

BASIC PYTHON

Step by step

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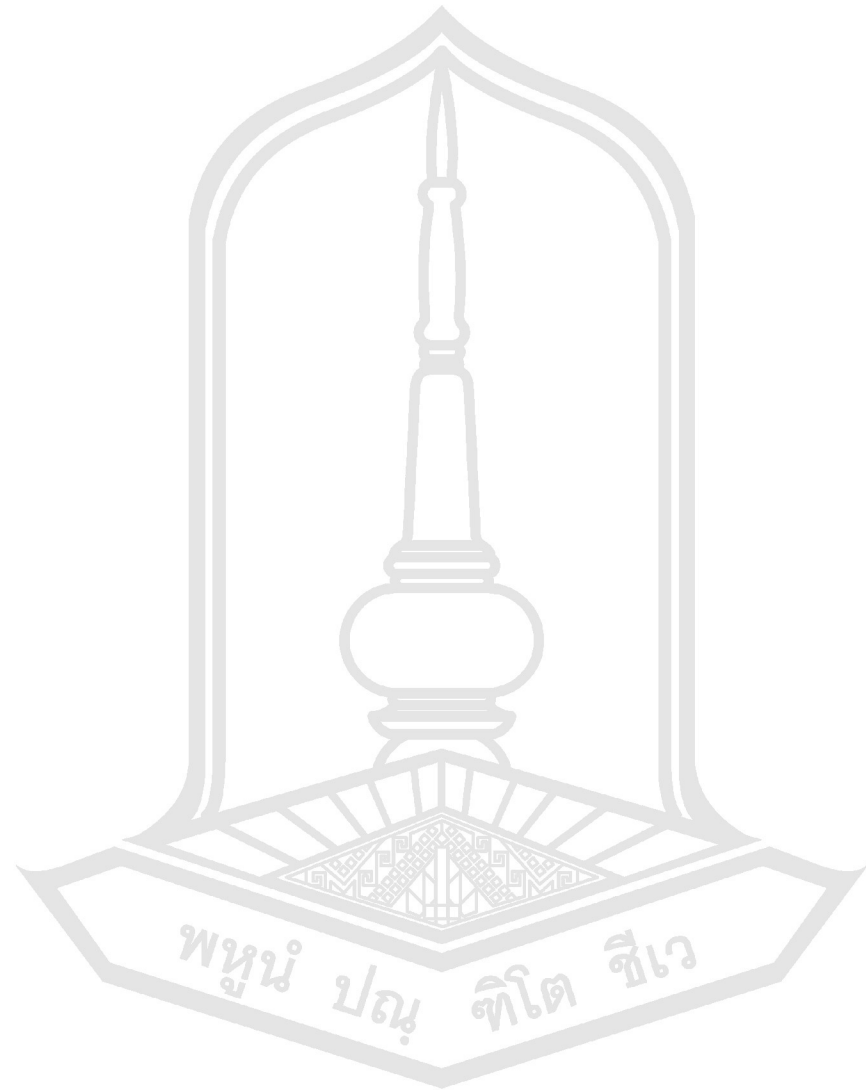


BASIC PYTHON

Using Jupyter

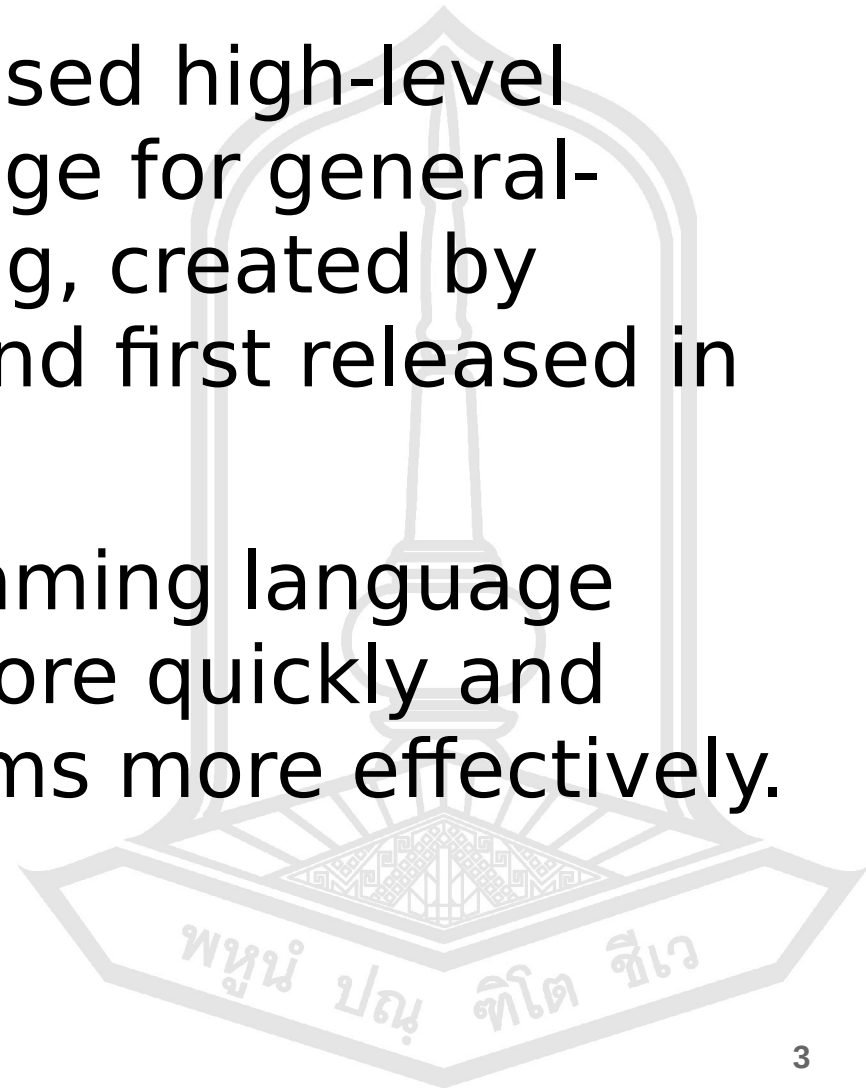
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Lecturer

