

JUPYTER

# JUPYTER NOTEBOOK

*IKMLab*



# OUTLINE

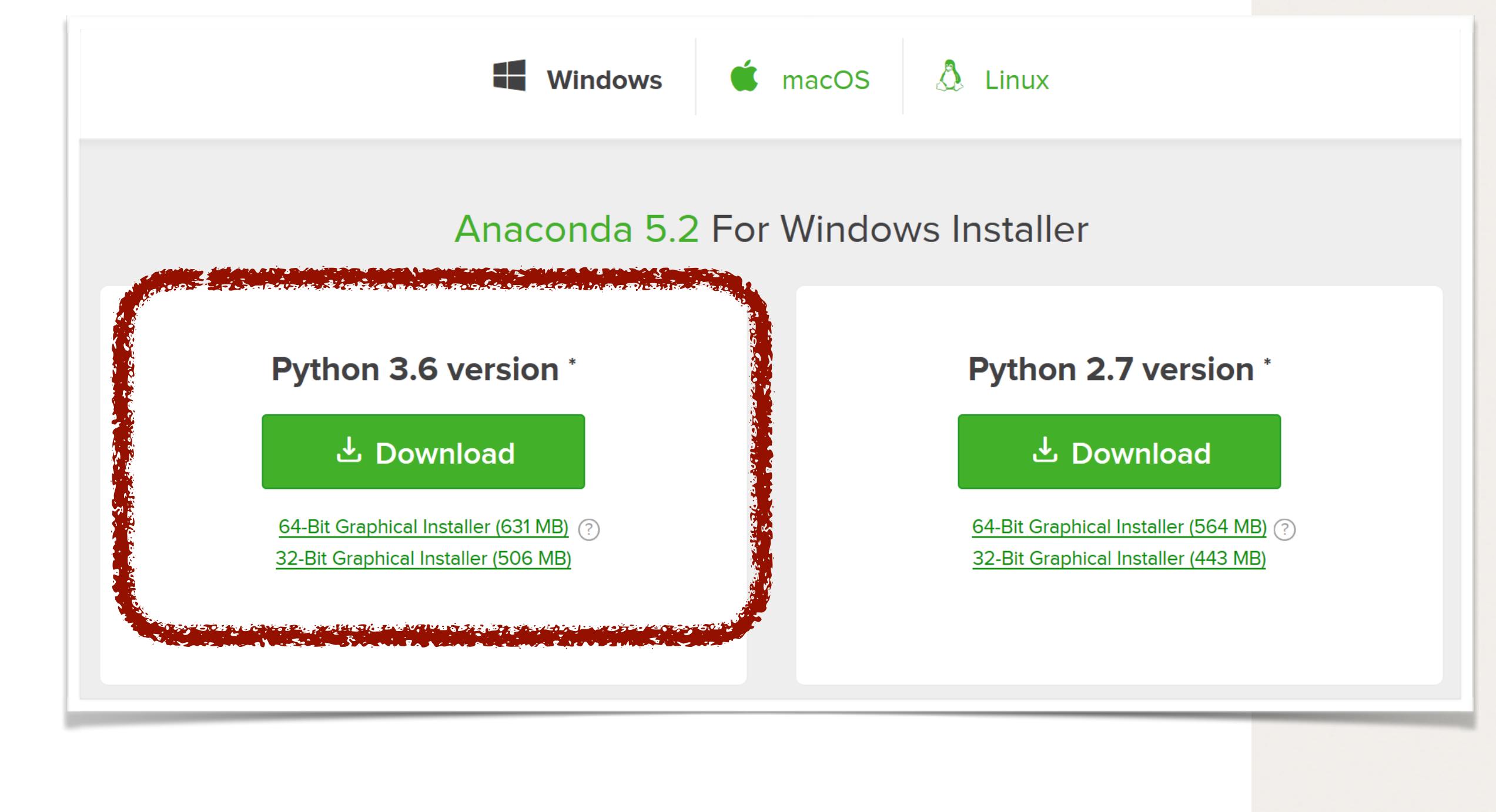
- ▶ Installation for Windows
- ▶ UI Components
- ▶ Advantages

