Food and Agriculture Organization of the United Nations

The HUB as a cloud based service

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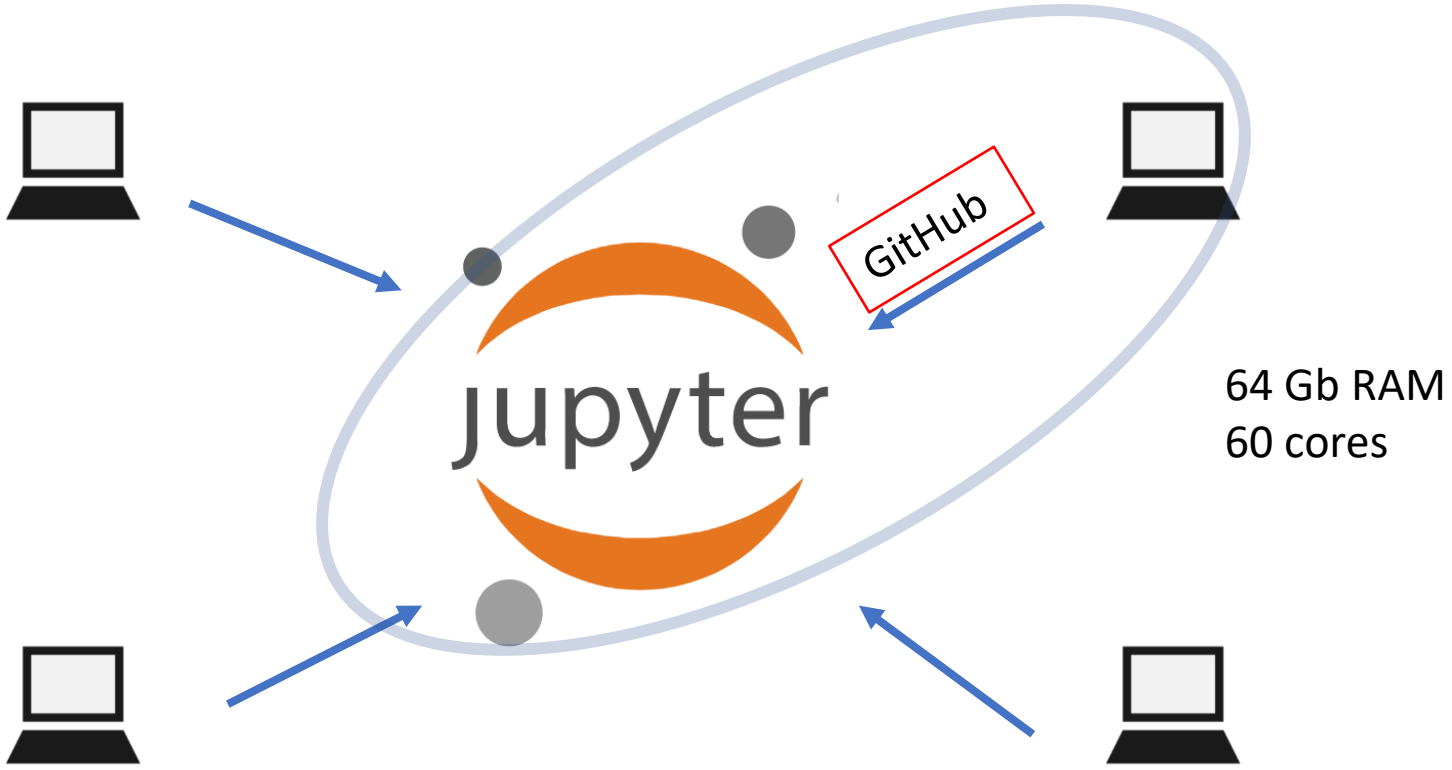
Content

1. Introduction to the HUB
2. What can be done and what cannot be done

All the necessary information and material used in this training is available in our GitHub repository

The HUB

The HUB is a cloud based environment, powered by University of Cantabria, that allow registered users to access a JupyterLab. Here, users can work with R or python, install libraries, perform computational work



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How to use the HUB

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Content

1. Login
2. Customize your environment (notebooks, folders, etc)
3. Open a notebook
4. Installing packages
5. Code of conduct

