

# Introduction to Programming

Practical Class #1

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# About me

- **João Fonseca**

- Bsc in Economics
- Msc in Management (Double Degree)
  - Specialization in Digital Business
- Msc in Information Management
  - Specialization in Business Intelligence and Knowledge Management
- Awaiting thesis presentation date
- PhD Student
- Junior Researcher



# About me...

- Guitar Player:
  - Rock
  - Metal
  - Blues
  - Percussive Guitar
  - Flamenco
  - Jazz
- Side project: Attempting to use AI algorithms to compose music



# Practical Classes

- Tuesdays:
  - Apply the concepts learned in the theoretical class
- Fridays:
  - Revisions
  - Practical Python Tools (i.e., libraries)
  - Exercises

# Contacts

- Email:  
[joao.fonseca@novasbe.pt](mailto:joao.fonseca@novasbe.pt)
- Office hours:  
TBD

# Resources

- Bibliography
- Intro to Programming Github repo:
  - [https://github.com/joaopfonseca/introduction\\_to\\_programming](https://github.com/joaopfonseca/introduction_to_programming)
- Class slides
- Google, Stack Overflow, documentations, Github and YouTube
- Office hours

**Don't keep your doubts to yourself.  
Ask!**

# Let's setup our working environment

- Download and install Virtual Box:
  - <https://www.virtualbox.org/>
- Download our already set up virtual computer:
  - <https://goo.gl/H9NfEQ>
  - Works on Lubuntu: Fast and lightweight Linux operating system

# Anaconda

[www.anaconda.org](http://www.anaconda.org)

- Anaconda is one of the most popular Python distributions for Data Science
- Comes with most of the main libraries for data manipulation
  - Pandas
  - Numpy
  - Matplotlib
  - Scipy
  - ...
- Easy to use and install





# Main ways to access Python

- Python Shell and IPython
  - An interactive environment for writing and running code
- Jupyter Notebooks
  - A notebook that weaves code, data, prose, equations, analysis, and visualization
  - A tool for prototyping new code and analysis
  - A method for creating a reproducible workflow for scientific research
- IDE (Integrated Development Environment):
  - A software that helps you build code