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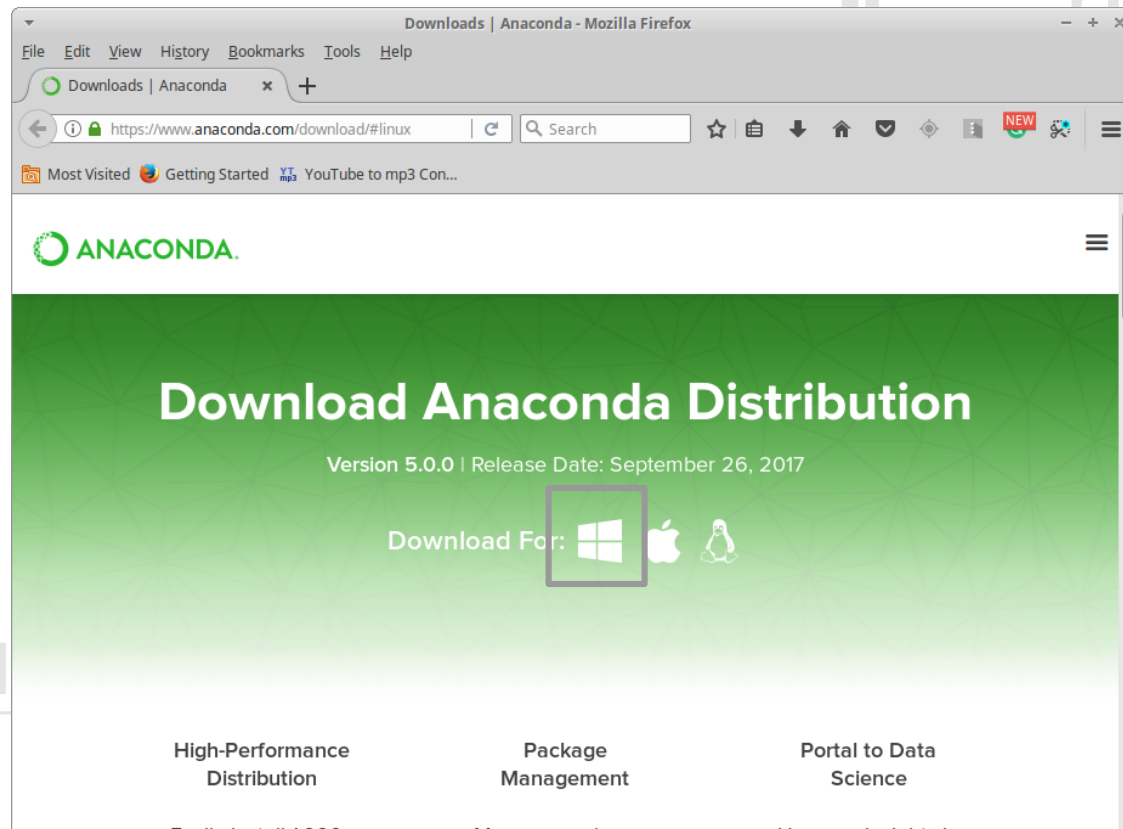
Python

- **Python** is a widely used high-level programming language for general-purpose programming, created by *Guido van Rossum* and first released in *1991*.
- **Python** is a programming language that lets you work more quickly and integrate your systems more effectively.



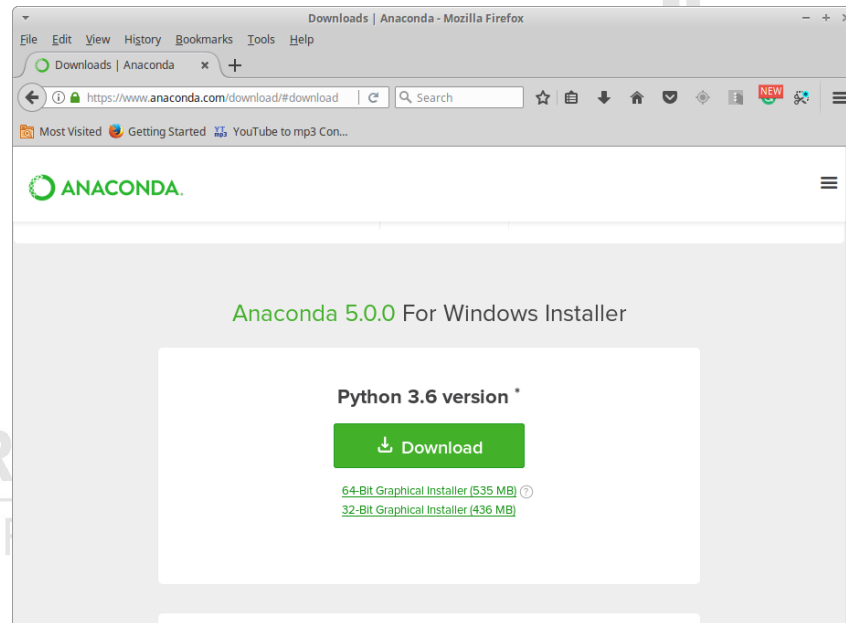
Download Python program

- Using a third party called *Anaconda*
 - <https://www.anaconda.com/download>



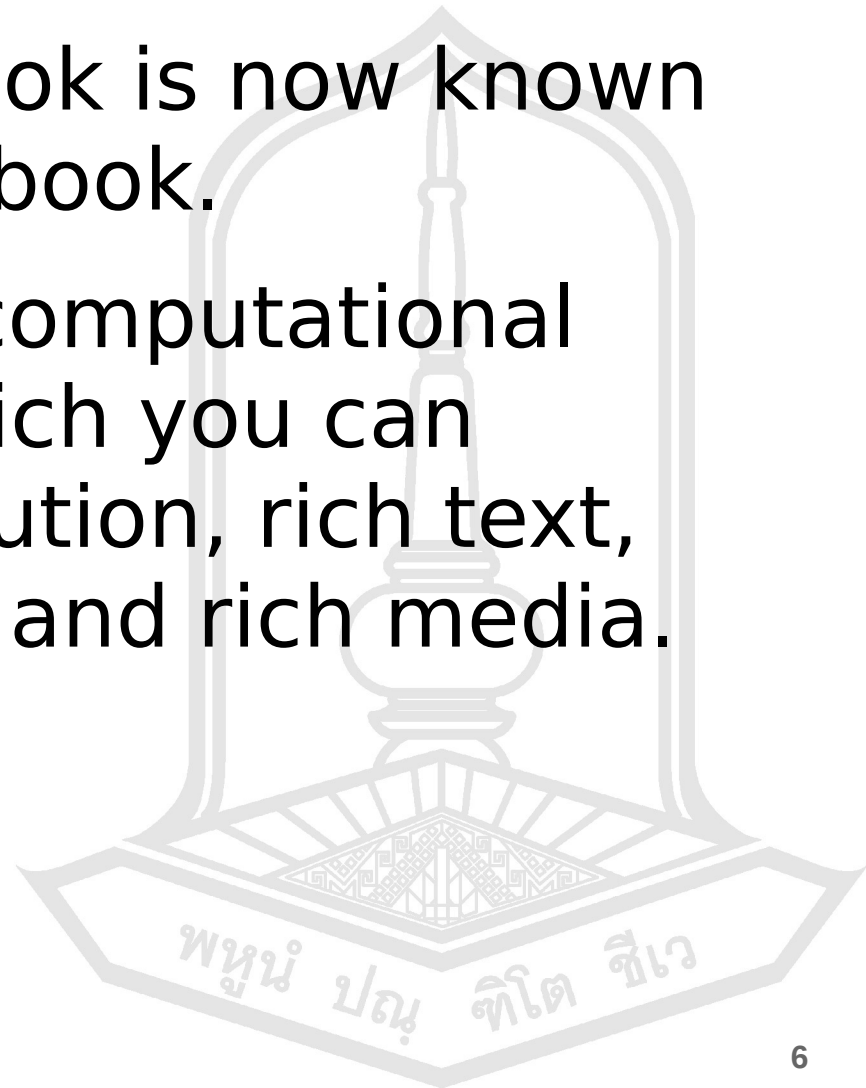
Download Python program

- Choose **Anaconda** for windows installer & **Download**
- Then, double click at the program to install the Anaconda into your system

