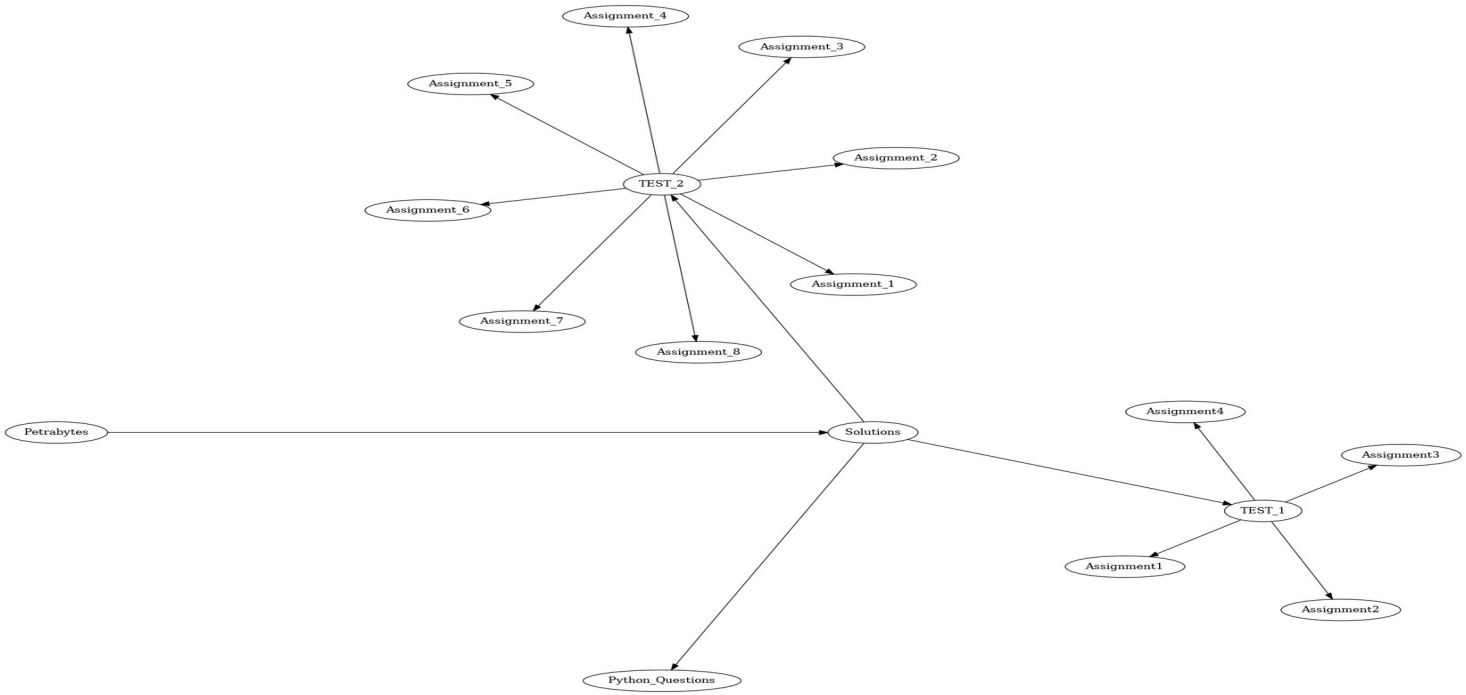
Work Flow


Assignment_4
Assignment_3
Assignment_5
Assignment_2
TEST_2
Assignment_6
Assignment_1
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Petrabytes
Solutions
Assignment4
Assignment3
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Assignment1
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Python_Questions

Content

1. Python_Questions

   Python_Questions.pdf & their code in Python

2. TEST_1

   Python code for Assignment 1, 2, 3 & 4, and Their result or output such as .png, .hdf5 files

3. TEST_2

   Python code for Assignment 1, 2, 3, 4, 5, 6, 7, 8 & their outputs such as .png, .gv, .pdf files

1. Python_Questions

- In this Section, I have been explained all the fifteen question and answered in Python_Questions.pdf file. I have also written code in python whenever required such as sorting algorithms in Q8, Identifying the leap year in Q11, etc.

