



HOLOGENOME

Sao Paulo School of Advanced Science 2024

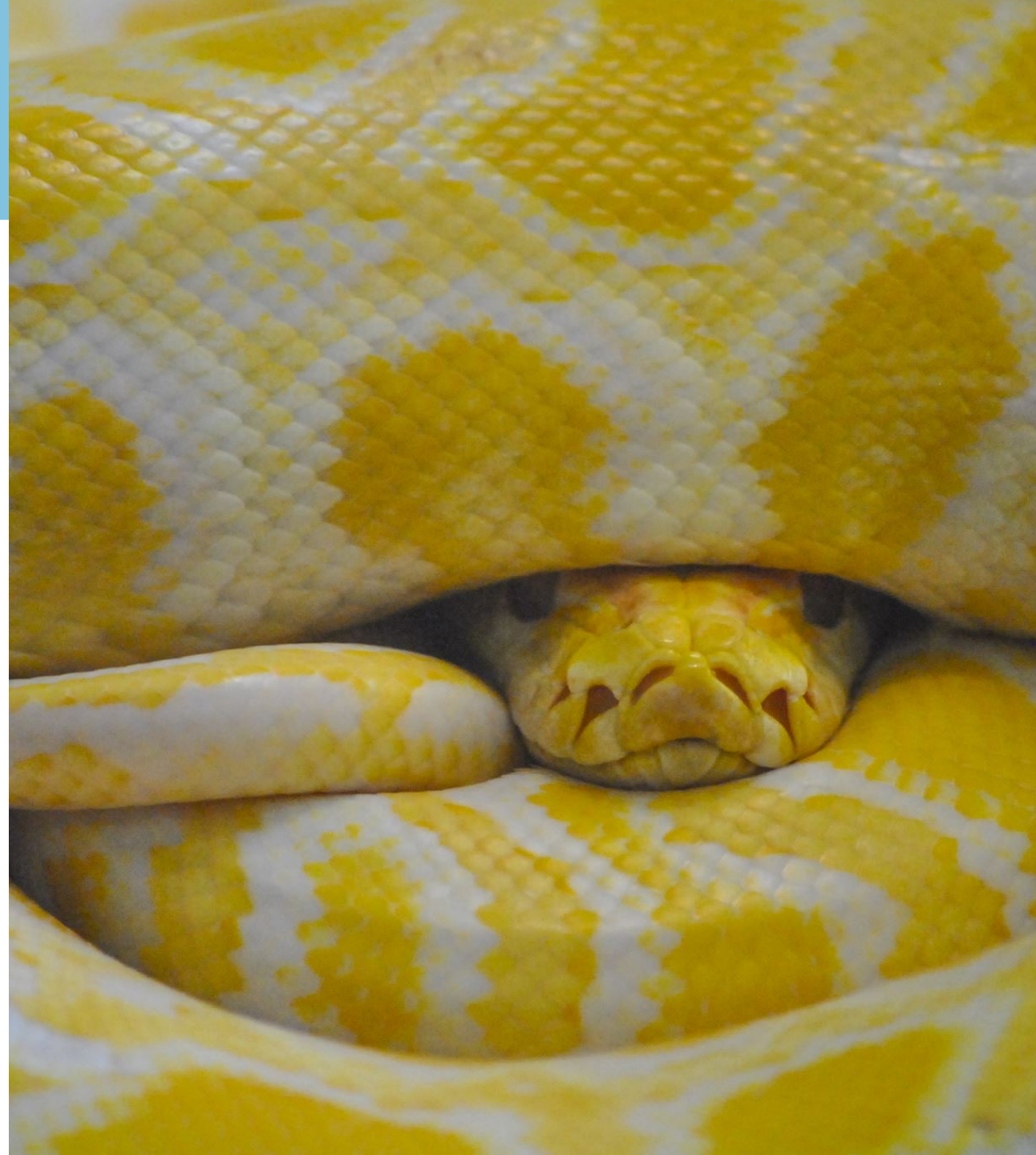
Applied Python for Computational Biology How to install Python, miniconda and Jupyter