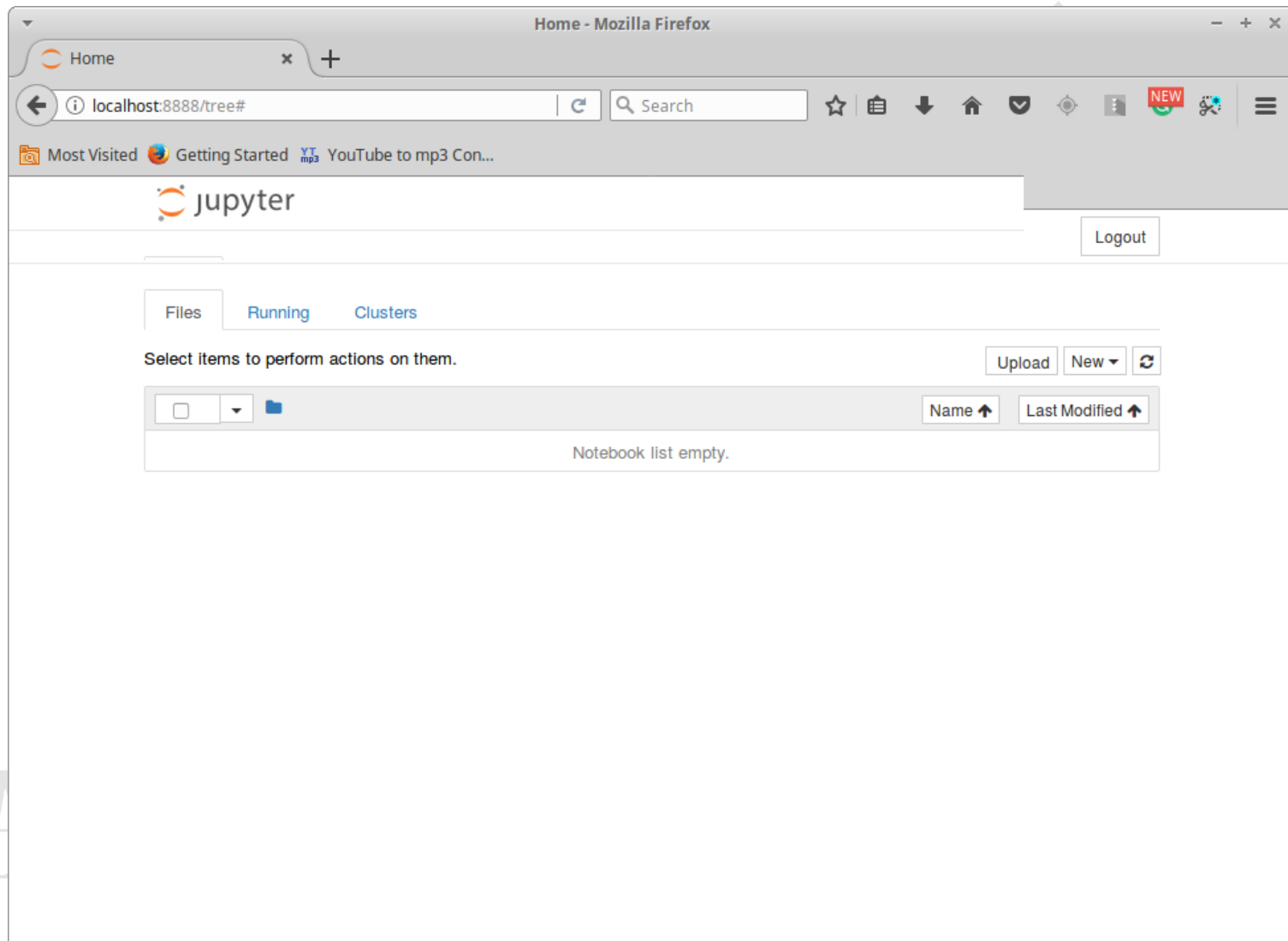


IPython Notebook

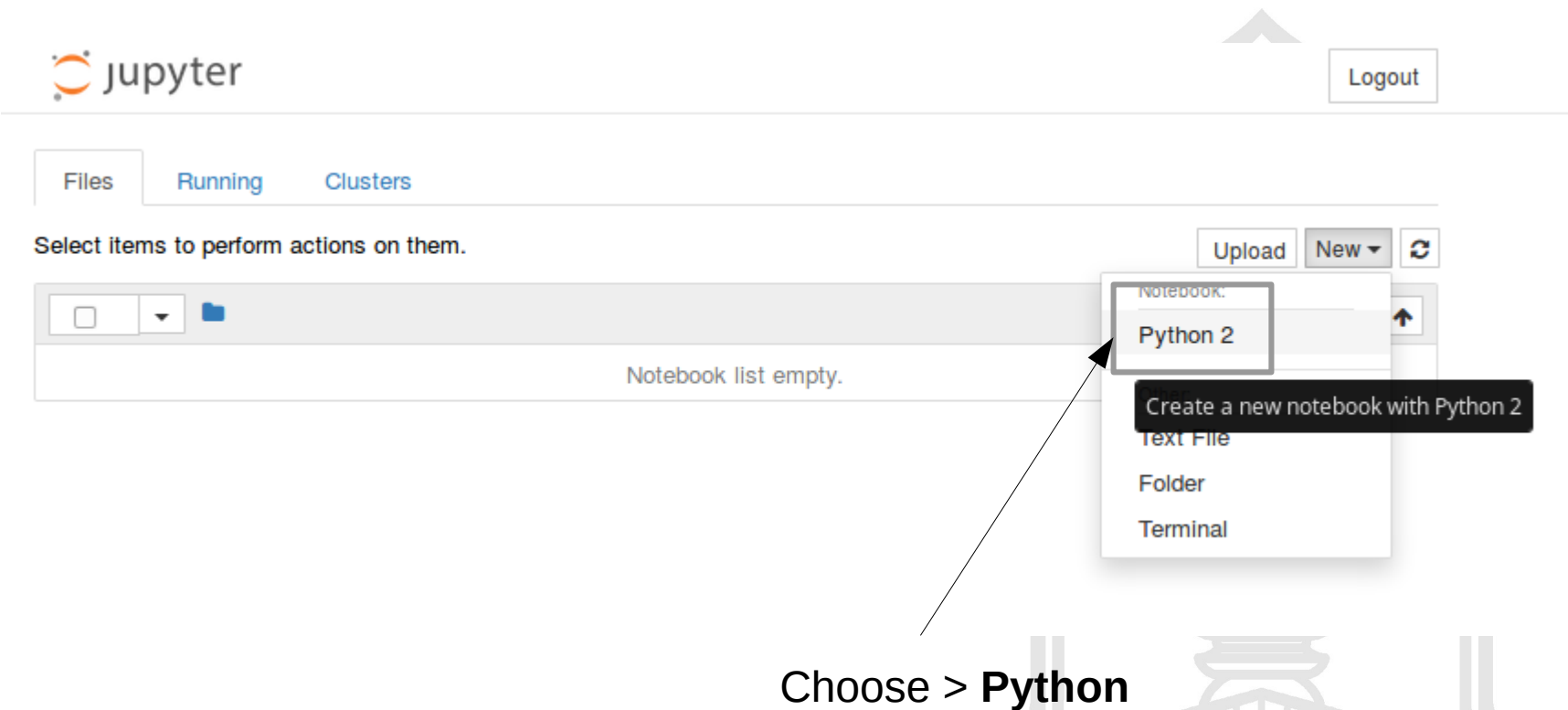
- The IPython Notebook is now known as the Jupyter Notebook.
- It is an interactive computational environment, in which you can combine code execution, rich text, mathematics, plots and rich media.



