Python Workshop for Physicist

A month of student guided problem solving and python discussions, their use and first approach for science undergrads.

From Byron Encinas Graduate Student in Physics, Tadeo Rocha Undergraduate in Physics and Also Sanchez (he is an instructor too, right? yes haha) Undergraduate in Computer Science

1. Python and Why for Physics?
   1. Other Languages to use in Physics (C, C++, Fortran, R, Julia, etc.)
2. Basic Syntax
   1. Comments, Indentations, do’s and don'ts, convention
   2. Datatypes and intrinsic functions
   3. Conditionals
   4. Loops
   5. I/O, Managing Files
3. Basic Math with Python (Exercises)
   1. Calculating Factorials, Fibonacci Numbers, Evaluating Functions, etc
4. Libraries
   1. Libraries most used by Physicist (Overview with Resources for autodidacts)
      1. Neural Networks (Tensorflow, Pytorch)
      2. Data Analysis and Visualization (Pandas, Numpy, Matplotlib, yt Project)
      3. Computer Algebra System (SimPy)
   2. Using Numpy and Matplotlib
      1. Plot Scalar Functions (Temperature)
      2. Plot Vector Functions (Electric/Magnetic Fields)
5. Final Project
   1. First week we’ll know how to read files and take inputs
   2. Second week we’ll know how to operate with this data
   3. Third week we’ll be able to plot this data
   4. Fourth week we’ll wrap up with the last details!

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