- **Output/Result:**

  Python_Questions.pdf

  Q1.py, Q8.py, Q10.py, Q11.py, Q12.py, Q13.py, Q15.py

2. TEST_1

Assignment 1

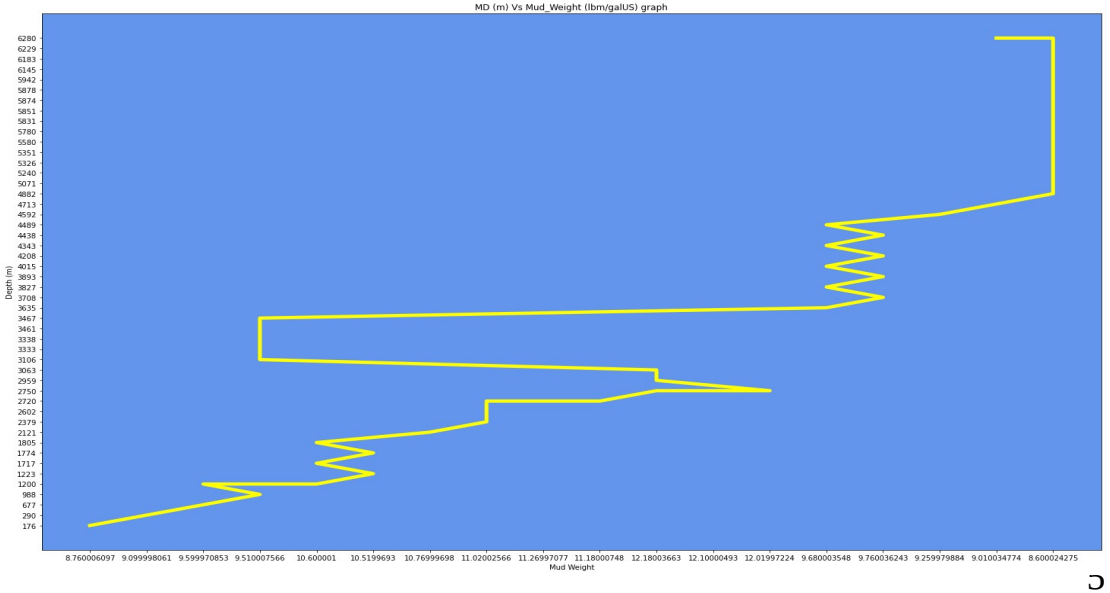
- In this at first we need to install Pandas and matplotlib library.
- Further, we write a python code to read the “Mud_Weight.csv”, and
- Finally created the Plot of Depth (y) and Mud_Weight (x) using Matplotlib.

Data used:- Mud_Weight.csv

Result:

Assignment1.py,

Assignment1.png



2. TEST_1

Assignment 2

- We read the data “Mud_Weight.csv” using pandas (pandas.read_csv(“path/file_name”))
- Then, converted the unit of Mud_Weight from lbm/galUS to kg/m^3 using the factor: 1lbm = 119.826428 kg/m3
- Finally, created or stored in the “Mud_Weight_Converted.csv” file.

Data used:- *Mud_Weight.csv*

Result:-

Assignment2.py

Mud_Weight_Converted.csv

2. TEST_1

Assignment 3

- We read the data “Mud_Weight.csv” using pandas. Then multiply both the column with “10” value and the resultant output is stored in “Mud_Weight_PI.csv” file.
- Further, Created the Hierarchical Data Format (HDF) file. Here we created float dataset named as “DATA” using the “create_dataset” method
- After that we Read the “Mud_Weight_PI.csv” file and added to the “DATA” node

Data used:- Mud_Weight.csv

Result:-

Assignment3.hdf5

Assignment3.py

Mud_Weight_PI.csv

2. TEST_1

Assignment 4

- Using the pandas library, we read the the .csv file as pandas.read_csv(“path/Survey_Data.csv”)
- After this, we create a datsset named “DATA” of float datatype, added all the data into “DATA” node from .csv file. Hence, HDF file the “Survey.h5” has been created.