IPython Notebook



Create a new Python file



The image shows the JupyterLab web interface. At the top, there's a 'jupyter' logo and a 'Logout' button. Below that, there are tabs for 'Files', 'Running', and 'Clusters'. A message says 'Select items to perform actions on them.' Below this is a file browser area with a search bar and a folder icon. The main area says 'Notebook list empty.' On the right, there are buttons for 'Upload', 'New', and a refresh icon. The 'New' dropdown menu is open, showing options: 'Notebook:', 'Python 2', 'Text File', 'Folder', and 'Terminal'. An arrow points from the text 'Choose > Python' to the 'Python 2' option in the dropdown menu. A tooltip next to 'Python 2' says 'Create a new notebook with Python 2'.

jupyter

Logout

Files Running Clusters

Select items to perform actions on them.

Notebook list empty.

Upload New

Notebook:
Python 2
Text File
Folder
Terminal

Create a new notebook with Python 2

Choose > **Python**

Untitled - Mozilla Firefox

Home x Untitled x +

localhost:8888/notebooks/Untitled.ipynb?kernel_name=pytl Search

Most Visited Getting Started YT mp3 YouTube to mp3 Con...

jupyter

Untitled (unsaved changes)

Logout

File Edit View Insert Cell Kernel Help Trusted Python 2

Save Add Split View Copy Paste Up Down Run Stop Refresh Code

In []:

filename

Files list

jupyter

Logout

Files Running Clusters

Select items to perform actions on them.

Upload New ↻

☐

▼

📁

Name ↑

Last Modified ↑

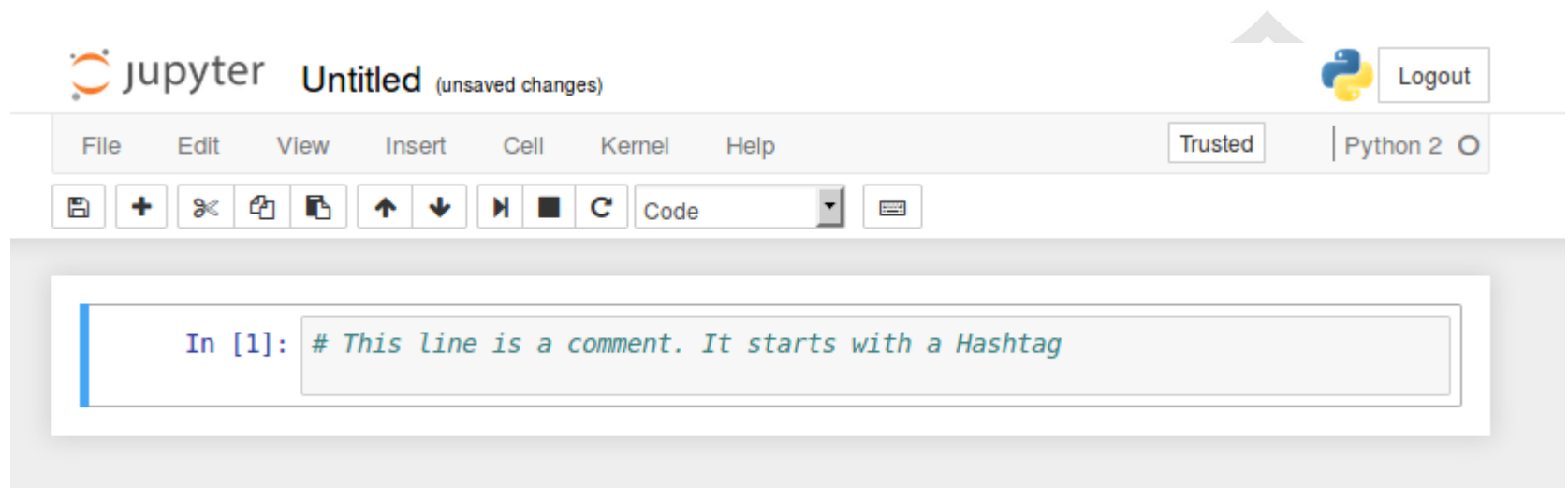
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Untitled.ipynb