Dr. Bruno Andrade

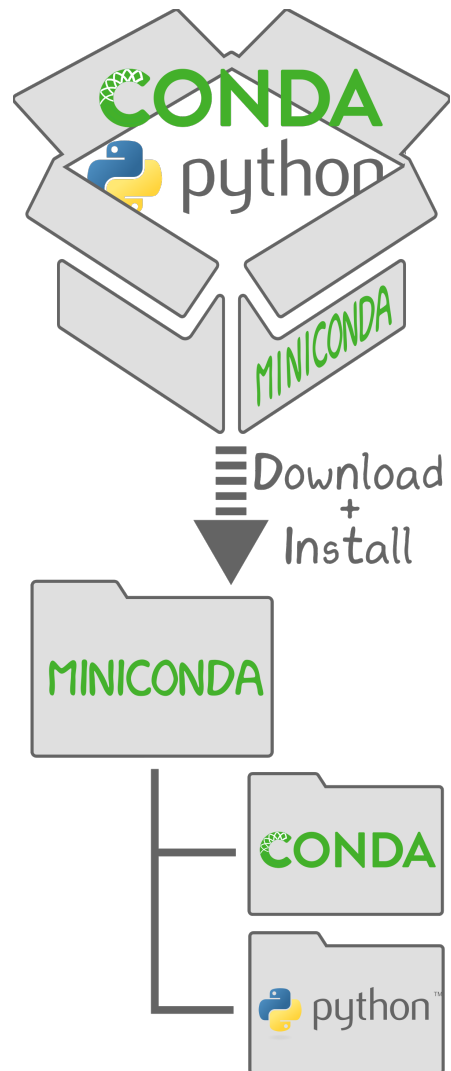


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How to install python?



- If you are using a unix or linux based system you already have it installed. If you are using windows you might have to install it.
- But for the sake of having everyone on the same ground, let's install Miniconda! (If you don't have it yet.)



- Anaconda is a distribution of Python and R programming languages for scientific computing. Aiming to simplify package management and deployment.
- Miniconda is a smaller version containing only python.
- To install it, refer to this link [here](#).

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Jupyter



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- Jupyter is an open-source application that allows you to create and share documents that contain live code.
- Go to <http://jupyter.org/install> and follow the instructions.

JupyterLab

Install JupyterLab with **pip**:

```
pip install jupyterlab
```

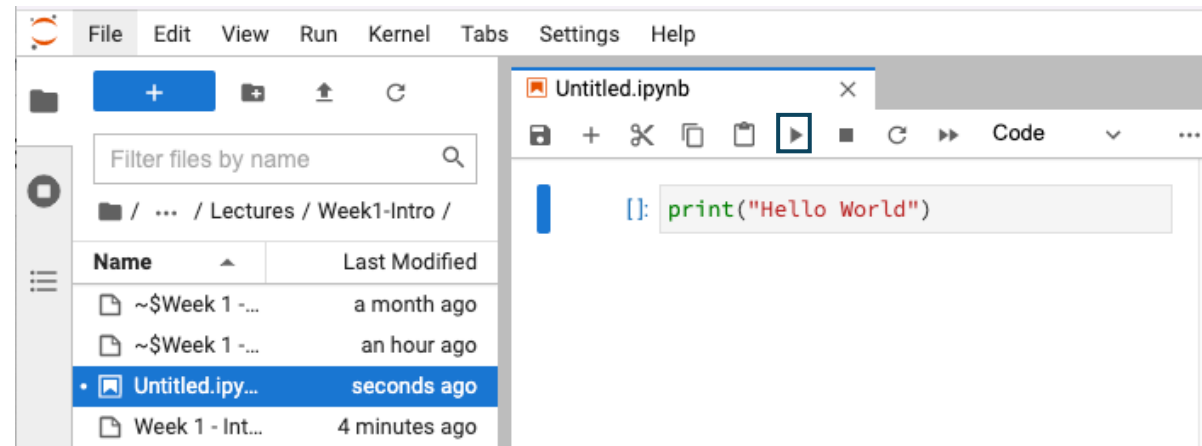
Install JupyterLab with **conda**:

```
conda install -c conda-forge jupyterlab
```



- You can create a Jupyter notebook for a range of programming languages.
- It's a great way for learning a language as it provides you with an interactive shell that allows you to type/run commands and see the output.





