













Jupyter Quick Reference

Jupyter

jupyter Module 8 seaborn - complete Last Checkpoint: 02/25/2018 (unsaved changes)  Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 C

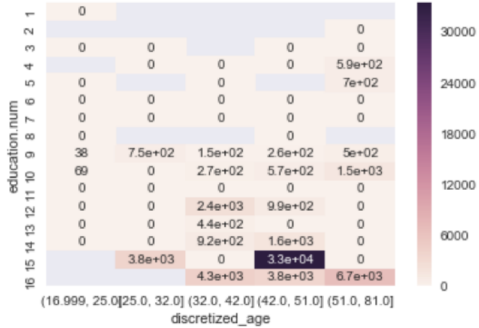
          Code 

Find average capital gain for age and education.num

```
In [30]: gr = df2.groupby(['education.num', 'discretized_age'])['capital.gain'].mean()

In [31]: sns.heatmap(gr.unstack(),annot=True)

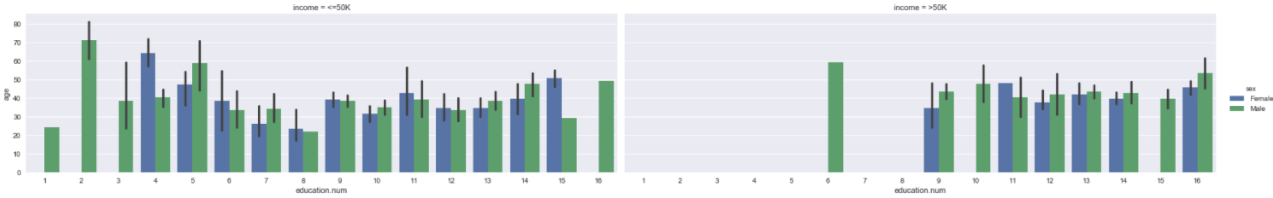
Out[31]: <matplotlib.axes._subplots.AxesSubplot at 0x11d07d7d0>
```



Four variables: two numeric and two categorical

```
In [32]: sns.factorplot(x='education.num',y='age',hue='sex',col='income', data=df,kind='bar',aspect=3)

Out[32]: <seaborn.axisgrid.FacetGrid at 0x11d09d790>
```



Four variables: one numeric and three categorical

```
In [33]: sns.factorplot(x='marital.status',y='age',hue='sex',col='income', data=df,kind='bar',aspect=3)
```

The Jupyter Notebook

Open Jupyter notebook

The Jupyter Notebook

- Jupyter notebook, formerly known as the IPython notebook, is a flexible tool that helps you create readable analyses, as you can keep code, images, comments(formatted (html) text), formula and plots together.
- The name Jupyter is an indirect acronym of the three core languages it was designed for: **J**ulia, **PY**thon, and **R** and is inspired by the planet Jupiter.

The Jupyter Notebook – cont.

- Each cell can contain code or text (called **markdown**)
- Each cell can be executed with SHIFT+ENTER or CTRL+ENTER
- Executing a “code cell” prints the result
- Executing a “markdown cell” formats it and displays it
- Two modes:
 - Command mode
 - Edit mode
 - Esc will take you into command mode
 - Enter will take you into edit mode on current cell

Command mode

 jupyter module 1 -- markdown complete Last Checkpoint: 01/10/2018 (unsaved changes)



Logout

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Python 3 



Markdown ▼



I am in edit mode inside a markdown cell. Let's use some HTML tags. For example, **this is bold** and this is *italic*.

Or you can use this to do **BOLD** and *Italic*

Here is an unordered list of items:

- Hello
- Hi
- Goodbye

Edit mode

 jupyter module 1 -- markdown complete Last Checkpoint: 01/10/2018 (unsaved changes)



Logout

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Python 3



Run



Markdown



I am in edit mode inside a markdown cell. Let's use some HTML tags. For example, **this is bold** and this is *italic*.

Or you can use this to do ****BOLD**** and **Italic**



Here is an unordered list of items:

- Hello
- Hi
- Goodbye

Command mode

Press ESC to switch to command mode

Shortcut	What it does
Cmd Shift P	Command palette
a	Insert a cell above
b	Insert a cell below
Enter	Switches to edit mode inside the current cell
Esc	Switch to command mode
m	Changes the cell content to markdown
y	Changes the cell content to code
dd	Deletes the current cell
x,c,v	Cut, copy, paste a cell
z	Undo last cell deletion
Shift Enter	Run cell, select below
Ctrl Enter	Run cell

Command mode – cont.

Press ESC to switch to command mode

Shortcut	What it does
Ctrl Shift -	Split the current cell into two from where your cursor is
Shift Down/Up	selects the next cell in a down/upwards direction.
Shift M	merge multiple cells.