Data used:- Survey_Data.csv

Result:-

Assignment4.py

Survey.h5

3. TEST_2

NS_Python_Coding_Assignments_1

- Atfirst, I read the excel sheet data using the python code as pandas.read_excel(“path/file_name.xlsx”)
- Then, printed the values row by row using the “for” loop in Python code.

Data used:- ExcelTestData1.xlsx, ExcelTestData2.xlsx, ExcelTestData2.xlsx

Result:-

NS_Python_Coding_Assignments_1.py

3. TEST_2

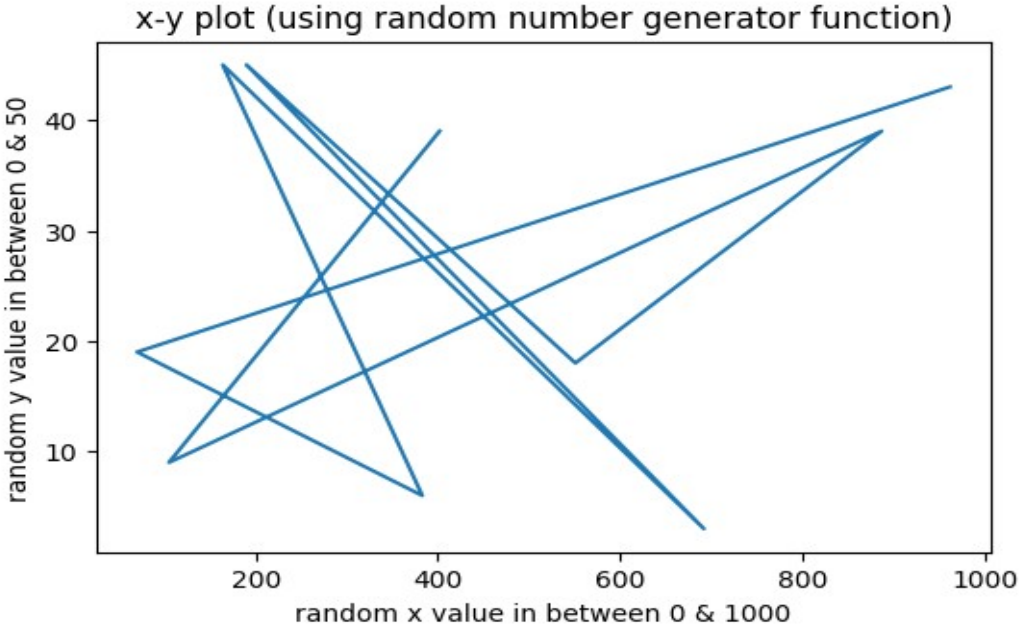
NS_Python_Coding_Assignments_2

- In this assignment, I generated the random number for x and y values using the random number generator function in python. The range for the x values is from 0 to 1000, and the range for y value is from 0 to 50
- Then generated the line Plot for the x & y data, as “matplotlib.pyplot.plot(x, y)”

Result:-

NS_Python_Coding_Assignments_2.py

NS_Python_Coding_Assignments_2.png



3. TEST_2

NS_Python_Coding_Assignments_3

- For this assignment, Our objective to draw the flow chart using the graphviz module in python.
- For doing so, at first we need to install the graphviz as “sudo apt-get install graphviz”
- Then, written a code in python for flow chart. Here we are using the Digraph function or methods for the same.