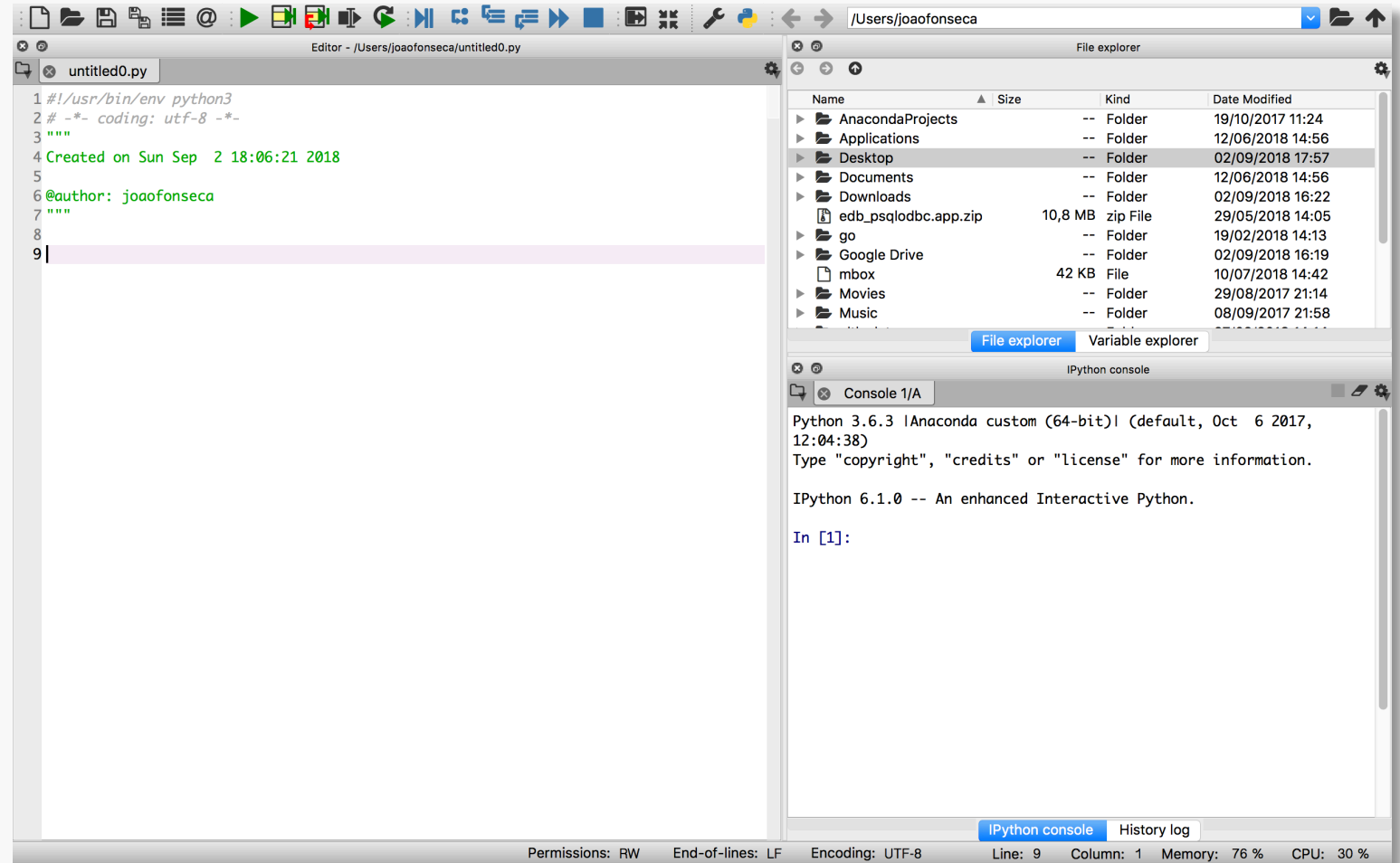
# The Python Shell

- Also called Shell, terminal, command prompt, interpreter, console
- A basic Python interface
- Activate it in a terminal by typing “python”
- Or try it here:
  - [www.python.org/shell](http://www.python.org/shell)

```
JoaoS-MBP-2:~ joaofonseca$ python
Python 3.6.3 |Anaconda custom (64-bit)| (default, Oct  6 2017, 12:04:38)
[GCC 4.2.1 Compatible Clang 4.0.1 (tags/RELEASE_401/final)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> print('Hello World!')
Hello World!
```