Edit mode

Press Enter to switch to Edit mode

Tags	What it does
<code></code>	Bold
<code>__String__</code> or <code>**String**</code>	Bold
<code><i></i></code>	Italic
<code>_String_</code> or <code>*String*</code>	Italic
<code></code>	Ordered list
Start with 1. follow by a space	Ordered list
<code></code>	Unordered list
Start with – (or *) follow by two spaces	Unordered list
<code></code>	List item
<code>#</code>	Header of level 1 (main header)
<code>##</code>	Header of level 2
...	...

I am in edit mode and I am editing a markdown cell. So, I can use HTML tags to format the text. For example, this is **bold** and this is *italic*. Now, I can press SHIFT+ENTER to visualize the formatted cell

I can make an unordered list with a few items:

```
<ul>
<li>Hello</li>
<li>Hi</li>
<li>Goodbye</li>
</ul>
```

Or an ordered list of items:

```
<ol>
<li>Hello</li>
<li>Hi</li>
<li>Goodbye</li>
</ol>
```

To make a header, use hashtags:

Level 1

Level 2

Level 3

Level 4

Colored note boxes

- Blue boxes (Tips)
 - `<div class="alert alert-block alert-info"> string </div>`
- Yellow boxes (Examples)
 - `<div class="alert alert-block alert-warning"> ... </div>`
- Green boxes
 - `<div class="alert alert-block alert-success"> ... </div>`
- Red boxes
 - `<div class="alert alert-block alert-danger"> ... </div>`



File

Edit

View

Insert

Cell

Kernel

Widgets

Help

Not Trusted



Python 3



Code



Level 3

Level 4

This is a BLUE Box

This is a GREEN Box

This is a YELLOW Box

This is a RED Box

In []: |

Cheat sheet

- <https://www.cheatography.com/weidadeyue/cheat-sheets/jupyter-notebook/>
- <https://medium.com/ibm-data-science-experience/markdown-for-jupyter-notebooks-cheatsheet-386c05aeebed>

Open your first Jupyter file

- Open – 'module 1 -- markdown template.ipynb'

Tech Note: How to change the default working directory of Jupyter Notebook

- Go to Jupyter config directory `'/Users/YourUsername'` (if not sure, type `'jupyter --config-dir'`)
- Change directory to `.jupyter` folder (pay attention with the 'dot' before the name) (example: `/Users/ttan/.jupyter`)
- Create(or edit) a file `'jupyter_notebook_config.py'`
- Insert a line

```
c.NotebookApp.notebook_dir = '/Your/Path'
```

```
(example: c.NotebookApp.notebook_dir = '/Users/ttan/MSIS2802/')
```

- Or change this line to
 `#c.NotebookApp.notebook_dir = u''`
change it to:
 `c.NotebookApp.notebook_dir = '/Your/Path'`

Tech Note: How to disable *autosave* in Jupyter

- Method 1:
 - In code cell :
 - `%autosave 0`
- Method 2:
 - Go to user home directory `/.jupyter/custom` directory
 - Example: `/Users/atan/.jupyter/custom`
 - Create *custom.js* file
 - Custom.js file content

```
$(IPython.events).on("notebook_loaded.Notebook", function () {  
    IPython.notebook.set_autosave_interval(0);  
});
```
 - Restart Jupyter
 - Use File/Save and Checkpoint to save status

Tech Note: IPython Magic Commands

- *%autosave* is a IPython Magic Commands
- Being based on the IPython kernel, Jupyter has access to all the Magics from the IPython kernel
- This will list all magic commands
 - *%lsmagic*
- Examples:
 - *%env*: Set Environment Variables
 - *%run*: Execute python code
 - *%%time* will give you information about a single run of the code in your cell.
 - *%%timeit* uses the Python [timeit module](#) which runs a statement 100,000 times (by default) and then provides the mean of the fastest three times.
(one "%" is line magic. Two "%%" is cell magic)

Tech Note: How to see the value of multiple statements at once

- Method 1:

- In code cell :

```
from IPython.core.interactiveshell import InteractiveShell  
InteractiveShell.ast_node_interactivity = "all"
```

- Method 2:

- Go to user home directory, create a file `~/.ipython/profile_default/ipython_config.py` with the lines below:

```
c = get_config()  
# Run all nodes interactively  
c.InteractiveShell.ast_node_interactivity = "all"
```

- Restart Jupyter

Tech Note: Few Best Practices in Jupyter

- After open an original file, make a copy and work on the copy
 - File -> Make a Copy
- Save your work
 - File -> Save and Checkpoint
- Rename your Jupyter file if needed
 - File -> Rename
- Close a Jupyter file
 - File -> Close and Halt
- Sometime need to start the Jupyter Notebook file
 - Kernel -> Restart and Run All (automatic run all cells)
 - In cmd mode, press “00” (Restart the current kernel, need manually run each cell)