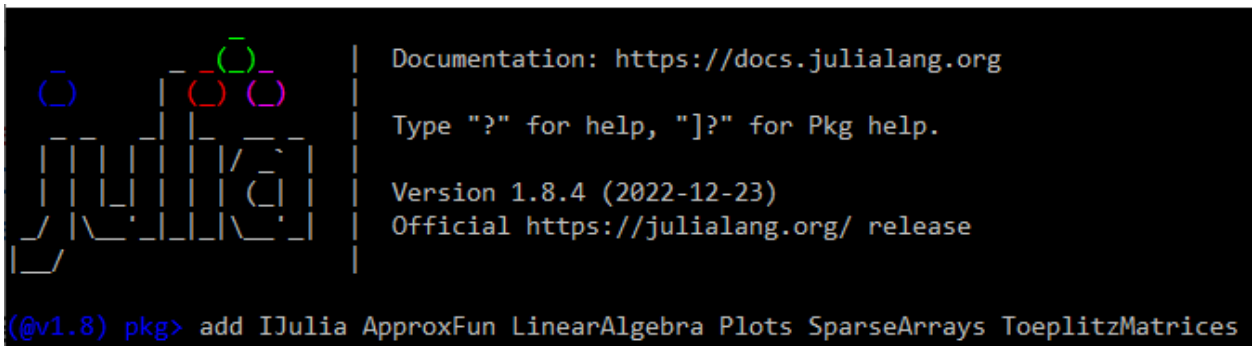
1 Julia

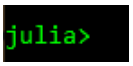
To run Julia in a Jupyter notebook on your own machine:

1. Download, install and run Julia v.1.8.4
2. Install the required packages by typing ( ] will change the prompt to a package manager):

```
] add IJulia ApproxFun LinearAlgebra Plots SparseArrays ToeplitzMatrices
```

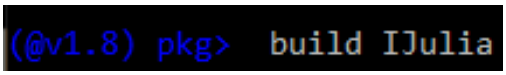


Notice that if you type backspace, you will exit the package manager (i.e., instead of seeing 'pkg' on the left, you'll see 'julia', like this



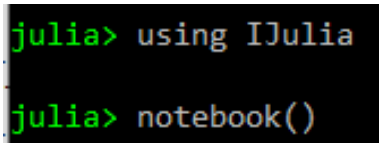
3. Build Jupyter by typing

```
] build IJulia
```



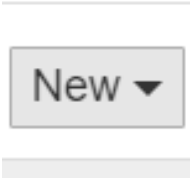
4. Exit the package manager by typing backspace then and launch Jupyter by typing

```
using IJulia
notebook()
```



The first time you run `notebook()`, it will prompt you for whether it should install Jupyter. Hit enter to have it use the Conda.jl package to install a minimal Python+Jupyter distribution (via Miniconda) that is private to Julia (not in your 'PATH').

5. In the top right of the tab that has been opened in your browser, click on New then click on your version of Julia, e.g., Julia 1.8.4



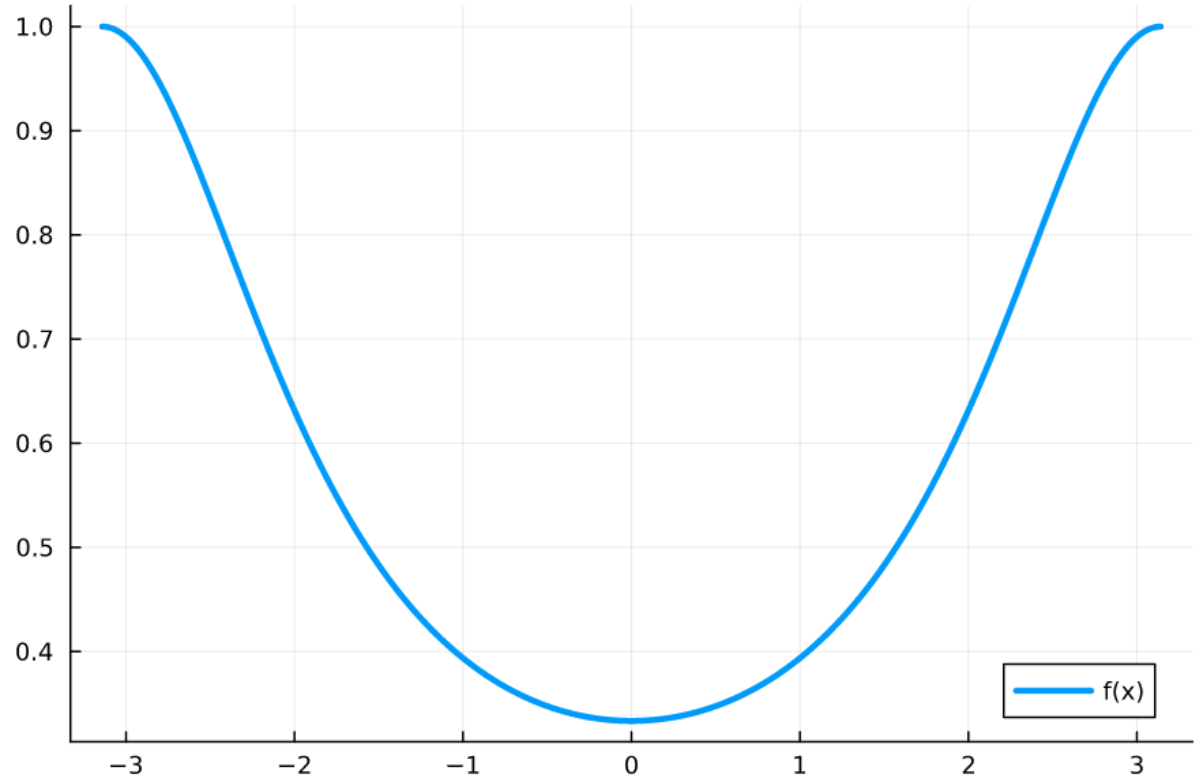
In the first cell of your Jupyter notebook, type the following:

```
using ApproxFun, Plots, LinearAlgebra, SparseArrays, ToeplitzMatrices
gr();
```

To run this cell, press Ctrl+Enter

Now type the following in a new cell, run the cell and check that you get the same figure as output:

```
f = Fun(x -> 1/(cos(x)+2),-pi..pi)
plot(f,lw=3,label="f(x)")
```



Now download the Jupyter notebook titled ??? at ??? and run it and see that you get the same output as in the lecture notes on Blackboard....

1.1 Recommended reading

The Julia Documentation

The Julia-Matlab-Python Cheatsheet

Think Julia

https://julialang.org/learning/

Introduction to Julia. If you don't like videos very much then jump straight to the notebooks. A more rapid introduction suitable for experience programmers can be found here