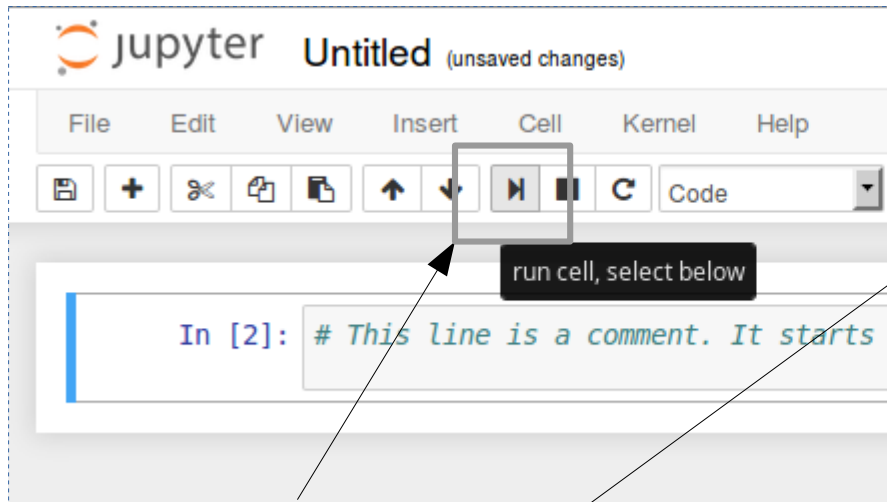
Running a minute ago

Comment in Python

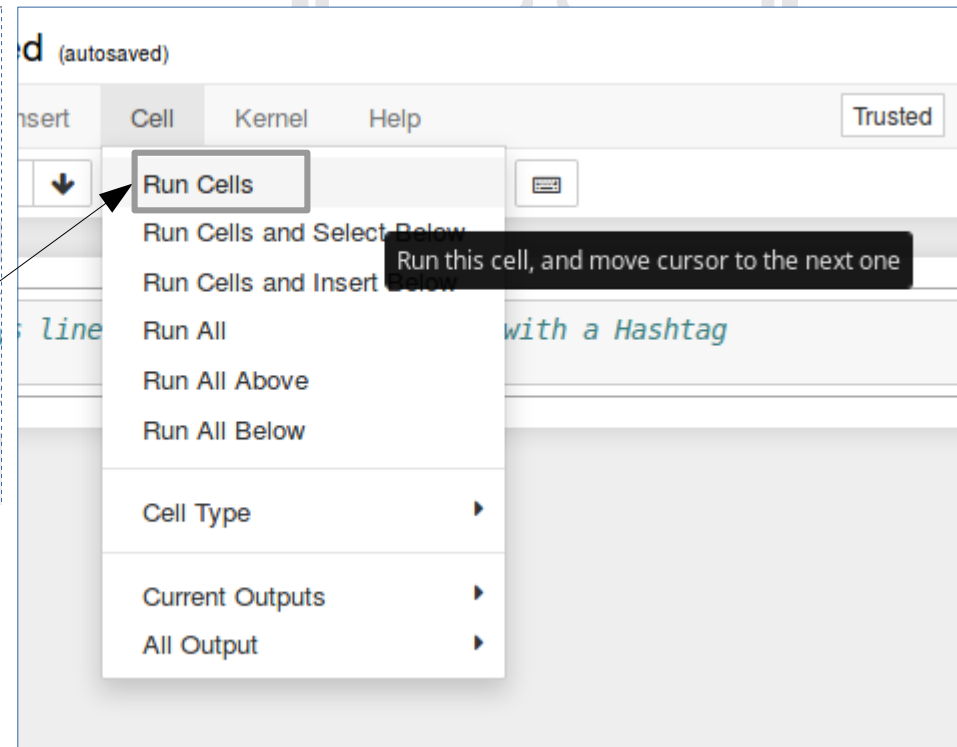


Run a select cell

- Choose a cell that you want to run, then choose **Run cells** or click at icon

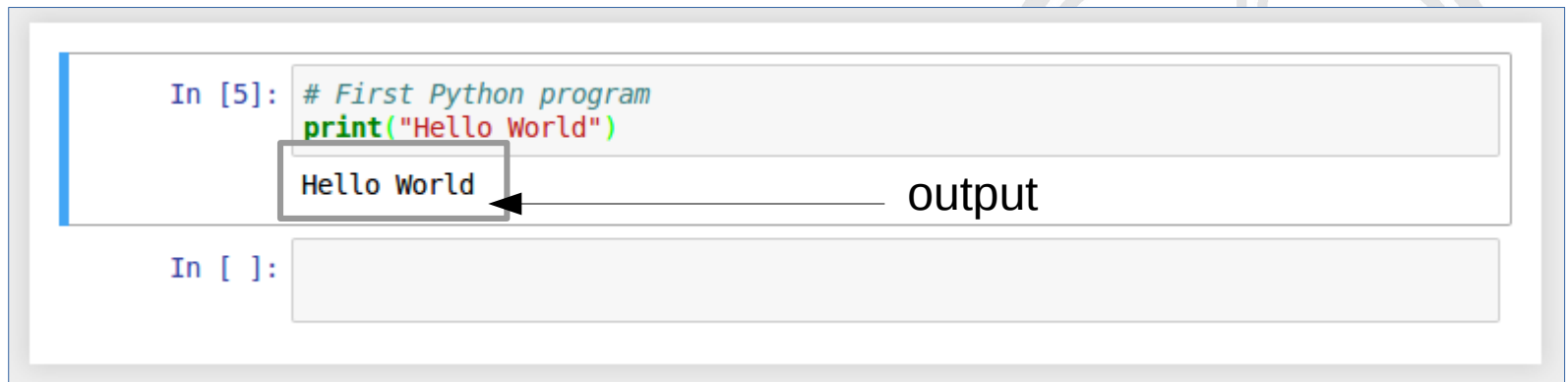


run a specific cell



First Python program

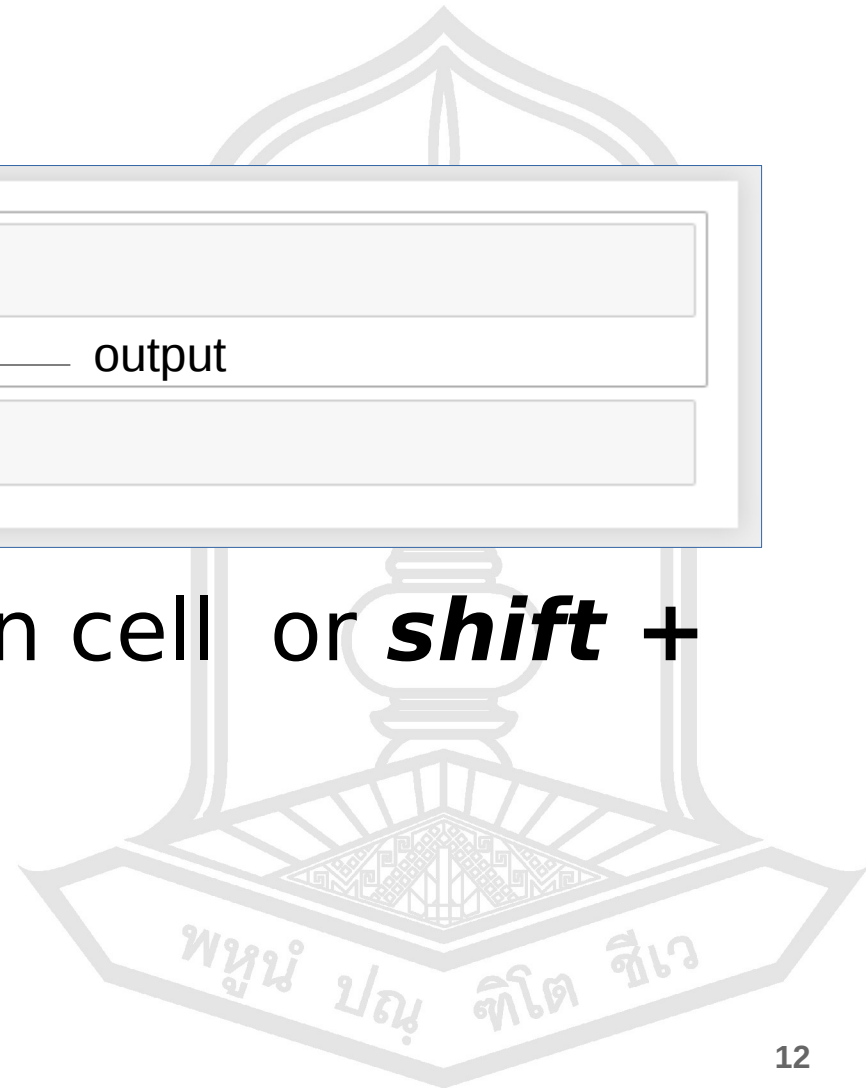
`print("Hello World")`



The screenshot shows a Jupyter Notebook interface. The top cell, labeled 'In [5]:', contains the code `# First Python program` and `print("Hello World")`. Below the code, the output 'Hello World' is displayed. An arrow points from the word 'output' to the 'Hello World' text. The bottom cell, labeled 'In []:', is empty.

```
In [5]: # First Python program
        print("Hello World")
Hello World
In [ ]:
```