# Integrated Development Environment (IDE)

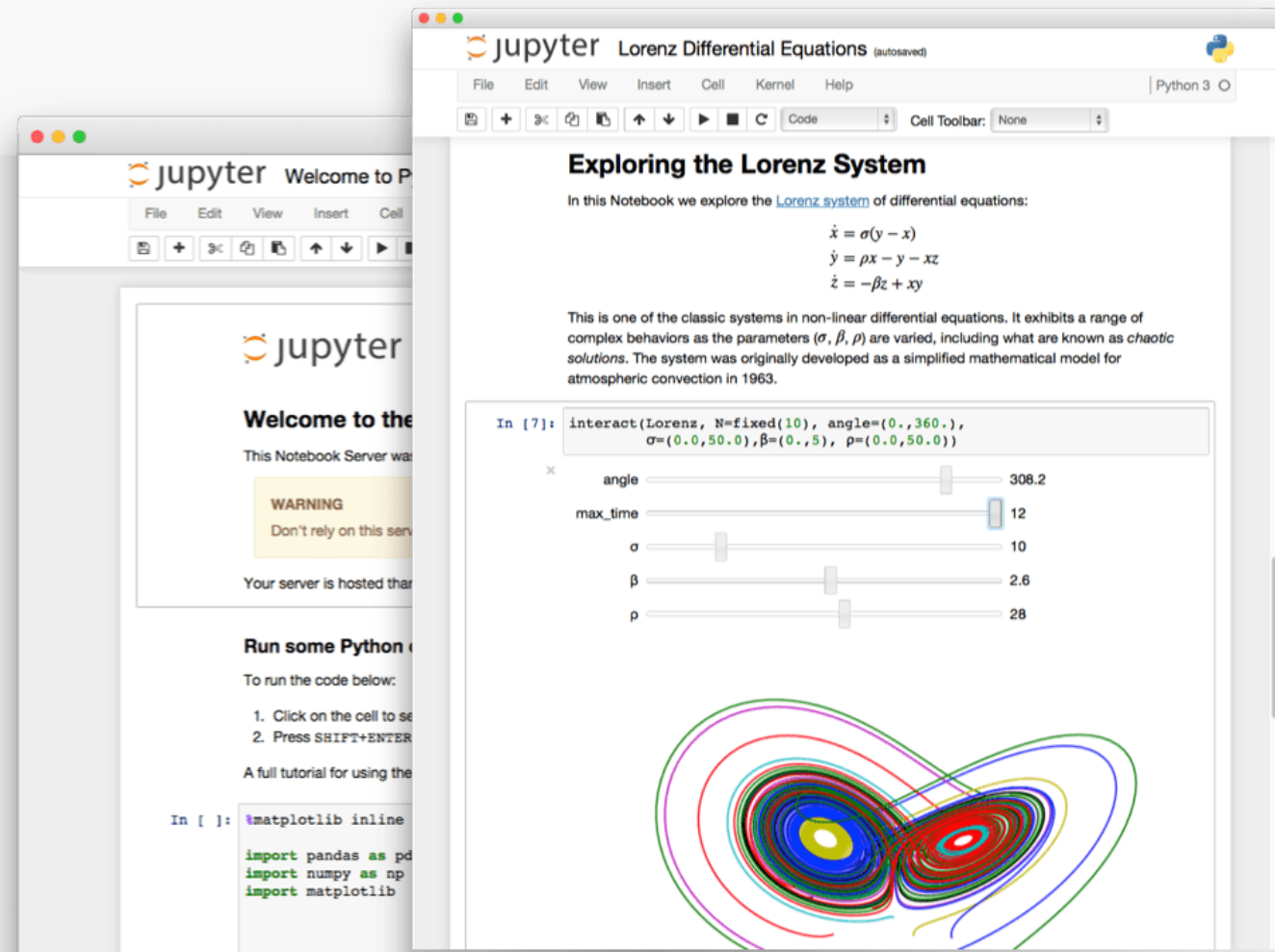
- Popular IDE's:
  - Spyder
  - PyCharm
  - VSCode
  - Rodeo
- Anaconda comes with Spyder and VSCode



