

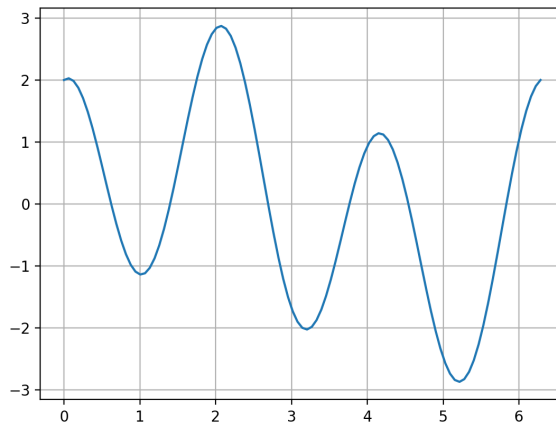
```
(@v1.5) pkg> add PyPlot      # plotting tools
(@v1.5) pkg> add IJulia      # Julia Notebook
(@v1.5) pkg> add Convex      # for Convex Programming
(@v1.5) pkg> add DSP         # digital signal processing
(@v1.5) pkg> add FFTW        # for using Fourier Transform
(@v1.5) pkg> add LightXML    # for read/write XML files
(@v1.5) pkg> add ImageIO     # tools for images
(@v1.5) pkg> add QuartzImageIO
(@v1.5) pkg> add ImageMagick
(@v1.5) pkg> add Printf
```

Now we can exit Package Management Mode and return to Julia by pressing “**backspace**”

```
julia>
```

We now load package PyPlot and plot the first graph:  $y = \sin(t) + 2\cos(3t)$  for  $t \in [0, 2\pi]$ .

```
julia> using PyPlot
julia> t = range(0, stop=2pi, length=101)
julia> y = sin.(t)+2*cos.(3t)
julia> plot(t,y)
```



### 3 IJulia: the Notebook

You can use Julia Notebook. From Julia, run:

```
julia> using IJulia
julia> notebook(detached = true)
```

Alternatively, you can run the Notebook by

```
julia> notebook(detached = true, dir=pwd())
julia> notebook(detached = true, dir="C://")
```

This will bring you to your browser, e.g., Google Chrome:



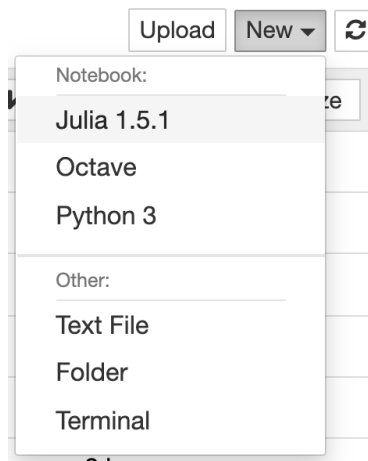
**MacOS:** If IJulia notebook does not show up in the browser,

- Run `$ export BROWSER=open` in terminal before running Julia.
- Or add `$ export BROWSER=open` to `Username/.bash_profile` using a text editor.

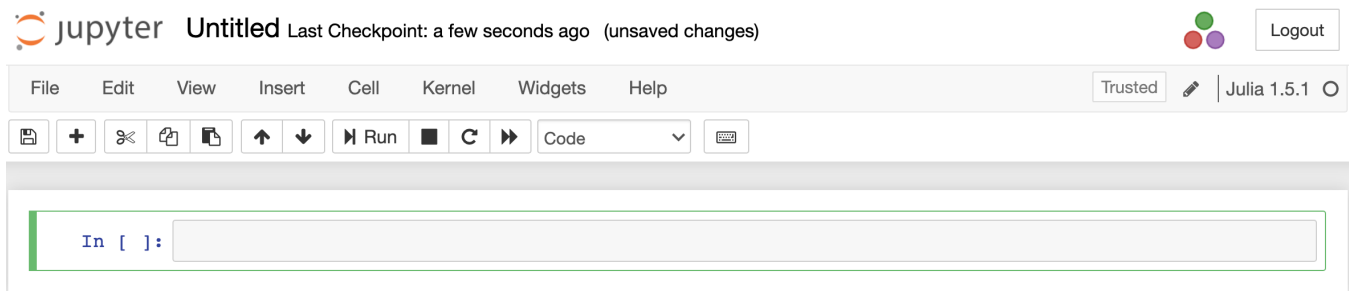
**MacOS:** If Julia kernel does not show up on the list of Jupyter Notebook:

- Rebuild from package management: `(@v1.5) pkg> build IJulia`.

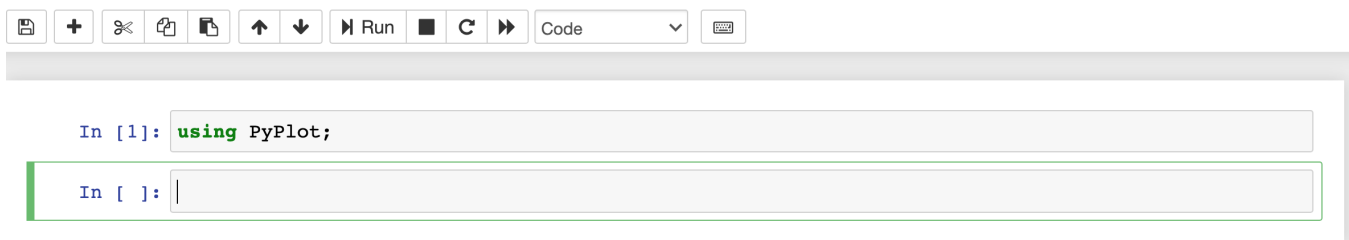
Once Jupyter is running, you can go to your folder and create a Julia Notebook