- The screenshot above shows my notebook and I've typed a simple command `print("Hello World")`.

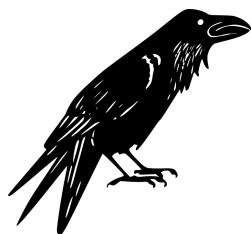
```
[1]: print("Hello World")
```

Hello World



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Jupyter is not suitable for serious software development.



- Why am I insisting in Jupyter, although it's not the best tool for development?
- It's the best tool for collaboration, you guys can code together using google colab!!!!

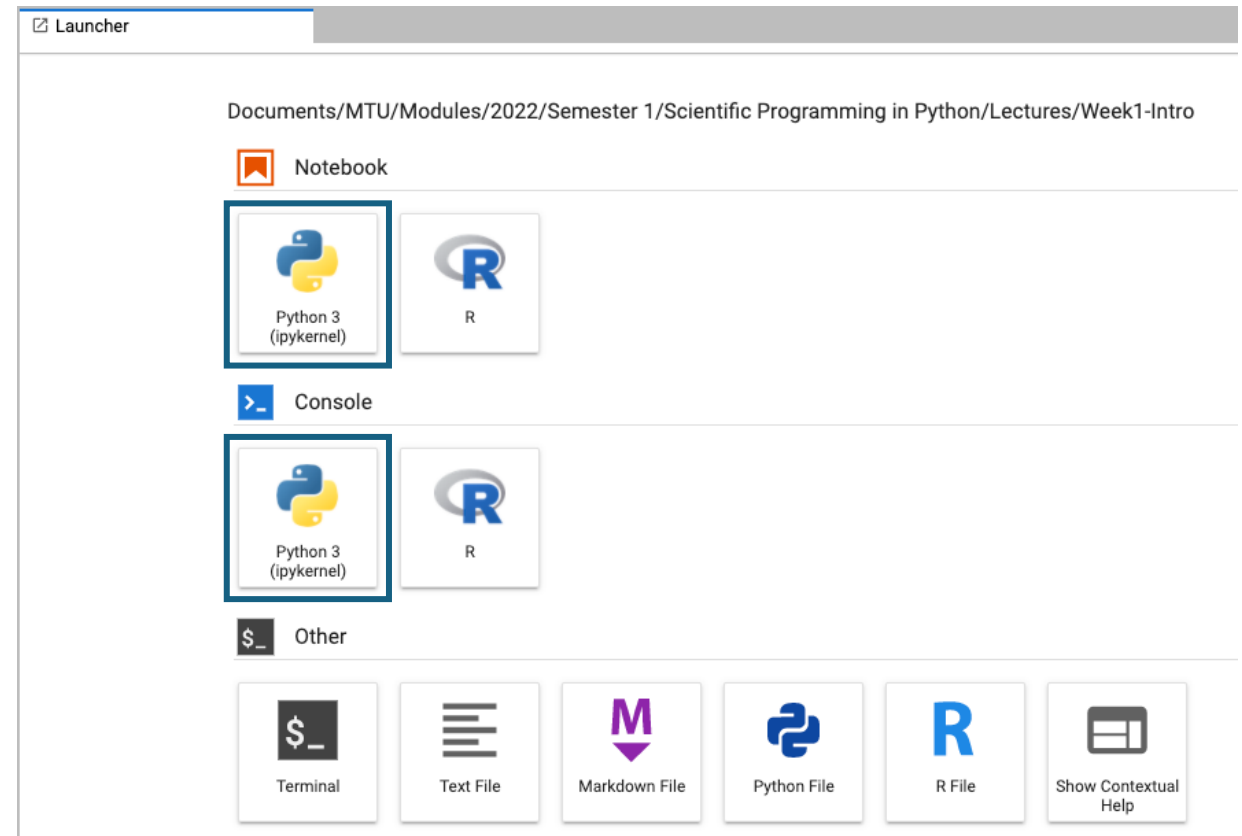
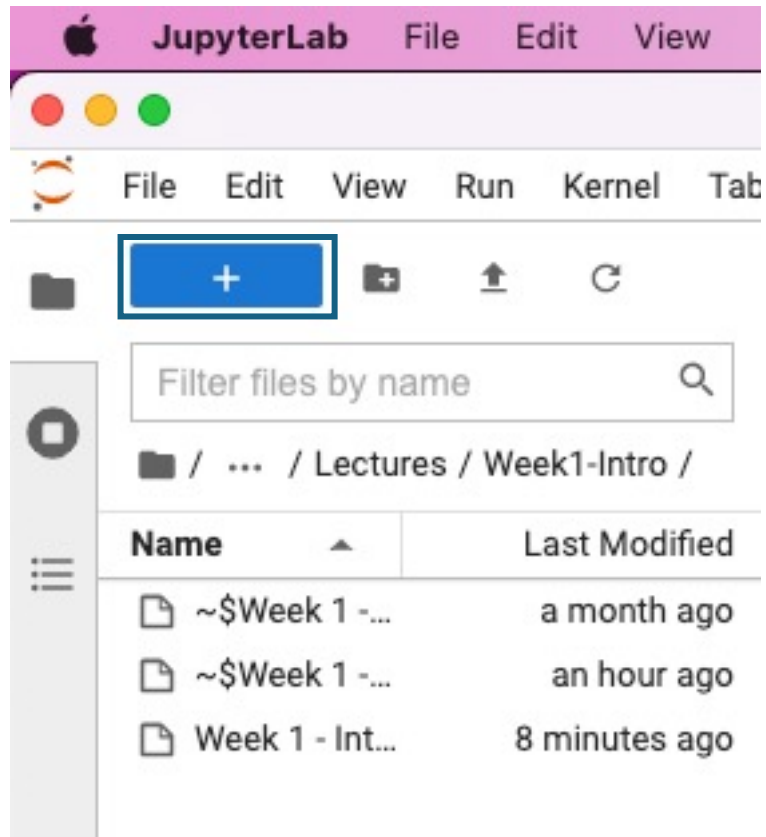