# The Jupyter Notebook

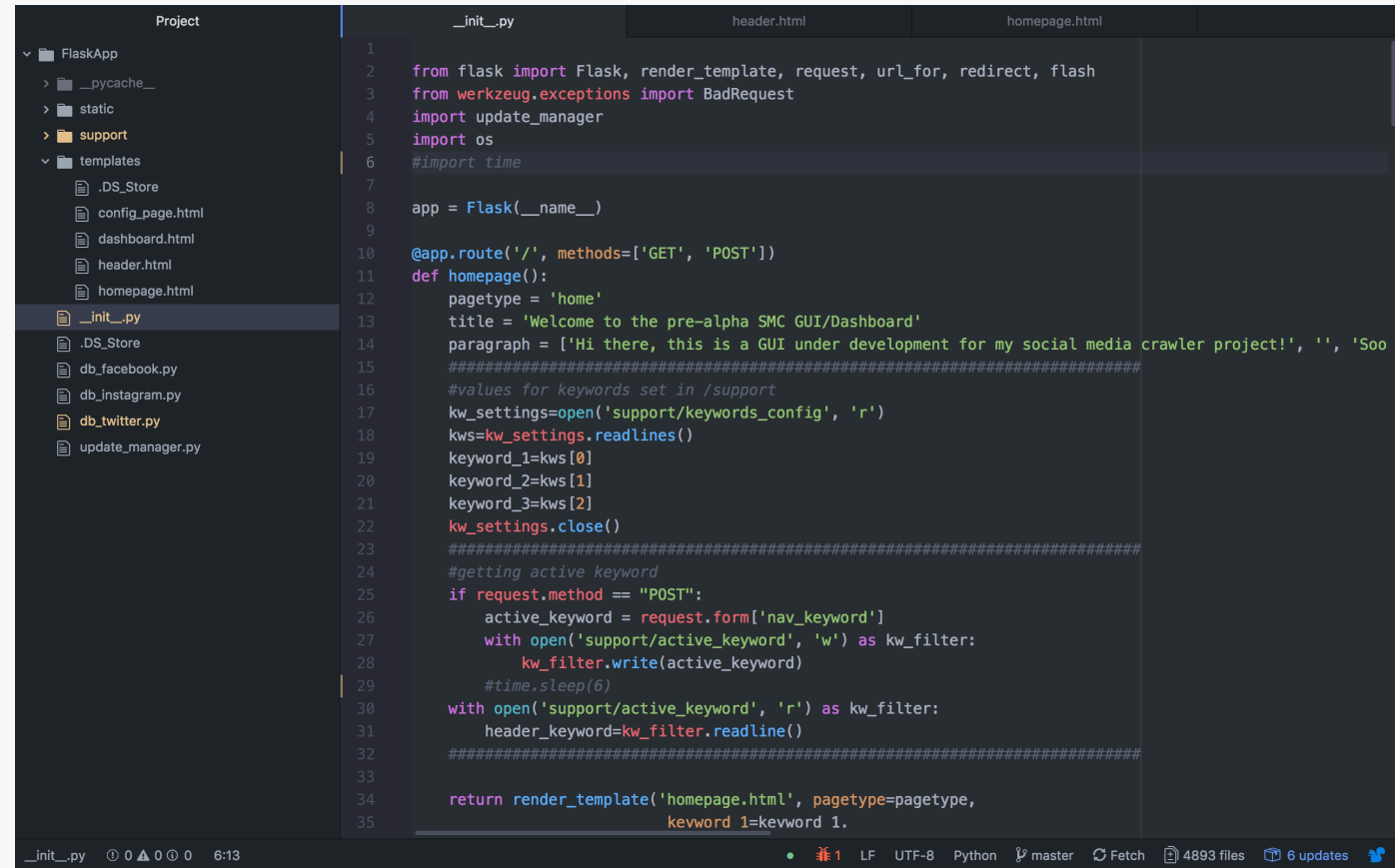
<http://jupyter.org/>

- Let's try it out!
  - Open your Anaconda Navigator
  - Start Jupyter Notebook



# Text Editors

- Another method to write python scripts is using text editors
- Some popular text editors:
  - Vim (Linux terminal text editor)
  - Atom (popular open source editor)
  - Sublime Text (popular proprietary text editor)
  - Notepad ++ (Windows only)
- Usually highly customizable
- Usage of IDE and/or Text editor (and which ones to use) comes down to personal preference



```
1
2  from flask import Flask, render_template, request, url_for, redirect, flash
3  from werkzeug.exceptions import BadRequest
4  import update_manager
5  import os
6  #import time
7
8  app = Flask(__name__)
9
10 @app.route('/', methods=['GET', 'POST'])
11 def homepage():
12     pagetype = 'home'
13     title = 'Welcome to the pre-alpha SMC GUI/Dashboard'
14     paragraph = ['Hi there, this is a GUI under development for my social media crawler project!', ' ', 'Soo
15     #####
16     #values for keywords set in /support
17     kw_settings=open('support/keywords_config', 'r')
18     kws=kw_settings.readlines()
19     keyword_1=kws[0]
20     keyword_2=kws[1]
21     keyword_3=kws[2]
22     kw_settings.close()
23     #####
24     #getting active keyword
25     if request.method == "POST":
26         active_keyword = request.form['nav_keyword']
27         with open('support/active_keyword', 'w') as kw_filter:
28             kw_filter.write(active_keyword)
29         #time.sleep(6)
30     with open('support/active_keyword', 'r') as kw_filter:
31         header_keyword=kw_filter.readline()
32     #####
33
34     return render_template('homepage.html', pagetype=pagetype,
35                           keyword_1=keyword_1.
```

Atom Text Editor