Login

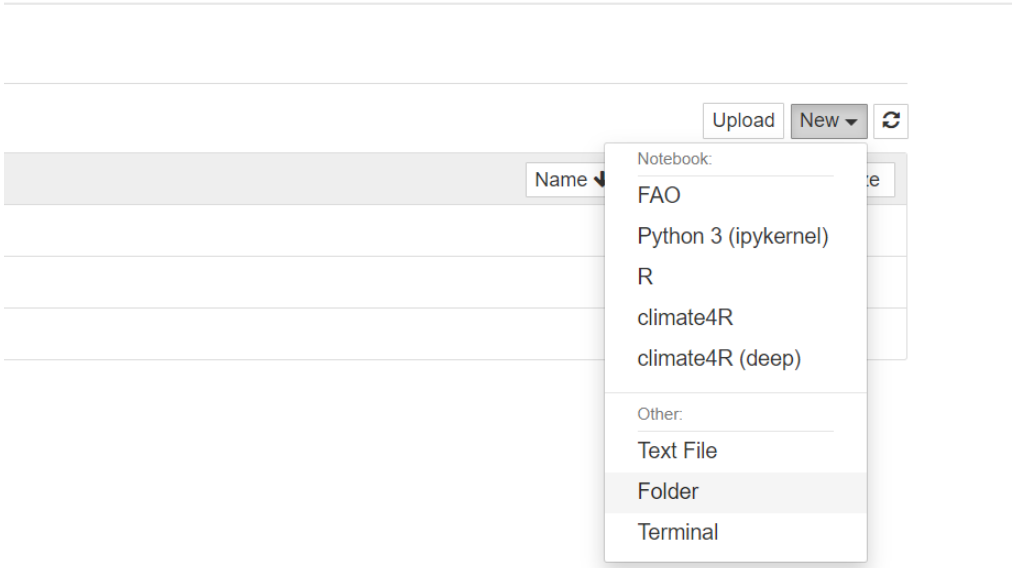
- Log-in to the HUB (You need to login to GitHub first). It is as simple as clicking the link
- You will be able to access the HUB if you were registered among allowed users
- If you are not, fear not. This workshop is useful regardless, so stay focus

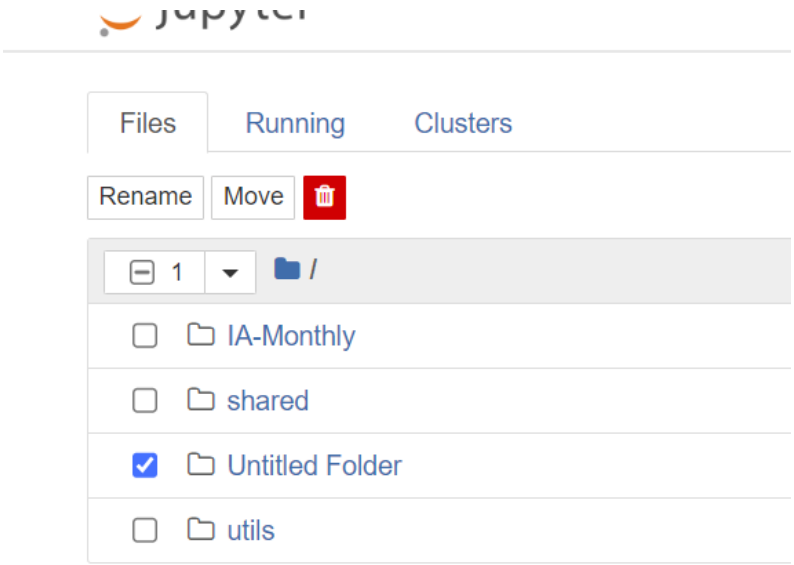
Customize your environment

- Once you log in, you would see the page below. You are now using a virtual machine