Jupyter Notebooks – Creating a file



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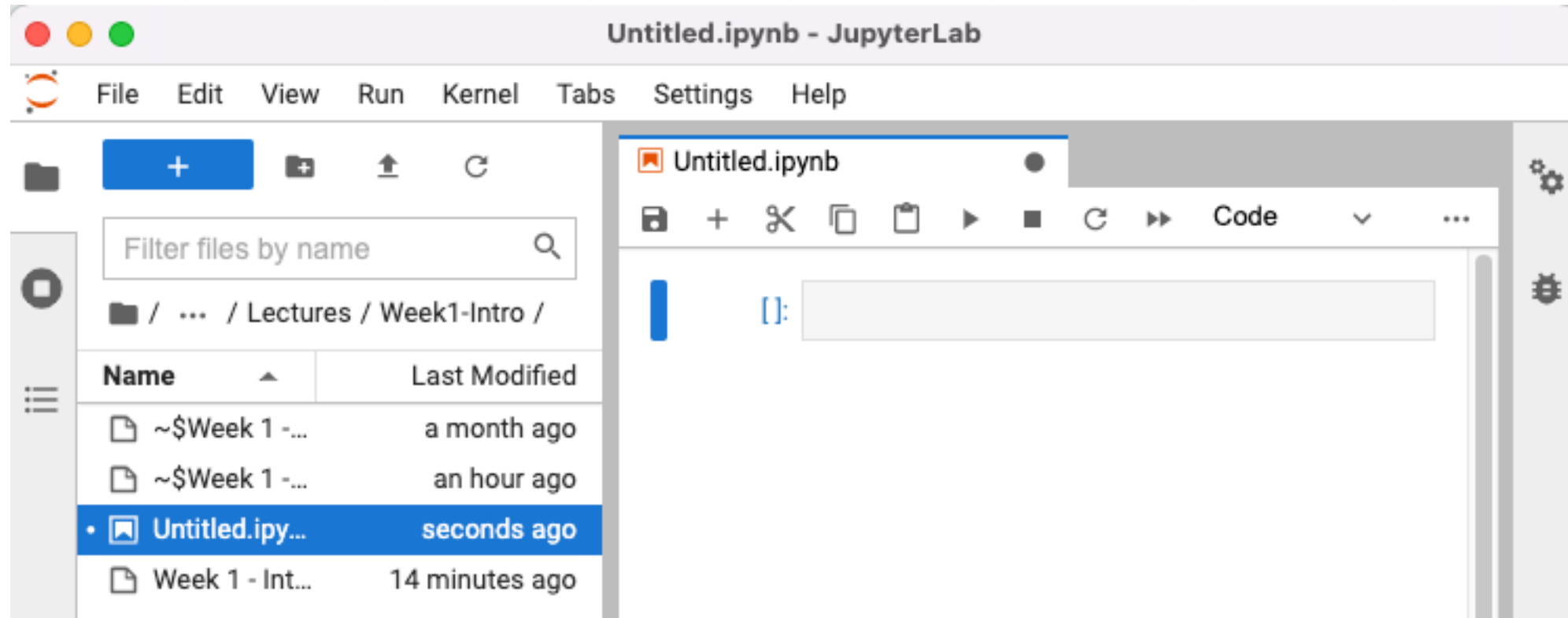