To show the result, run cell or ***shift + Enter***



Print function

```
In [6]: # First Python program  
print("Hello World")
```

Hello World

```
In [8]: print "Hello World"
```

Hello World

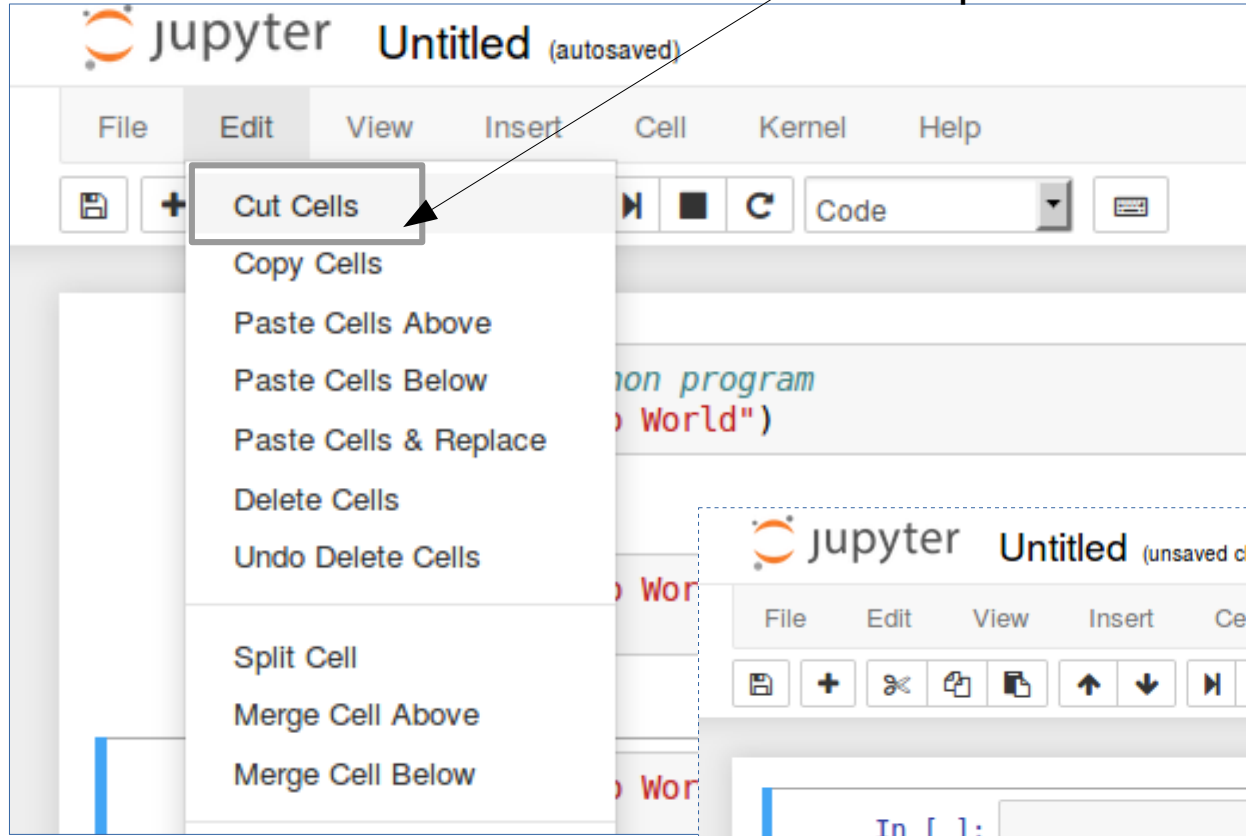
```
In [9]: print 'Hello World'
```

Hello World

```
In [ ]:
```

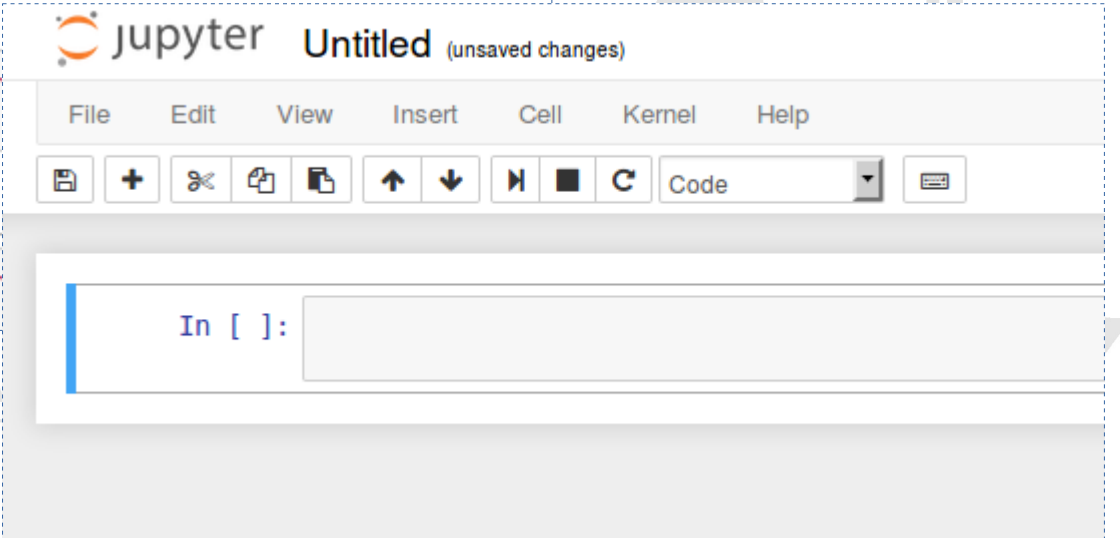
Cut cells

Cut a specific cell



The screenshot shows the Jupyter Notebook interface with the 'Edit' menu open. The 'Cut Cells' option is highlighted with a black arrow. The menu also includes 'Copy Cells', 'Paste Cells Above', 'Paste Cells Below', 'Paste Cells & Replace', 'Delete Cells', 'Undo Delete Cells', 'Split Cell', 'Merge Cell Above', and 'Merge Cell Below'. The background shows a code cell with the text 'on program' and 'World')'.

