Jupyter Kernels & Supported Languages

Jupyter Slides & RISE

RISE stands for Reveal.js Jupyter/iPython Slideshow Extension

RISE is a Jupyter Extension which can turn a Jupyter Notebook into a slide with ease

Installation

Using Conda

In [ ]:

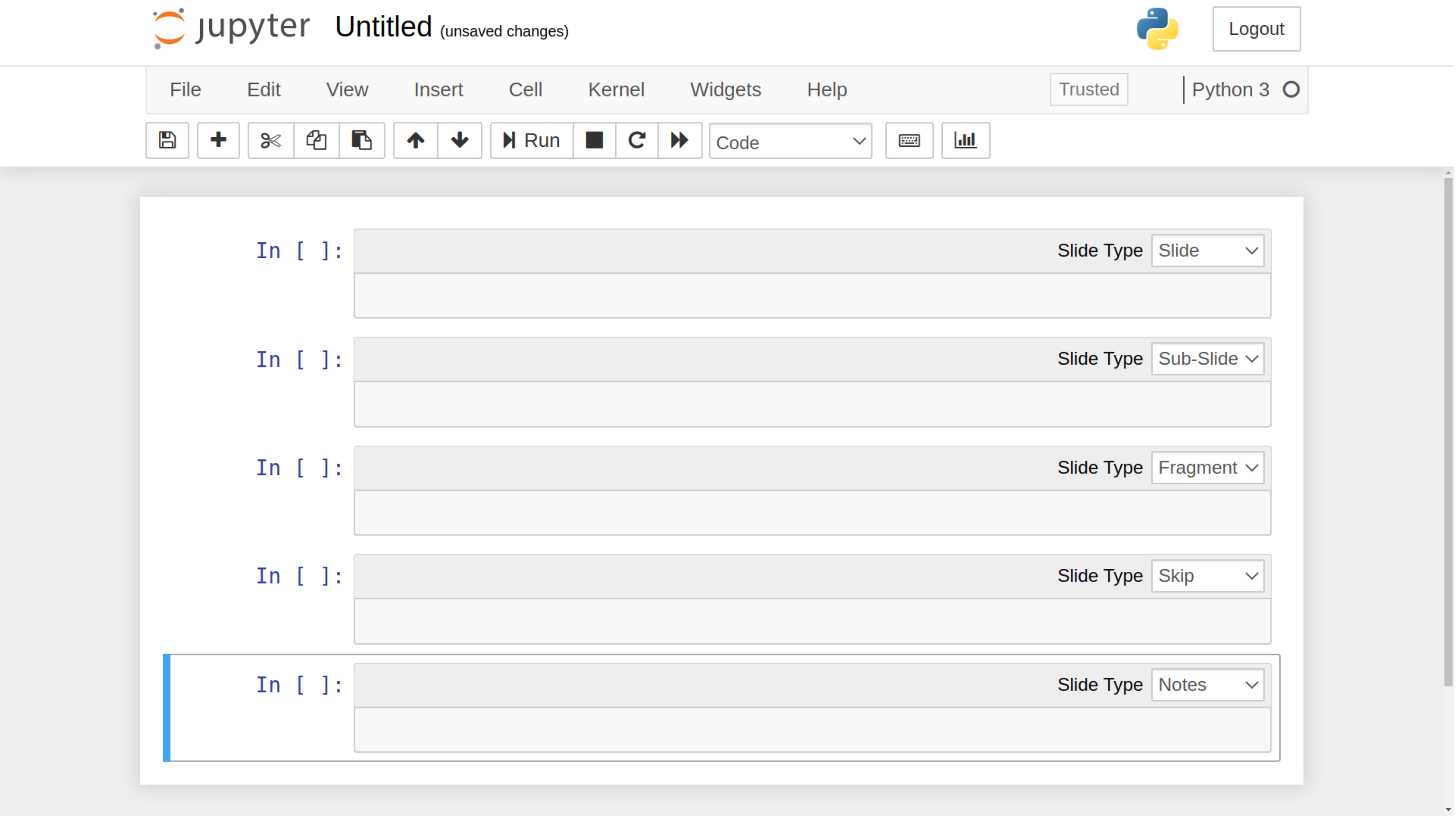
```
conda install -c conda-forge rise
```