Jupyter Notebooks – Creating a file



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Multiple Lines of Code and Sequence of Execution



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- We can place multiple lines of code into our program.
- When we run the program the interpreter starts at the top of the file and executes statements from top to bottom.

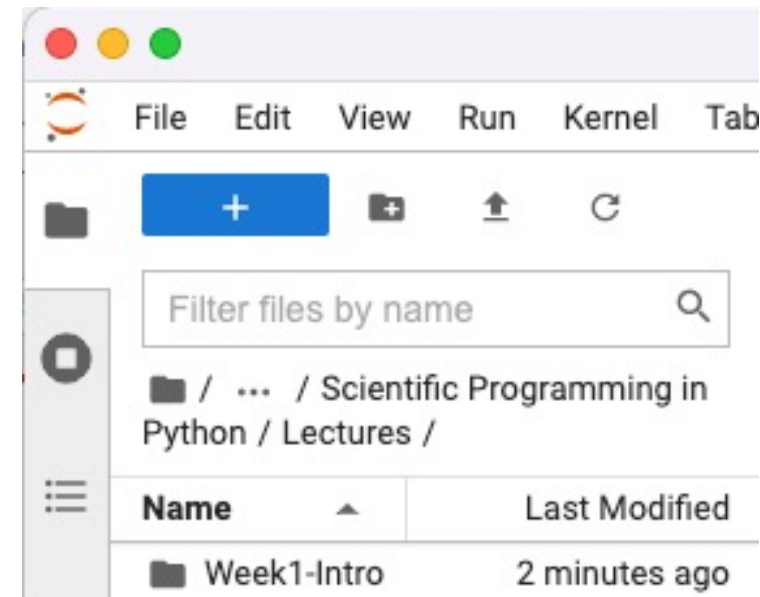
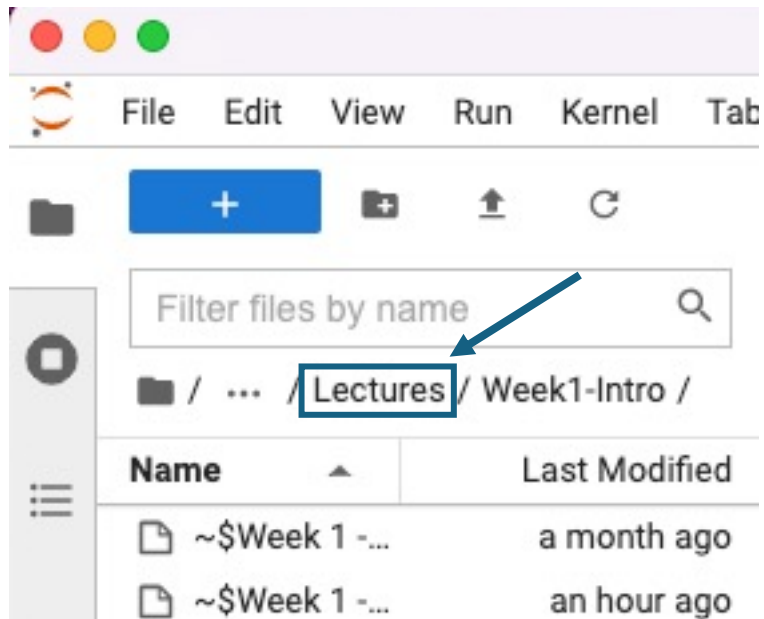
The screenshot shows a Jupyter Notebook window titled 'Untitled.ipynb'. The toolbar includes icons for saving, adding, deleting, copying, pasting, running, and other actions. The 'Code' tab is selected. A code cell is shown with the following code:

```
[1]: print("Hello")  
     print("World")
```

Below the code, the output is displayed:

```
Hello  
World
```

- You can easily change the current working directory.