Customize your environment

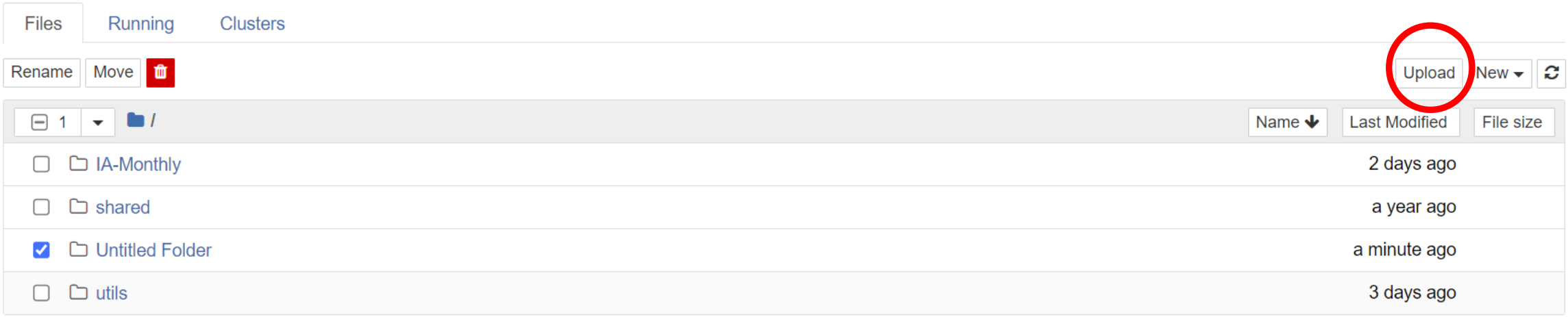
- You can now customize your environment (e.g create a folder with your name)





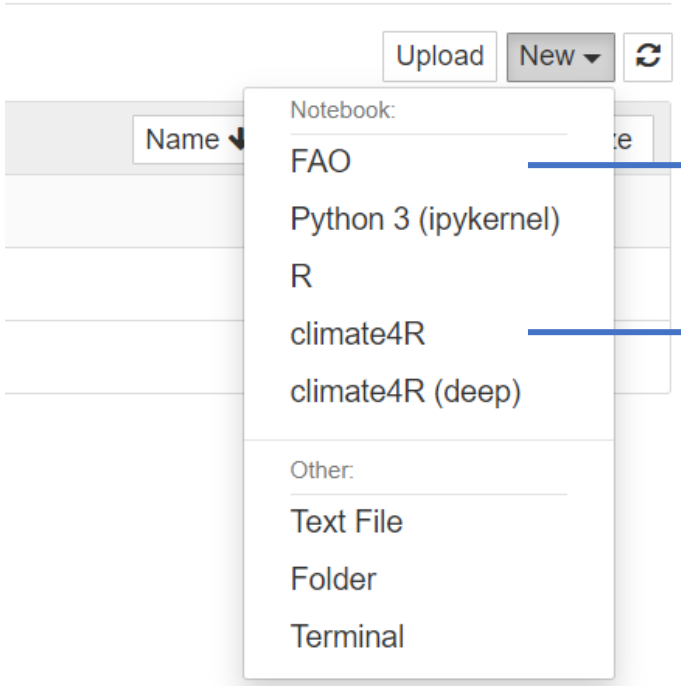
Customize your environment

- You can also upload some data (e.g an excel file) (**space is limited, do not upload Gbs of data**)



Understanding environments

- You can choose the environment that you want to use. Environments are conda environments that contains R installation and a pre-set of installed packages. Read why it is useful to work with conda environments here



Create a FAO notebook to use CAVA Analytics and use most of the packages you would need

Create a climate4R notebook if you want to use with climate4R. FAO environment also contains climate4R