Using pip

In [ ]:

```
pip install RISE
```

Usage



In [ ]: Slide Type Slide

In [ ]: Slide Type Sub-Slide

In [ ]: Slide Type Fragment

In [ ]: Slide Type Skip

In [ ]: Slide Type Notes

Exporting your notebook

Switch to the location of the file

Run the command and export

In [ ]:

```
jupyter nbconvert your_slide.ipnb
```

nbconvert exports to HTML by default, but you can export your notebook to different formats as TeX, PDF, among others

Jupyter Kernels

Jupyter Kernels can be thought as reference implementations for supported languages

There are around 100 kernels that can be used into Jupyter

Examples

Running Julia

Install Julia

In [ ]:

```
sudo apt install julia
```

Import Julia into Jupyter (with Julia console)

In [ ]:

```
> using Pkg
> Pkg.add("IJulia")
```

Sample code in Julia

In [1]:

```
function mandelbrot(a)
    z = 0
    for i=1:50
        z = z^2 + a
    end
    return z
end

for y=1.0:-0.05:-1.0
    for x=-2.0:0.0315:0.5
        abs(mandelbrot(complex(x, y))) < 2 ? print("*") : print(" ")
    end
    println()
end
```

```



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```

Running R

Installing R language IRKernel

In [ ]:

```
sudo apt-get install libzmq3-dev libcurl4-openssl-dev libssl-dev jupyter-core jupyter-client
```

Installing the libraries with R command line

In [ ]:

```
> install.packages(c('repr', 'IRdisplay', 'IRkernel'), type = 'source')
```

Importing IRKernel into Jupyter

In [ ]:

```
> IRkernel::installspec(user = FALSE)
```

Sample Code in R

In [2]:

```r
vector1 <- c(1, 6, 9, 63, 4, 5)
sort(vector1)
```

```
1· 4· 5· 6· 9· 63
```

SoS Kernel

SoS consists of a ployglot notebook that allows the use of multiple kernels in one Jupyter notebook

Running SoS

Install and Setup with Conda

In [ ]:

```
conda install sos-notebook jupyterlab-sos sos-papermill -c conda-forge
```

Install and Setup with pip

In [ ]:

```
pip install sos
pip install sos-pbs
python -m sos.install
```

Examples

Hello World in JavaScript

In [ ]:

```
let hello = ['Hello', 'World'];
```

In [ ]:

```
console.log(hello.join(', '))
```

Objects in TypeScript

In [ ]:

```
interface Pilot{
    name: string;
    age: number;
    team: string;
    car_number: number;
}
```

In [ ]:

```
let pilot : Pilot = {
    name: 'Ayrton Senna',
    age: 34,
    team: 'Williams',
    car_number: 2,
};
```

In [ ]:

```
console.log(pilot)
```

References and More Info

- https://rise.readthedocs.io/en/stable/index.html (https://rise.readthedocs.io/en/stable/index.html)
- https://github.com/jupyter/jupyter/wiki/Jupyter-kernels (https://github.com/jupyter/jupyter/wiki/Jupyter-kernels)
- https://github.com/vatlab/SOS (https://github.com/vatlab/SOS)
- https://github.com/yunabe/tslab (https://github.com/yunabe/tslab)
- https://julialang.org/learning/code-examples/ (https://julialang.org/learning/code-examples/)
- https://julialang.org/downloads/ (https://julialang.org/downloads/)
- https://irkernel.github.io/installation/#linux-panel (https://irkernel.github.io/installation/#linux-panel)