FOSS Python tools for geospatial analysis
Speaker: Nishadh.K.A.
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Basic workshop requirement

1. Hardware with 64 bit OS, windows 10 and Mac latest updated version to run docker software,
2. workshop is heavily dependent on docker and please ensure it is working in your computer, test docker by downloading and running the images `helloworld` and `ubuntu`
3. Google earth desktop version software
4. Quantum GIS software
5. Latest workshop Github repo folder in local-
   https://github.com/nishadhka/FOSS-Python-GeospatialAnalysis/archive/master.zip

The workshop image set up with docker

● Download the workshop image tar file from google drive with this link, do visit the workshop repository to get the latest/updated version of the docker image. The tar file is 4.6 GB in size, please cheksum the downloaded tar to ensure its hash as 57e05b908790697e07f553d684bf5607

● use docker as follows, to load the tar into docker as an image

   docker load -i foss_pt_gsa_ubuntu_v1.tar

● To check the docker is loaded with images, ensure the image

   foss-pt-gsa/foss-pt-gsa:version1 is listed docker ps

● To run the image

   docker run -dit foss-pt-gsa/foss-pt-gsa:version1 bash

- To enter into the image bash

  docker exec -it 9270ee5fdfe1 bash

- After enter into the image's bash terminal, enter following commands. the commands download the workshop github repo zip file into a working directory, then unzip it and get into the repo folder to start a Jupter notebook server

  cd /home/ubuntu/
  wget https://github.com/nishadhka/FOSS-Python-GeospatialAnalysis/archive/master.zip
  unzip master.zip
  cd FOSS-Python-GeospatialAnalysis
  jupyter notebook --ip 0.0.0.0 --no-browser --allow-root

  Note down the link provided by the jupyter notebook such as example
  http://0.0.0.0:8889/?token=c8e944b8397b0bde97b4d9284e5e3ffc0136658fcca3ea1e

- Logout from the docker image bash and in the host computer note down the image_ID of the workshop image running inside the docker by

  docker ps

- Then inspect about the docker image to get to know the image's IP address. Note down the ipaddress

  docker inspect image_ID

- Edit the jupter server given link as into
  http://ipaddress:8889/?token=c8e944b8397b0bde97b4d9284e5e3ffc0136658fcca3ea1e

- Open the link in host computer browser, it shows the Jupyternotebooks in the workshop repo and click on the file docker_test.ipynb, to run the notebook and execute its first cell to ensure all the libraries for the workshop is working properly

Model Evaluation and Selection with Scikit-Learn
Speaker: Jaidev Deshpande
Juxt Smart Mandate Analytical Solutions Pvt Ltd

Software prerequisites:
The participants need to have the following things installed:
1. IPython / JuPyter
2. NumPy
3. SciPy
4. scikit-learn
5. Matplotlib
6. Pandas

<u>**GPU Computing using PyOpenCL**</u>

Speaker: Aditya Bhosale

IIT Bombay

Notes on Installation instruction

1. Install numpy, jupyter

2. Install pyopencl (instructions: https://wiki.tiker.net/PyOpenCL/Installation)

   No need to install the optional section in the instructions.

3. If you're not able to install pyopencl on your machine, follow these (https://github.com/inducer/languages-and-codegen-tutorial#virtual-machine-image) instructions upto step 5 to set up a virtual machine with pyopencl installed on it.

4. The workshop notebooks will be available at https://github.com/adityapb/pyopencl_tutorial by 27th November.

Next Generation Number Theory and Numeric Optimization!
Speaker- Shivam Patel

General Instructions
if Laptop== True:

    2)Install MIKTex from (https://miktex.org/download).

    3)Python version 3.x is recommended.

else:

    print("Sit back learn and enjoy")

Python Installation
The following libraries are to be install :

1)Pip

2)IPython / JuPyter   (http://jupyter.readthedocs.io/en/latest/install.html)

3)Numpy   (pip install numpy)

4)Scipy   (pip install scipy):For Ubuntu) (For Windows : https://www.youtube.com/watch?v=-lIHYUMH9Dg)

5)Matplotlib   (pip install matplotlib)

6)Sympy   (pip install sympy)

7)Nummaster   (pip install nummaster)

You could go to :https://github.com/Shivamshaiv/IITB_Scipy2017

Download and extract the repo and then in the same directory run : pip install -r installthem.txt

Scientific Computing using Orange
Speaker - Ankit Mahato

Software prerequisites:

Install Python 3.5 or 3.6 (Python 2.7 is not recommended as the latest development and release of Orange is in Python 3)
Install the following packages:
pip install Orange3 matplotlib Orange3-Text twython PyQt5
Make sure Orange Canvas is up and running:
python -m Orange.canvas
Optional Setup:
pycuda - python library for gpu computing.
This will require installation of CUDA toolkit and Microsoft Visual C++ 2015 Build Tools (for Windows)

For more details, please visit: https://orange.biolab.si/download/

Controlling devices with Python using KuttyPy
Speaker : Dr. Ajith Kumar

Install python-serial   (Also CH340/341 drivers for MSwin users)

Install PyQt4

Link to the [website](). The code examples to be tried are [HERE]().

Note: Hardware are provided to participants by taking a returnable deposit of Rs 300/- .
Participants can keep the hardware if they want by without taking the refund.

Python for Data Analysis

Speaker : Dr. Anamika Gupta and Dr. Naveen Kumar

1. Install Anaconda 3.x
2. Install Jupyter, Numpy, scipy, pandas, sklearn, matplotlib (Preferably)