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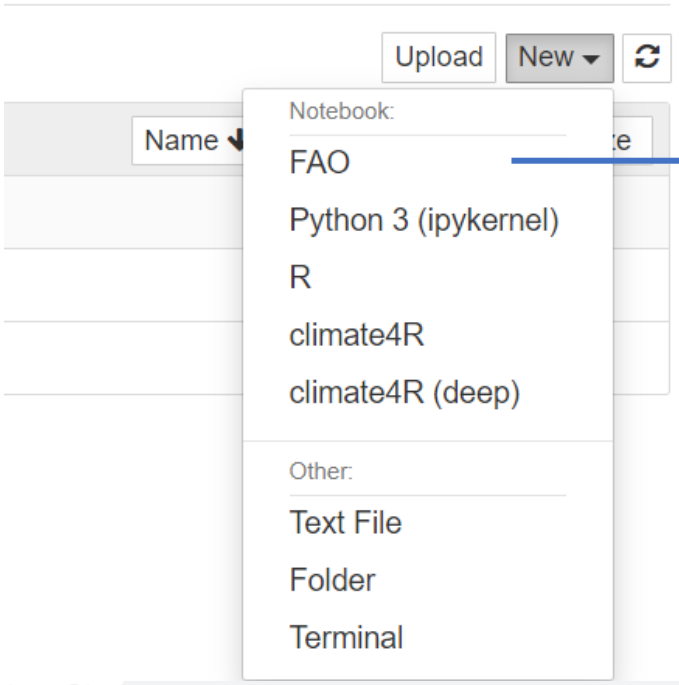
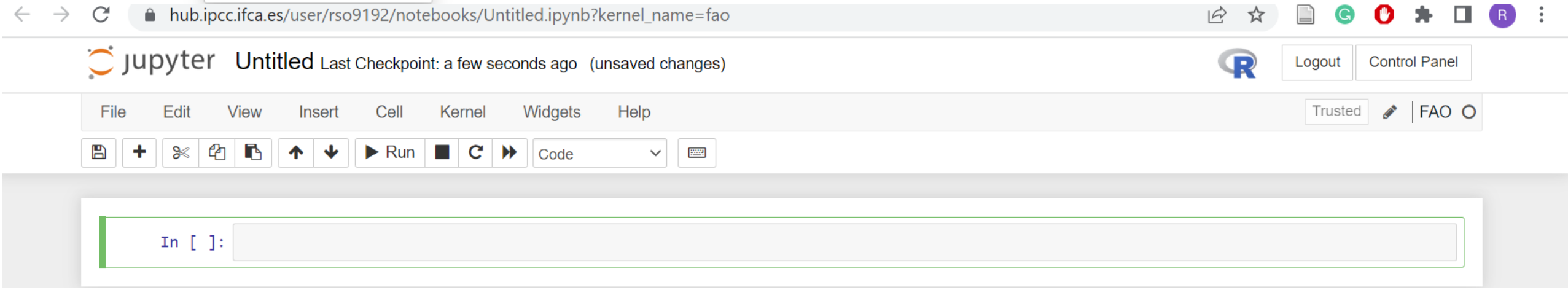
Opening a FAO notebook