# OUTLINE

- ▶ **Installation for Windows**
- ▶ **UI Components**
- ▶ **Advantages**

# FOR WINDOWS USERS

- ▶ **Install Anaconda**
- ▶ <https://www.anaconda.com/download/>

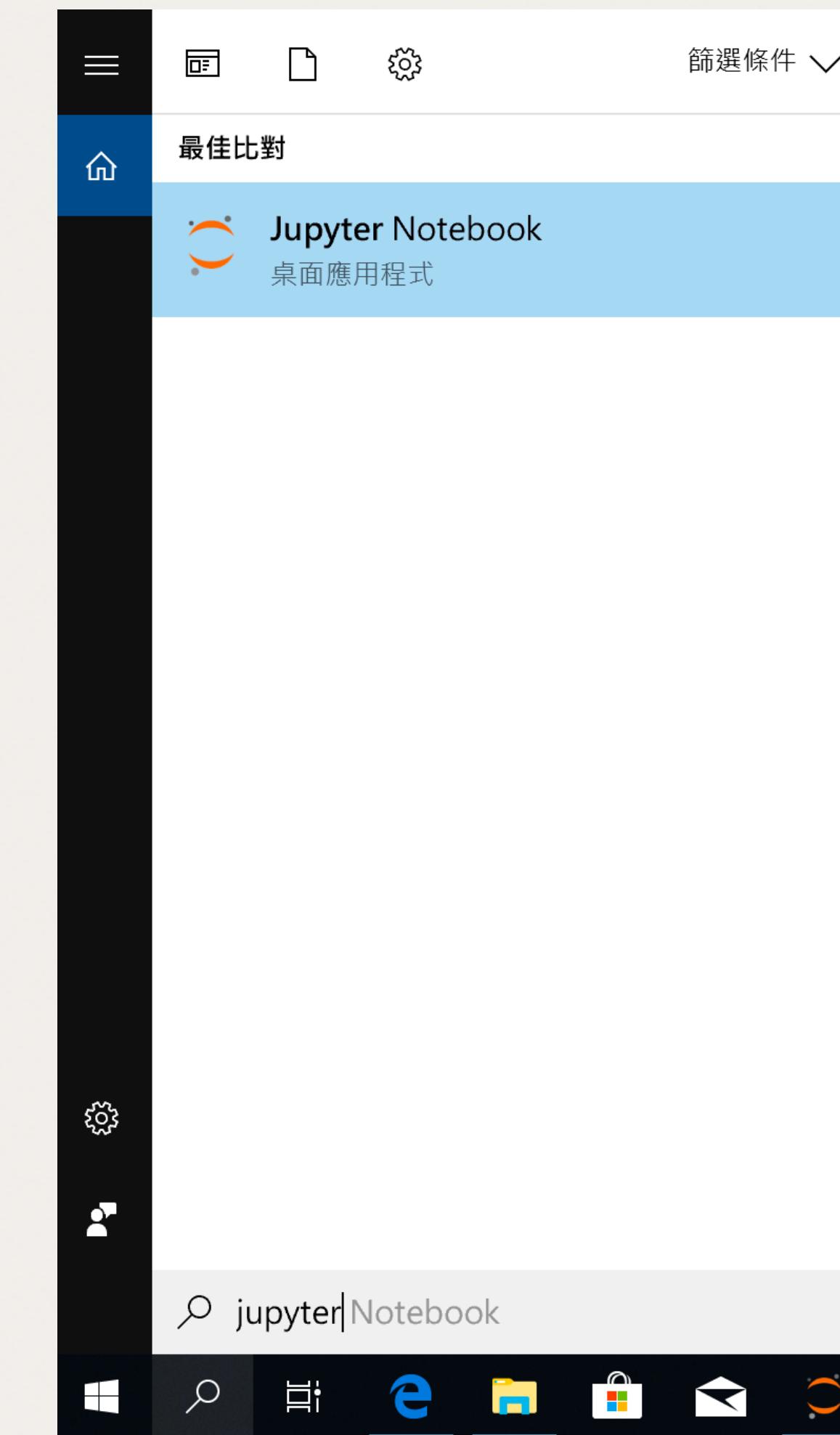


## JUPYTER

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# OPEN NOTEBOOK

- ▶ Search for “jupyter notebook”
- ▶ Click on it



Jupyter Notebook

http://localhost:8888/?token=6192f15a4a853266eabc178c40c9afbe6300a0ff7da4e233&token=6192f15a4a853266eabc178c40c9afbe6300a0ff7da4e233

```
[I 19:06:46.045 NotebookApp] Accepting one-time-token-authenticated connection from ::1
[I 19:06:51.821 NotebookApp] Creating new notebook in
[I 19:06:51.852 NotebookApp] Writing notebook-signing key to C:\Users\yuying\AppData\Roaming\jupyter\notebook_secret
[I 19:06:55.058 NotebookApp] Kernel started: f4bb5fea-78b9-4d06-97f4-797171eb42ff
[I 19:06:56.683 NotebookApp] Adapting to protocol v5.1 for kernel f4bb5fea-78b9-4d06-97f4-797171eb42ff
[I 19:07:44.423 NotebookApp] Starting buffering for f4bb5fea-78b9-4d06-97f4-797171eb42ff:6d22294914334ed6b6ac6cf0041251e
```

[W 19:08:39.834 NotebookApp] Notebook Downloads/decision-tree-and-random-forest-tutorial-master/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb is not trusted
[I 19:08:40.418 NotebookApp] Kernel started: 376b39f6-ab98-48b6-a1a2-a22adf44170d
[I 19:08:41.992 NotebookApp] Adapting to protocol v5.1 for kernel 376b39f6-ab98-48b6-a1a2-a22adf44170d
[I 19:10:40.757 NotebookApp] Saving file at /Downloads/decision-tree-and-random-forest-tutorial-master/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb
[W 19:10:40.757 NotebookApp] Notebook Downloads/decision-tree-and-random-forest-tutorial-master/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb is not trusted