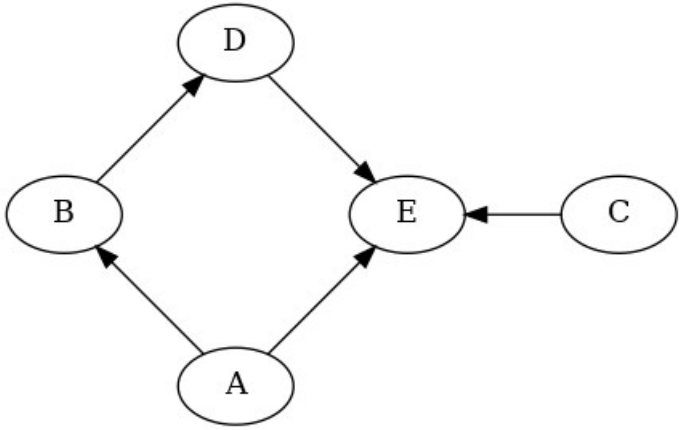
Result:-

NS_Python_Coding_Assignments_3.py

NS_Python_Coding_Assignments_3.png

NS_Python_Coding_Assignments_3_flow_chart.gv

NS_Python_Coding_Assignments_3_flow_chart.gv.pdf



3. TEST_2

NS_Python_Coding_Assignments_4

- In this assignment, we have to two graph: Histogram plot for the DT1 column, & Box Plot using the RHOB1 data of ExcelTestData1.xlsx
- At first we need matplotlib library installed. Then we can plot historam plot using the basic code matplotlib.pyplot.hist(data, bins = count/no.), and for Box Plot, we can use the code as mltplotlib.pyplot.boxplot(data)
- **Data used:-** ExcelTestData1.xlsx

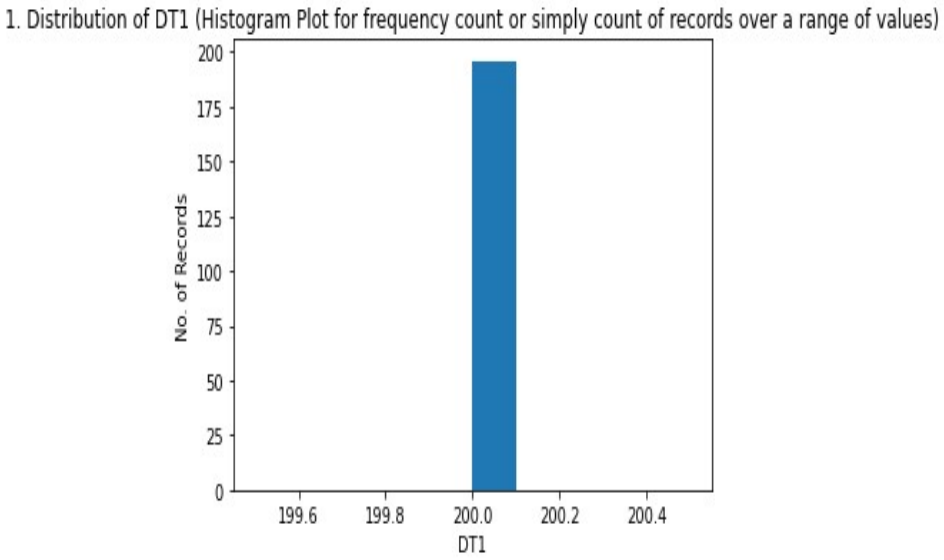
Result:- NS_Python_Coding_Assignments_4_box.py

NS_Python_Coding_Assignments_4_box.png

NS_Python_Coding_Assignments_4_box_MD

NS_Python_Coding_Assignments_4_hist.py

NS_Python_Coding_Assignments_4_hist.png



3. TEST_2

NS_Python_Coding_Assignments_6

- Our main objective to plot the GIS data on map. For this at we need to install geopandas libarary as “pip install geopandas” and plotly.graph_objects. For this example I have used the google colab for visulization purpose of the data on the map.
- At first we need matplotlib library installed. Then we can plot historam plot using the basic code matplotlib.pyplot.hist(data, bins = count/no.), and for Box Plot, we can use the code as mltplotlib.pyplot.boxplot(data)
- **Data used:-** Latitude_Long_Example_Data.csv