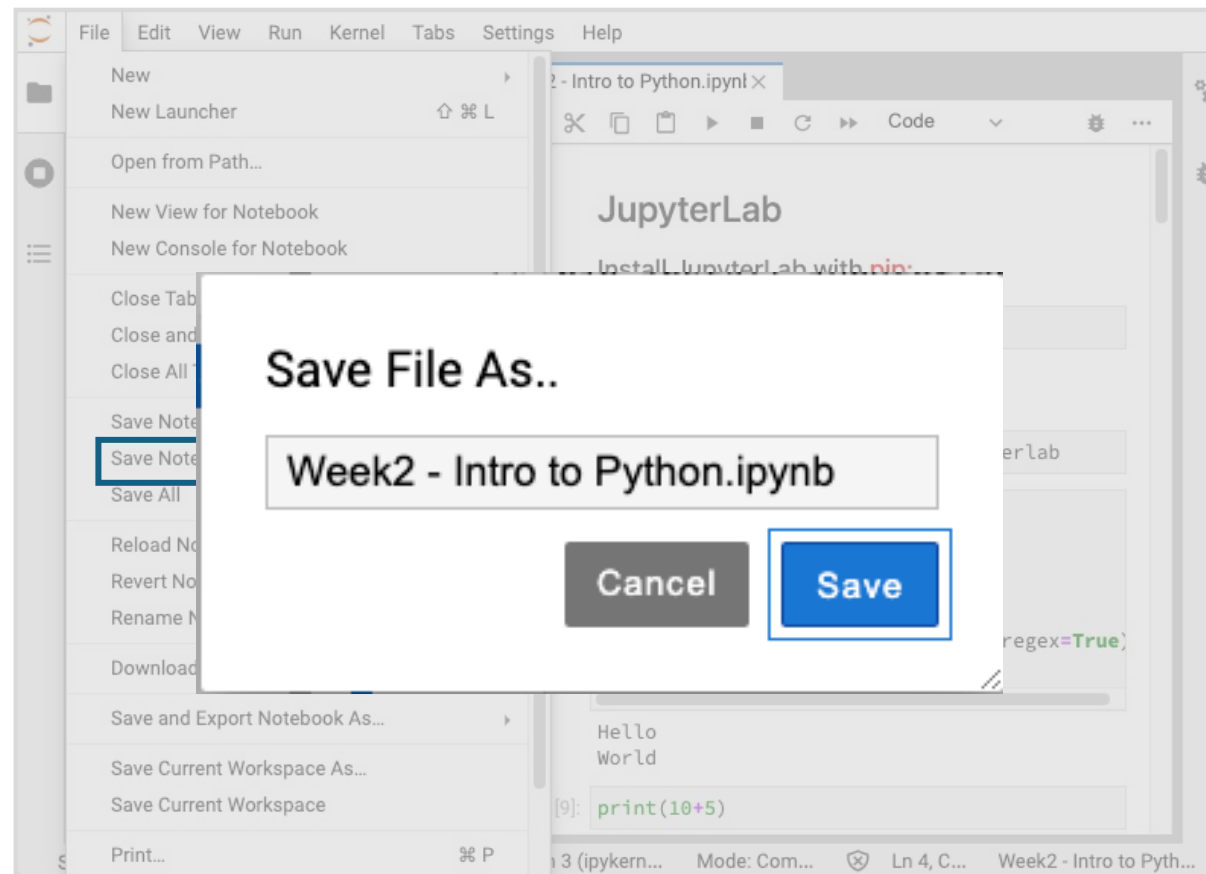


Saving notebook



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- CTRL+ENTER executes the current cell.
- ALT+ENTER executes the current cell and creates a new cell.
- Auto-complete is your best friend, use Tab to complete functions and variables names.