[I 19:14:40.818 NotebookApp] Saving file at /Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb
[W 19:14:40.818 NotebookApp] Notebook Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb is not trusted
[I 19:18:40.468 NotebookApp] Saving file at /Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb
[W 19:18:40.468 NotebookApp] Notebook Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb is not trusted
[I 19:30:40.500 NotebookApp] Saving file at /Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb
[W 19:30:40.519 NotebookApp] Notebook Downloads/decision-tree-and-random-forest-tutorial-master/decision\_tree\_sklearn.ipynb is not trusted

Home X + < > ⌂ localhost:8888/tree

jupyter

Files Running Clusters

Select items to perform actions on them.

Upload New ▾

	Name	Last Modified	File size
<input type="checkbox"/>	0		
<input type="checkbox"/>	3D Objects	2 小時前	
<input type="checkbox"/>	Contacts	2 小時前	
<input type="checkbox"/>	Desktop	2 小時前	
<input type="checkbox"/>	Documents	2 小時前	
<input type="checkbox"/>	Downloads	2 小時前	
<input type="checkbox"/>	Favorites	2 小時前	
<input type="checkbox"/>	Links	2 小時前	
<input type="checkbox"/>	Music	2 小時前	
<input type="checkbox"/>	OneDrive	2 小時前	
<input type="checkbox"/>	Pictures	2 小時前	
<input type="checkbox"/>	Saved Games	2 小時前	
<input type="checkbox"/>	Searches	2 小時前	
<input type="checkbox"/>	Videos	2 小時前	
<input type="checkbox"/>	Untitled.ipynb	Running 2 小時前	72 B

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# OUTLINE

- ▶ Installation for Windows
- ▶ **UI Components**
- ▶ Advantages

[Files](#) [Running](#) [Clusters](#)

Step 1

Select items to perform actions on them.