Result:-

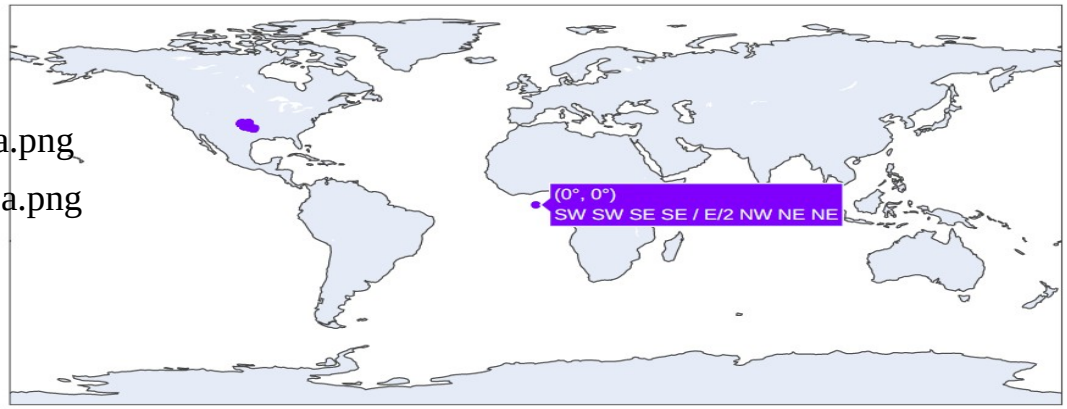
NS_Python_Coding_Assignments_6.py

NS_Python_Coding_Assignments_6.ipynb

NS_Python_Coding_Assignments_6_north_america.png

NS_Python_Coding_Assignments_6_North_america.png

NS_Python_Coding_Assignments_6_world.png



3. TEST_2

NS_Python_Coding_Assignments_7

- Our main goal is to Plot the .shp data on the map. So for ploting the graph on the map, we need some system requirement such as installed geopandas, matplotlib library & ArcGIS library.
- At first we need to read the .shp file, then extract the data into the Dataframe using the geopandas library. then finally, we can plot it on the map using matplotlib and arcpy extension library.

Data used:- map.shp, Boundry_County_NAD27.shp, Boundary_State_NAD27.shp

Result:-

NS_Python_Coding_Assignments_7.py

NS_Python_Coding_Assignments_7_map.png

NS_Python_Coding_Assignments_7_country.png

NS_Python_Coding_Assignments_7_state.png

3. TEST_2

NS_Python_Coding_Assignments_8

- The aim of Assignment 8 is to Plot the data from the HDF file format. To do so, we need to installed matplotlib libary, pandas, h5py in our system.
- To understand the data we need to extracts the dataset and groups from Test.petrabytes file. And This has been done using the keys() features of h5py file. Further we extraced the column wise data of Well_1 & Well_2 in dataframe. Then We plot the graph using the matplotlib library.

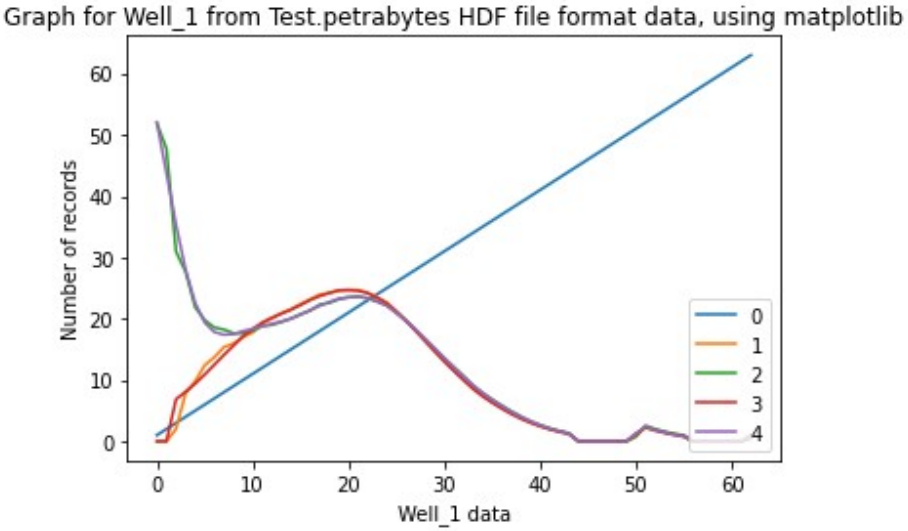
Data used:- Test.petrabytes

Result:-

NS_Python_Coding_Assignments_8.py

NS_Python_Coding_Assignments_8_Well_1.png

NS_Python_Coding_Assignments_8_Well_2.png




Thank you!