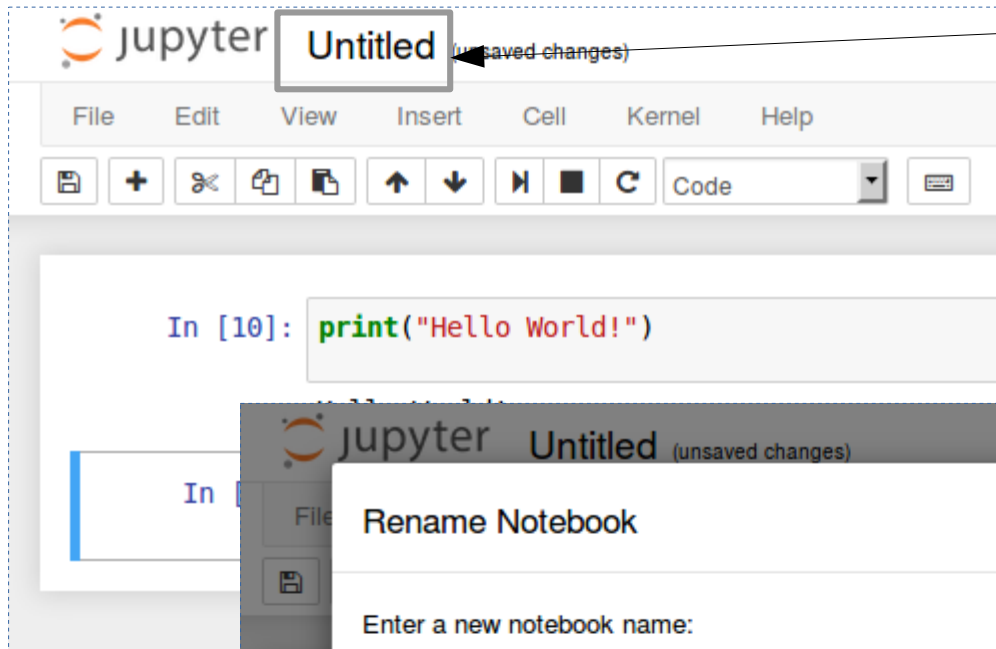
After cut cells



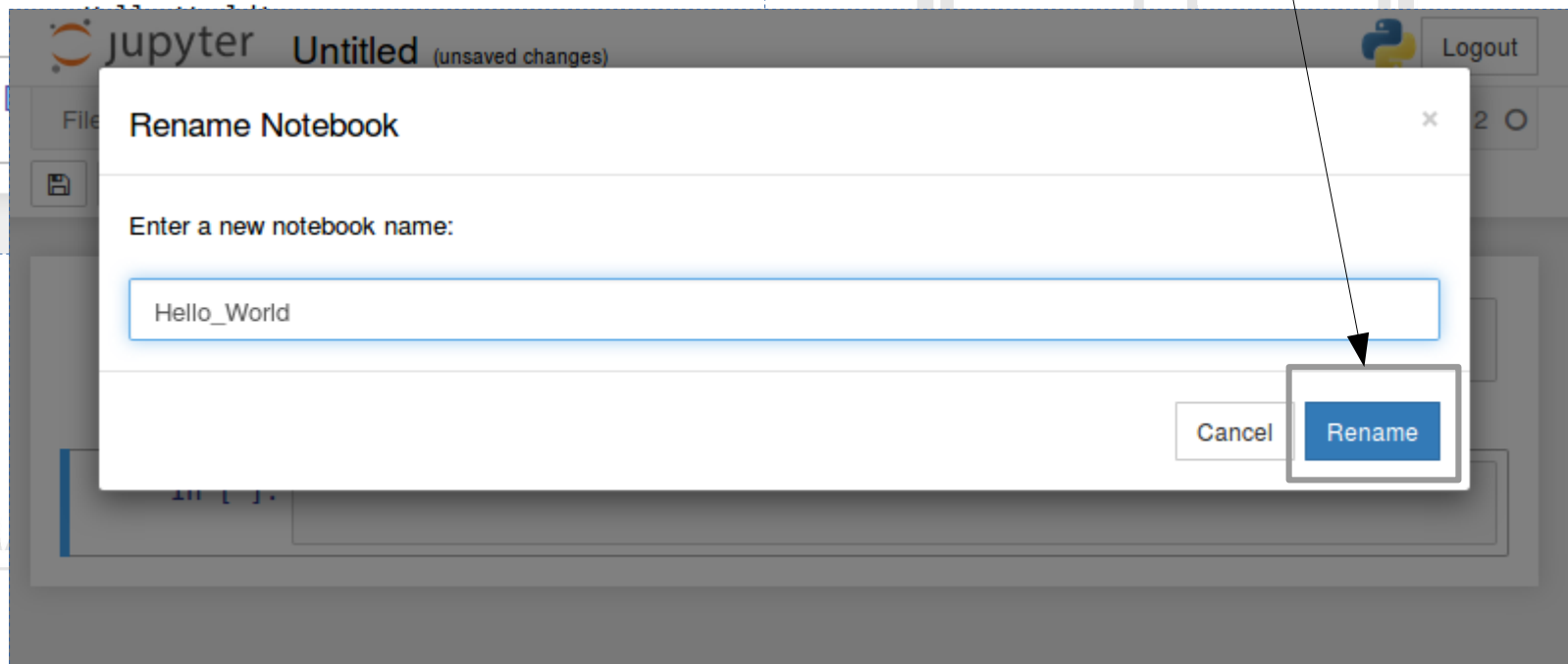
The screenshot shows the Jupyter Notebook interface after a cell has been cut. The 'Edit' menu is no longer open. The code cell now contains the text 'In []:' followed by a large empty input field. The background shows a code cell with the text 'on program' and 'World')'.

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Rename Notebook



Click at "*Untitled*" and rename a notebook, then click at "**Rename button**"