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  3D Objects  Contacts  Desktop  Documents  Downloads[Upload](#) [New ▾](#)   Favorites  Links  Music  OneDrive  Pictures  Saved Games  Searches  Videos Untitled.ipynb

Step 2

Notebook:  
Name   
Python 3Other:  
Text File  
Folder  
Terminal

2 小時前

Running 2 小時前

72 B

JUPYTER  
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# YOUR FIRST .IPYNB

The screenshot shows a Jupyter Notebook interface with the following elements:

- Toolbar:** Home, Untitled1, +, -.
- Title Bar:** Untitled1.ipynb?kernel\_name=python3
- User Profile:** jupyter, Untitled1, Last Checkpoint: 幾秒前 (unsaved changes), Logout
- Menu Bar:** File, Edit, View, Insert, Cell, Kernel, Widgets, Help. A message "Kernel starting, please wait..." is displayed.
- Tool Buttons:** Save, New, Cut, Copy, Paste, Up, Down, Run (highlighted with a red box).
- Code Area:** In [ ]: (highlighted with a purple box) and a large purple box containing "Type your code here".
- Code Editor:** A large blue box covering the main workspace where code can be typed.
- Navigation:** Left and right arrows at the bottom.

Annotations highlight specific features:

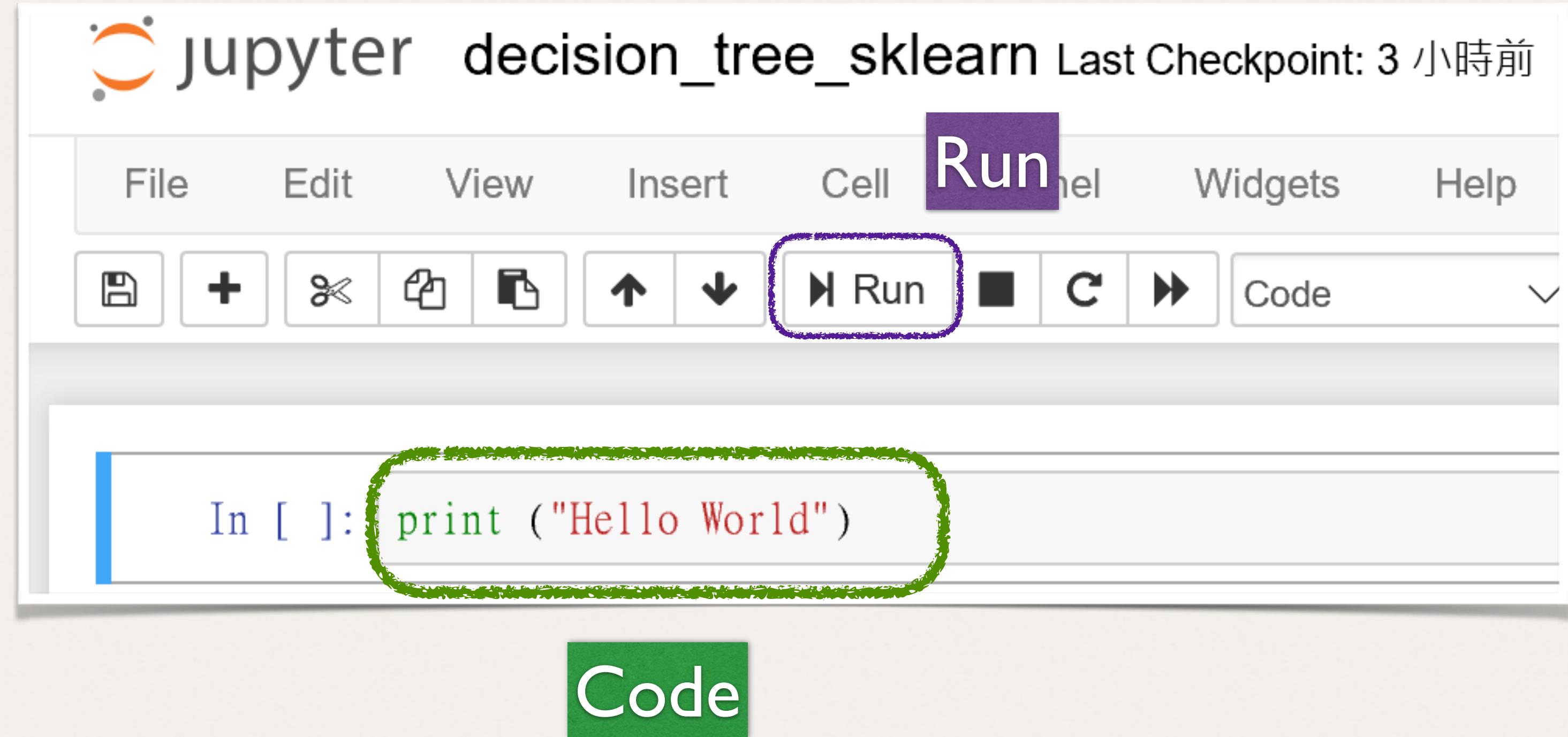
- A green box surrounds the "File name" field in the title bar.
- A red box surrounds the "Run" button in the toolbar.
- A purple box surrounds the "In [ ]:" cell in the code area.
- A blue box surrounds the entire code editor workspace.

