Creation of an Ubuntu EC2 instance, a Virtual Python Environment and connecting it to Jupyter Notebook

Step 1: Launch an Ubuntu EC2 instance on AWS

Login to AWS console >> Select EC2>> Search for Ubuntu >> Select Ubuntu server 18.04 …(the first item in the list which is the latest)
Instance type: General purpose -Free tier >>
Configure Instance details:

- Network: Select a VPC
- Subnet: Select a Public subnet
- Auto assign public: Enable >>

Add storage: Size(Gib) 15 >>
Add tags >>
Configure security group:

- Choose Existing (Or create a new one) >> Launch>> Launch>>
- Key pair: Choose an existing one (Or create a new one) >> Launch instance >> View instance >> Connect to the new instance (via SSH or Putty)

Step 2: Check for the installation of Python and install Python if necessary

- At the command line >> python3.
  If Python is not installed >> sudo apt install python3
- Open a file in the notepad, type some text such as 'Hello World!!" and save the file with an extension .py, e.g; scriptforubuntu.py
- Copy the above file to the remote Ubuntu EC2 instance by typing the following in the command line (from C:\ - not from AWS connection)
  Example: scp -i JB_KEYPAIR.pem scriptforubuntu.py ubuntu@ec2-100-26-217-193.compute-1.amazonaws.com:scriptforubuntu.py
- To execute the script, type at the command line after connecting to ubuntu instance:
  Example:
  python3 scriptforubuntu.py
- Type the following commands at the command line:
  sudo apt update -y
  sudo apt install python3-pip -y
  pip3 –version (pip 9.0.1 from /usr/lib/python3/dist-packages (python 3.6) displayed)

Step 3: Install and launch Jupyter notebook and connect using browser

- Type the following commands at the command line:
  sudo pip3 install jupyter
- In the ubuntu EC2 instance >> Security group >> Inbound rules >> Edit >> Add rule
  Type : Custom TCP/IP
  Port Range : 8888

Source : Custom Anywhere >> Save

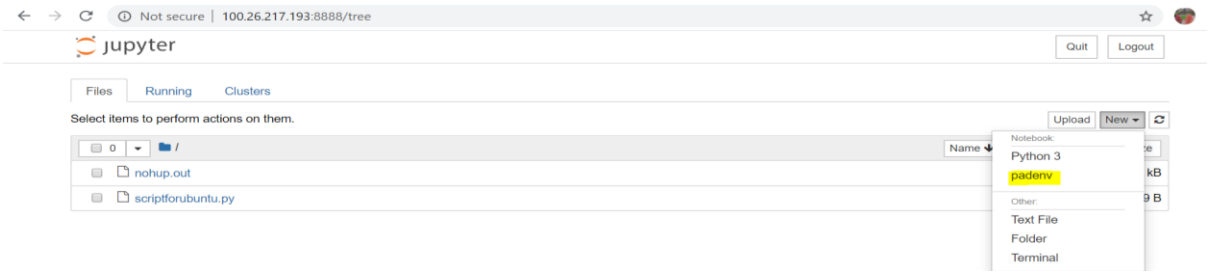
- Type the following command in the command line:
  jupyter notebook --ip=0.0.0.0
  We get the following response for example:
  http://127.0.0.1:8888/?token=ba2ed597016f0dac83f051352f88b01e98e329e5206a6142

- Open a new browser window and copy the public ip address from the ubuntu instance and paste this along with the highlighted address from the above from the above response, in the address bar.
  Example:
  http://100.26.217.193:8888/?token=ba2ed597016f0dac83f051352f88b01e98e329e5206a6142
- We are connected to the Jupyter notebook through the browser. Load the 'scriptforubuntu.py' to Jupyter notebook. Click on New>> Terminal
- At the command prompt type: python3 scriptforubuntu.py
  The script gets executed. Stop terminal.
- If we exit the command prompt now, Jupyter notebook stops running. In order for Jupyter Notebook to continue working, type the following at the command prompt after exiting: nohup jupyter notebook --ip=0.0.0.0 &

Step 4: Create a Virtual Python environment and connect it to Jupyter Notebook

- To create a virtual environment with Pew:
  Jupyter notebook >> new >> terminal
  At the command prompt type the following:
  pip3 install pew
  pew new <filename>
  pew workon <filename>
  pip3 install pandas
  pip3 freeze (gives a listing of files)

- To connect the virtual environment to Jupyter notebook
  pip3 install ipykernel (Install ipykernel)
  python3 -m ipykernel install --user --name= env.name (configure ipykernel)
  Refresh Jupyter notebook
  The new virtual environment appears in the right panel



Import pandas

- To copy the new environment to a file and install the environment from the file:
  Jupyter notebook >> new >> terminal
  At the command prompt, type the following:
  pip3 freeze>myenv.txt
  cat myenv.txt
  exit (to the root)
  pew new <filename>
  pip3 install -r myenv.txt
  python –m ipykernel install -user –name=newenv

  In the Jupyter notebook >> Newenv
  Import>> Pandas