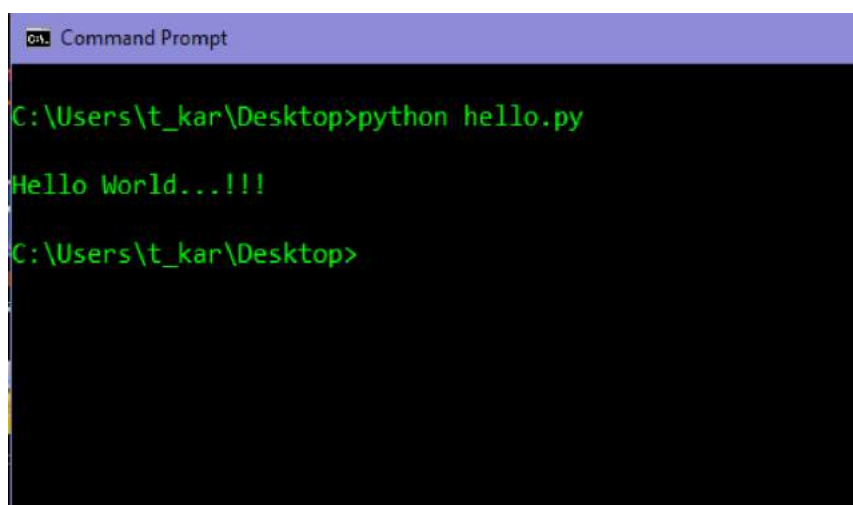
Expert users just need to use the Command Line Interface (CLI) / Terminal UI to run python scripts. Just open cmd / terminal application and type python to enter the Python interpreter.



```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\t_kar>python
Python 2.7.12 (v2.7.12:d33e0cf91556, Jun 27 2016, 15:19:22) [MSC v.1500 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Now run Python source code directly or as Follows:-



```
C:\Users\t_kar\Desktop>python hello.py
Hello World...!!!
C:\Users\t_kar\Desktop>
```