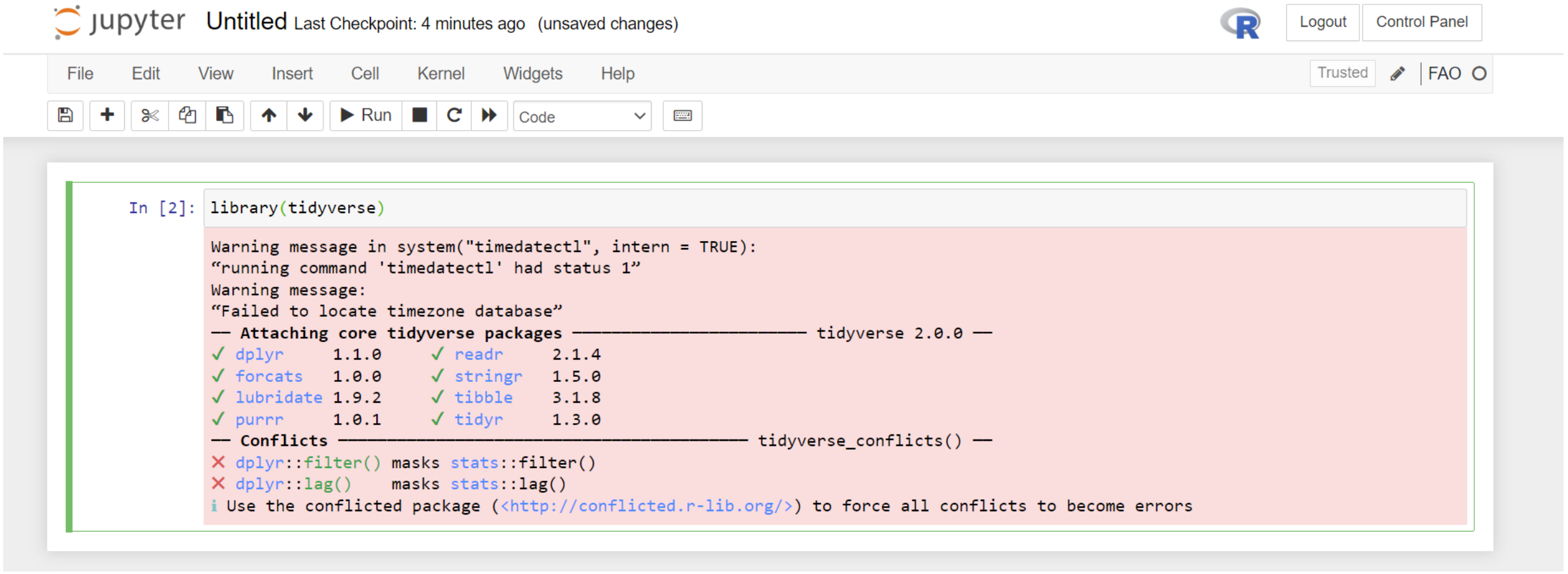


Create a new FAO notebook



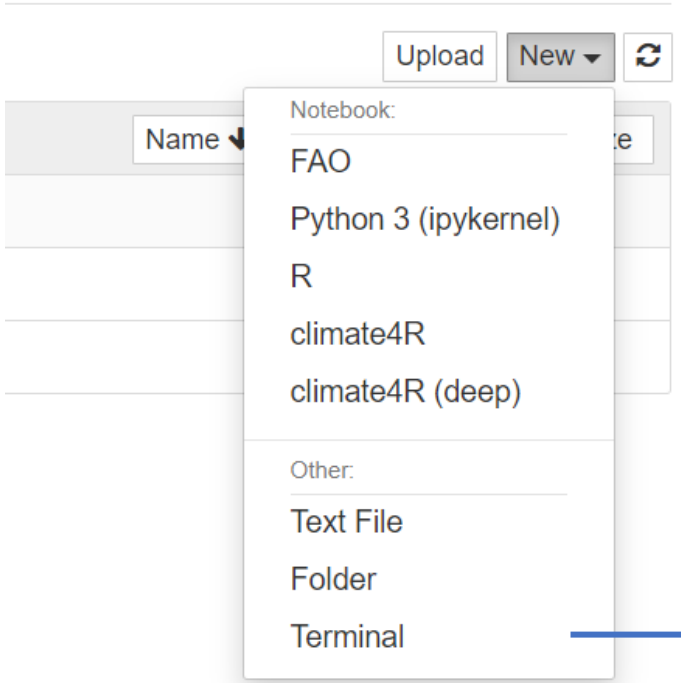
Opening a FAO notebook

- Now you can work as you would normally do in Rstudio



Installing packages

- Let's imagine you need a library that it is not installed in FAO or climate4R environments. To install a new package, you need to open a **terminal**



To install a new package open a terminal

Installing packages

- You will now see this

```
jovyan@630fd26c9279:~$
```

- Run **conda init bash,** close the terminal and open it again
- Check the available envs with conda info --envs

```
(base) jovyan@630fd26c9279:~$ conda info --envs
# conda environments:
#
base                  *  /opt/conda
climate4r                /opt/conda/envs/climate4r
climate4tf               /opt/conda/envs/climate4tf
fao                      /opt/conda/envs/fao

(base) jovyan@630fd26c9279:~$
```

Installing packages

- Now activate the environment in which you want to install a package, for example **conda activate fao**

```
(base) jovyan@630fd26c9279:~$ conda activate fao
(fao) jovyan@630fd26c9279:~$
```

- Open R

```
(base) jovyan@630fd26c9279:~$ conda activate fao
(fao) jovyan@630fd26c9279:~$ R

R version 4.2.2 (2022-10-31) -- "Innocent and Trusting"
Copyright (C) 2022 The R Foundation for Statistical Computing
Platform: x86_64-conda-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.
```

- Install the required package with install.packages("ggplot2")

Code of conduct

- In the tab **running**, you will see what is currently running. **Remember to click on shutdown when done with your work. If you don't, you will be occupying memory**

Code of conduct

- Be mindful on the usage of computational resources as these are shared among several users
- Do not upload excessive amount of data (several Gbs) from your local computer
- Always close your notebooks when done with your analyses

Exercise (10 minutes)

- Create a new folder with your name
- Open a FAO notebook and rename it
- Close the notebook

Thank you!

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