jupyter decision\_tree\_sklearn Last Checkpoint: 3 小時前

File Edit View Insert Cell Run Kernel Widgets Help

In [ ]: `print ("Hello World")`

Code



In [2]: `print ("Hello World")`

Hello World

Output



Congratulations !

# USEFUL SHORTCUTS

- ▶ A : insert cell above
- ▶ B : insert cell below
- ▶ DD : delete selected cell
- ▶ C : copy selected cell
- ▶ X : cut selected cell
- ▶ V : paste cell below
- ▶ Shift+enter : run the cell
- ▶ L : toggle line number
- ▶ Enter : edit mode
- ▶ Esc : command mode
- ▶ M : change cell to markdown
- ▶ Y : change cell to code



localhost:8888/notebooks/Untitled1.ipynb?kernel\_name=python3#



# jupyter Untitled1 Last Checkpoint: 24 分鐘前 (unsaved changes)



Logout

File Edit View Insert Cell Kernel Widgets Help



Step 1

Help

User Interface Tour  
Keyboard Shortcuts

Step 2

Edit Keyboard Shortcuts

Notebook Help

Markdown

Python Reference

IPython Reference

NumPy Reference

SciPy Reference

Matplotlib Reference

SymPy Reference

pandas Reference

About

## Keyboard shortcuts

commands and is indicated by a grey cell border with a blue left margin.

### Command Mode (press Esc to enable)

F	: find and replace
Ctrl-Shift-F	: open the command palette
Ctrl-Shift-P	: open the command palette
Enter	: enter edit mode
P	: open the command palette
Shift-Enter	: run cell, select below
Ctrl-Enter	: run selected cells
Alt-Enter	: run cell and insert below
Y	: change cell to code
M	: change cell to markdown
R	: change cell to raw
1	: change cell to heading 1
2	: change cell to heading 2
3	: change cell to heading 3
4	: change cell to heading 4
5	: change cell to heading 5
6	: change cell to heading 6
K	: select cell above
Up	: select cell above
Down	: select cell below
J	: select cell below
Shift-Down	: extend selected cells below
Shift-J	: extend selected cells below
A	: insert cell above
B	: insert cell below
X	: cut selected cells
C	: copy selected cells
Shift-V	: paste cells above
V	: paste cells below
Z	: undo cell deletion
D, D	: delete selected cells
Shift-M	: merge selected cells, or current cell with cell below if only one cell is selected
Ctrl-S	: Save and Checkpoint
S	: Save and Checkpoint
L	: toggle line numbers
O	: toggle output of selected cells
Shift-O	: toggle output scrolling of selected cells
H	: show keyboard shortcuts
I, I	: interrupt the kernel

Close

# OUTLINE

- ▶ Installation for Windows
- ▶ UI Components
- ▶ Advantages

# ADVANTAGES

- ▶ 程式碼可以分區執行 (cell)
- ▶ 直接將 output 顯示於程式碼下方，方便對照
- ▶ 支援許多語言 ex. Perl. R. Matlab. Ruby...
- ▶ 方便分享，在 github 中可以 notebook 方式呈現
- ▶ 互動式元件 (Interactive Widgets)