statement

```
In [27]: a = 2 + 3  
print(a)
```

5

```
In [23]: a = 2 + 3  
print("a = {}".format(a))
```

a = 5

```
In [24]: a = 2 + 3  
print "a = {}".format(a)
```

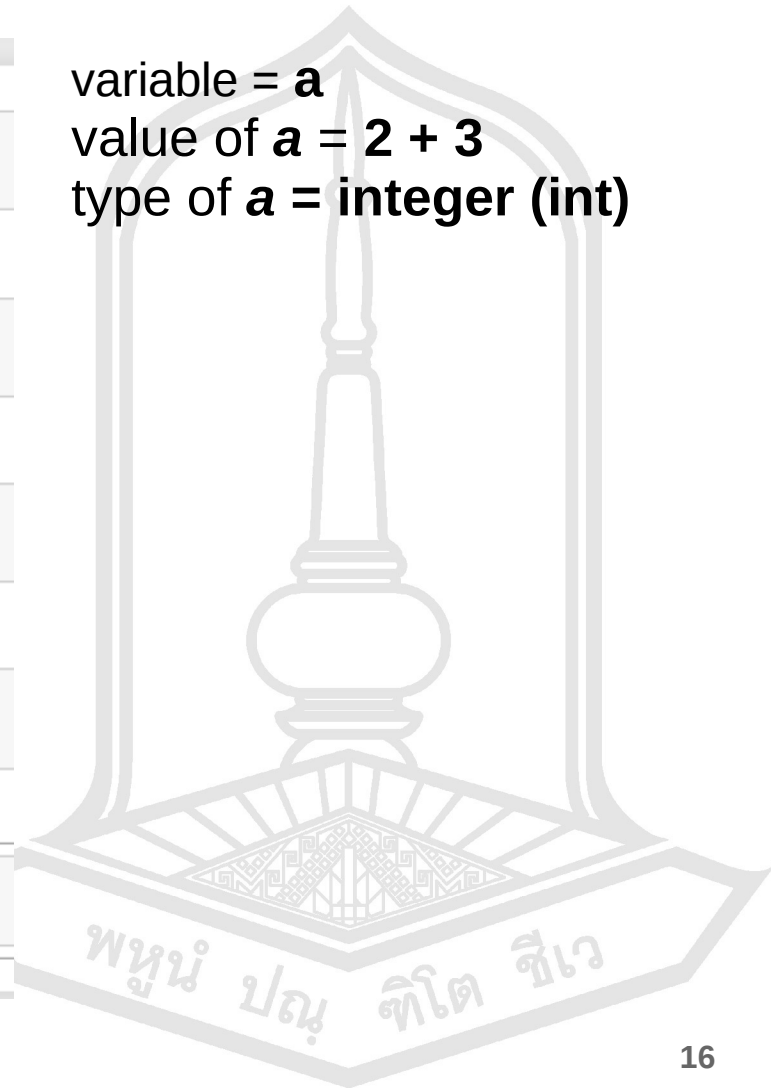
a = 5

```
In [26]: a = 2 + 3  
print("a = %d"%(a))
```

a = 5

```
In [ ]:
```

variable = **a**
value of **a** = **2 + 3**
type of **a** = **integer (int)**



Type of variable

```
In [30]: a = 2+3  
         print(type(a))  
         <type 'int'>
```

variable = **a**
value of **a** = **2 + 3**
type of **a** = **integer (int)**

```
In [ ]:
```

```
In [32]: a = "Hello world"  
         print(type(a))  
         <type 'str'>
```

variable = **a**
value of **a** = **"Hello World"**
type of **a** = **string (str)**

```
In [ ]:
```

Multi-line statement

```
In [37]: a = 1 + 2 + 3 + 4 +\  
          5 + 6 + 7 +\  
          8 + 9 + 10  
  
print a
```

55

```
In [ ]:
```



Waiting for the user

```
In [*]: raw_input("Please input your name")
```

Please input your name

```
In [ ]:
```

```
In [43]: raw_input("Please input your name")
```

Please input your name0larik

```
Out[43]: '0larik'
```

```
In [ ]:
```

Waiting for the user

```
In [*]: name = raw_input("Input your name ")  
print("Your name is %s"%(name))
```

Input your name

```
In [ ]: |
```

```
In [5]: name = raw_input("Input your name ")  
print("Your name is %s"%(name))
```

Input your name Olarik
Your name is Olarik

```
In [ ]:
```

Assigning values to variables

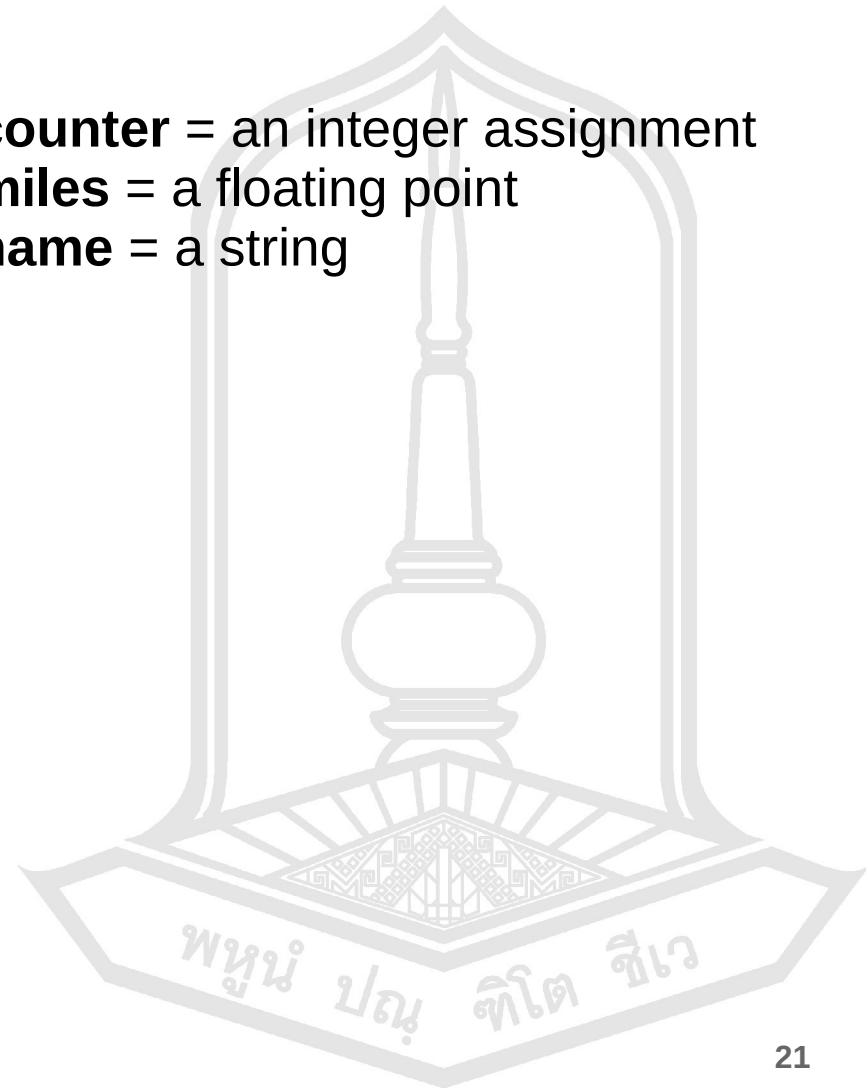
```
In [7]: counter = 100  
        miles = 1000.0  
        name = "John"
```

```
In [8]: print counter  
        print miles  
        print name
```

```
100  
1000.0  
John
```

```
In [ ]:
```

counter = an integer assignment
miles = a floating point
name = a string



Error message

- If you run the second cell before the first cell, system will show the message error

```
In [7]: counter = 100  
        miles = 1000.0  
        name = "John"
```

```
In [1]: print counter  
        print miles  
        print name
```

```
-----  
NameError                                Traceback (most recent call last)  
<ipython-input-1-9a8c2df3102d> in <module>()  
----> 1 print counter  
      2 print miles  
      3 print name  
  
NameError: name 'counter' is not defined
```

The error message show that you forgets to define the variable **"counter"**

```
In [ ]:
```

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