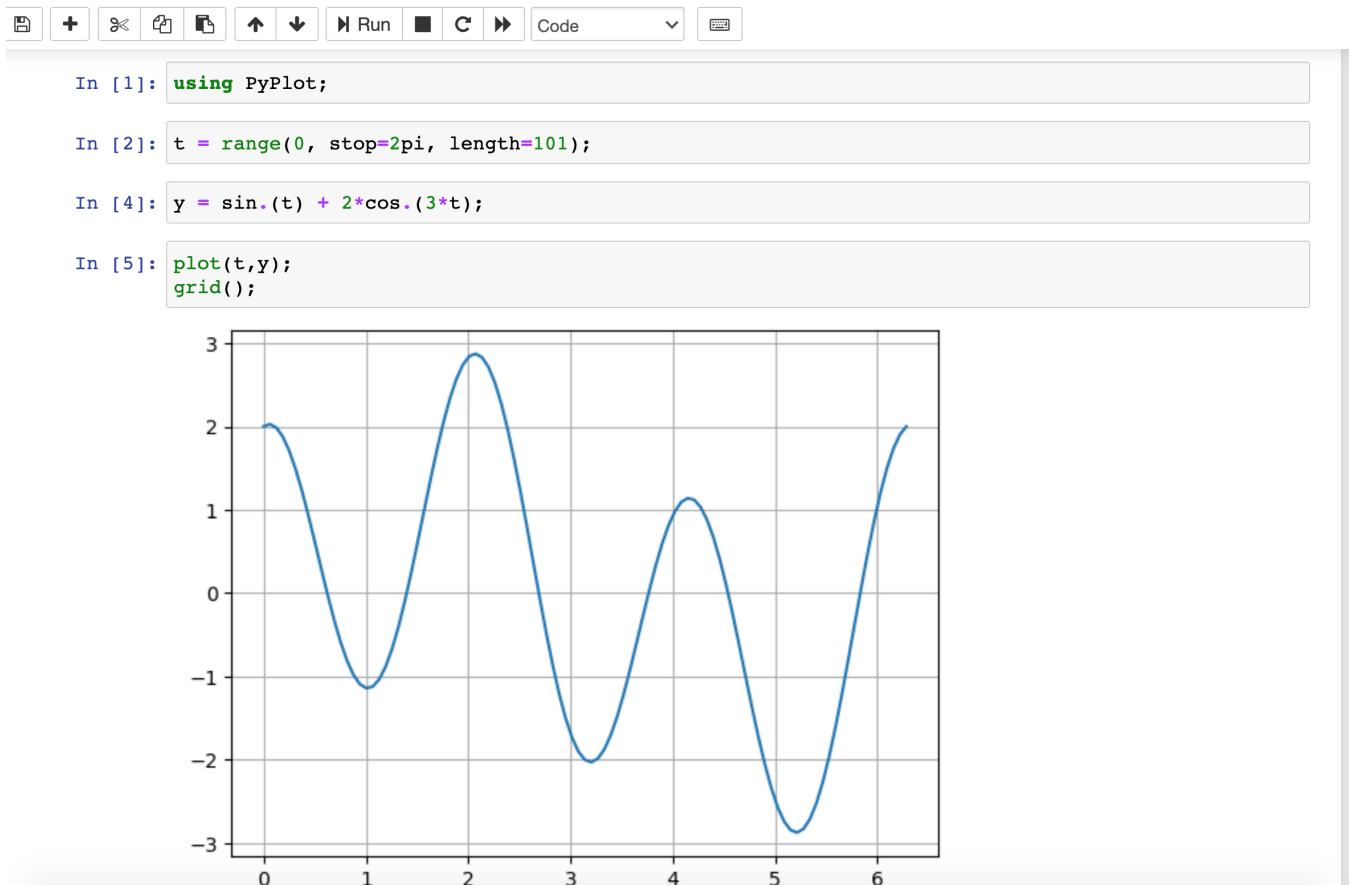
Now you have the Julia Notebook to work with:



Type in a command, then click the “Run” button, or press **Shift+Enter** or **Ctrl+Enter** to run it:



Continuing with all commands, you can plot the first graph:



## 4 Add Octave Kernel to Jupyter Notebook

Octave is a free alternative to Matlab. You can add an Octave kernel to the Jupyter notebook and run almost any Matlab script.

In Mac OS or Windows, you first need to install Jupyter Notebook via **Julia** or **Python**.

Then go to <https://www.gnu.org/software/octave/index> to download and install Octave.

### Mac OS

If Octave kernel does not show up in Jupyter Notebook, try one of the followings from the Terminal.

```
jupyter console --kernel octave
python3 -m octave_kernel install --user
```

### Windows 10

Goto Advanced System Settings / Environment Variables / Path (hit Edit) / New, then add the path to octave-cli.exe, for example, C:\Octave-5.2.0\mingw64\bin. Then save and exit.

In the Start Menu, find and run the Anaconda Prompt, then run

```
conda config --add channels conda-forge
conda install octave_kernel
conda install texinfo
```