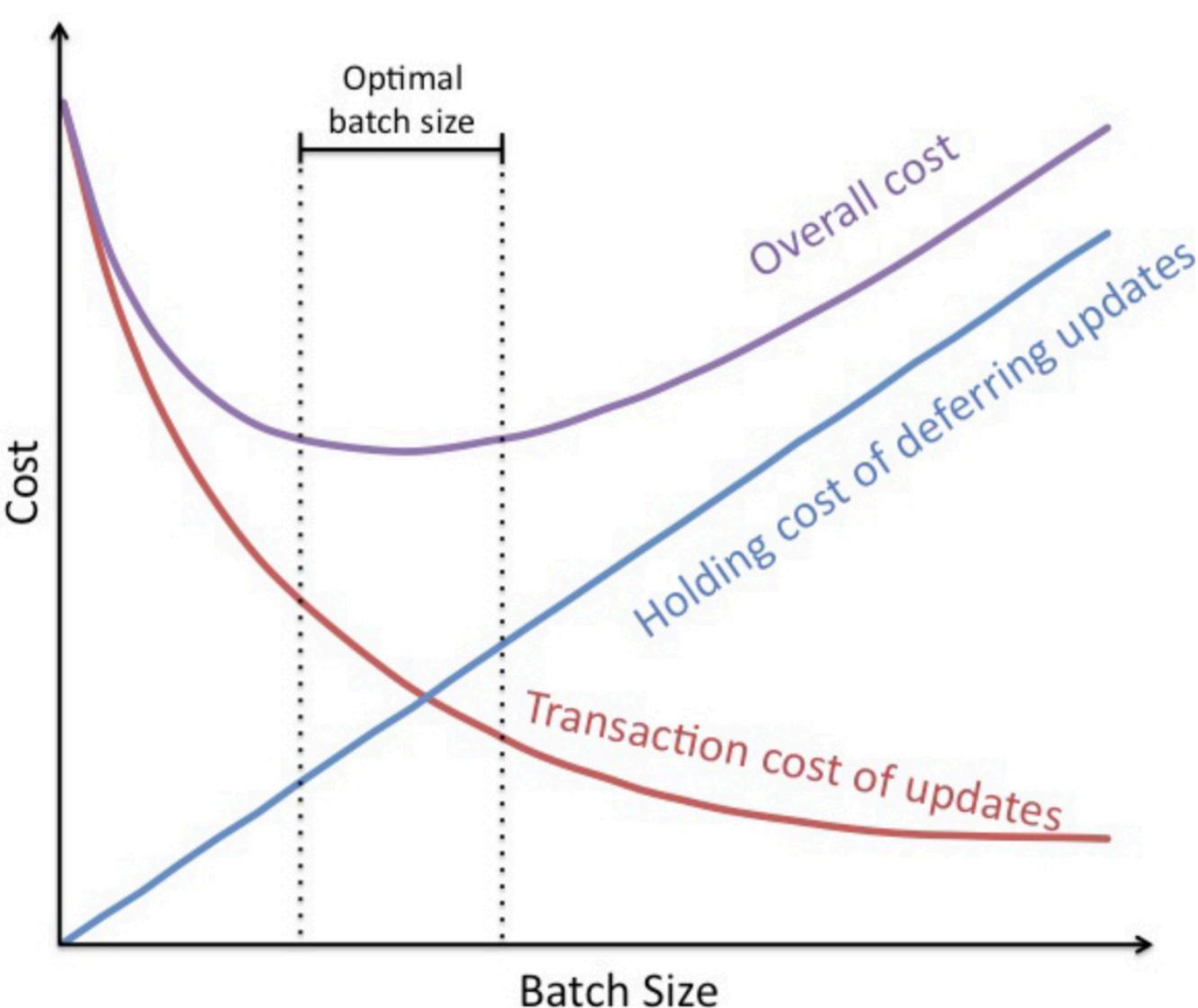
# MARKDOWN

## loss with mean\_squared\_error

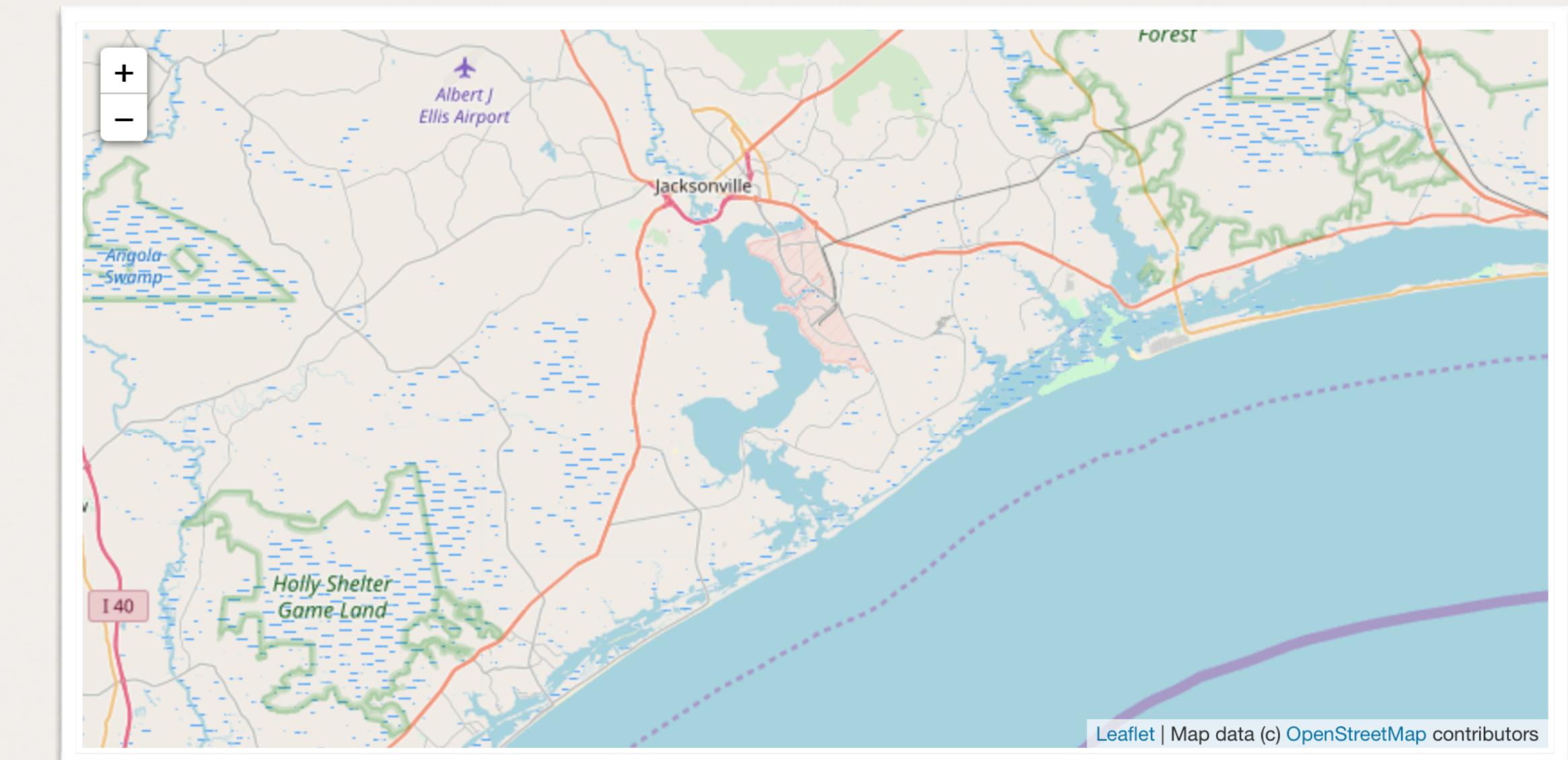
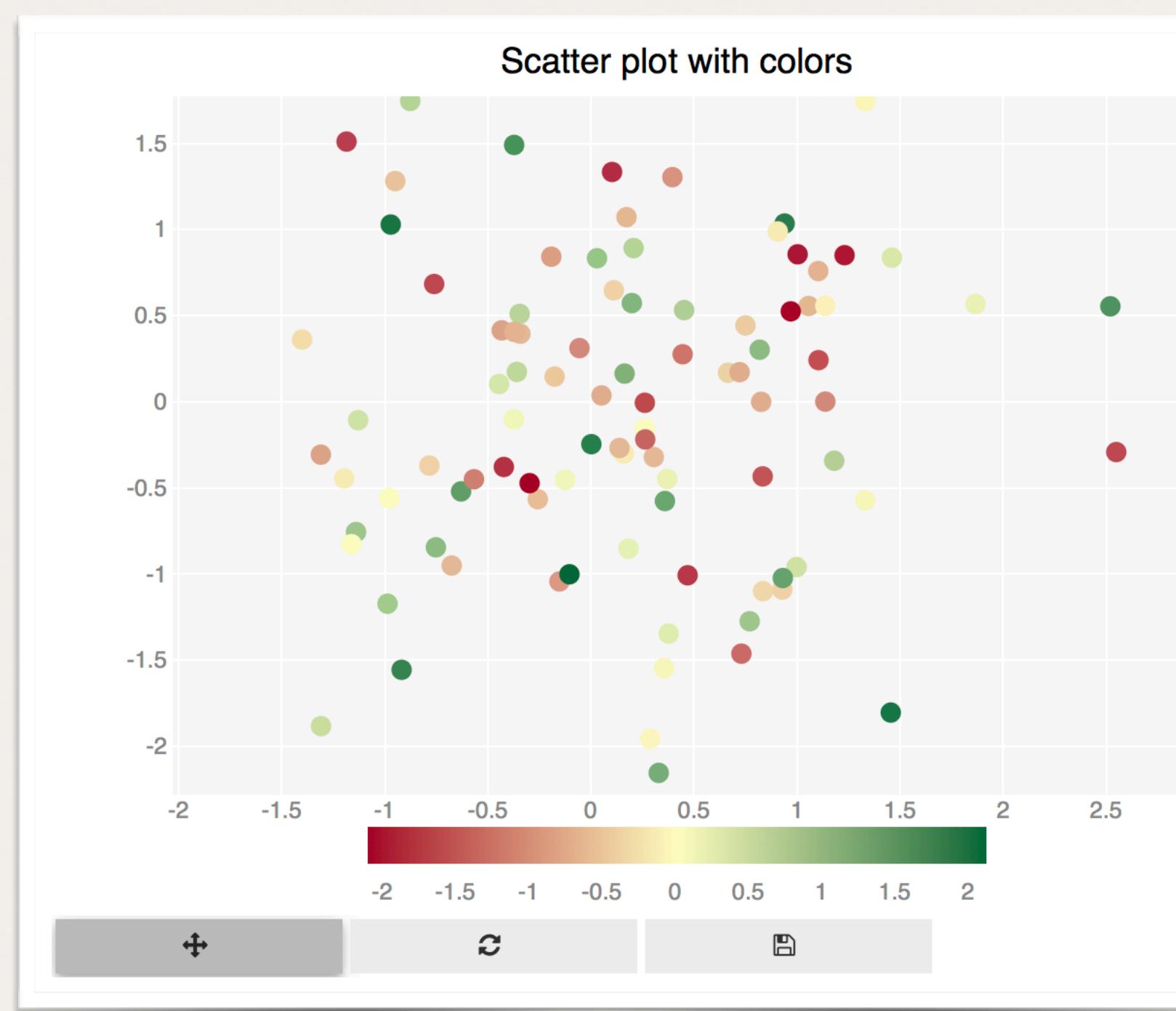
```
In [13]: model_mse.compile(loss= 'mean_squared_error' ,  
                      optimizer=sgd,  
                      metrics=[ 'accuracy' ])
```

### Set the size of mini-batch and number of epochs

- **Batch size** : the number of training **examples** in one forward/backward pass. The higher the batch size, the more memory space you'll need.
- **epoch** : one forward pass and one backward pass of **all** the training examples.



# INTERACTIVE WIDGETS



To see more : <http://jupyter.org/widgets.html>

JUPYTER

THANK YOU