# SIT719 Security and Privacy Issues in Analytics

## Pass Task 2.1: Basic scripting with python

### Section 1

Instructions: In this task, you will be asked to perform some basic python operations using pandas and numpy libraries. Please write the code, execute and take a screenshot of the results of the completed outputs.

Step 1. Import the pandas and numpy libraries

Answer1: (This one has been done for you)

```
In [140]: import pandas as pd
     ...: import numpy as np
```

Step 2. Import the popular ‘iris’ dataset from the below address. And then check the header of the dataset.

https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data

Answer2: (This one has also been done for you)

```
In [141]: url = 'https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data'

In [142]: iris = pd.read_csv(url)

In [143]: iris.head()
Out[143]:
5.1 3.5 1.4 0.2 Iris-setosa
0 4.9 3.0 1.4 0.2 Iris-setosa
1 4.7 3.2 1.3 0.2 Iris-setosa
2 4.6 3.1 1.5 0.2 Iris-setosa
3 5.0 3.6 1.4 0.2 Iris-setosa
4 5.4 3.9 1.7 0.4 Iris-setosa
```

Step 3. You can see that the column headers are missing in the above case. Therefore this step is related to the creation of column heads for the dataset. Write code to create 5 column heads. Next write a code to display or show the headers.

1. sepal_length
2. sepal_width
3. petal_length
4. petal_width
5. class

Answer3: (write your code)

```
iris_data. ⍰→columns=['sepal_length','sepal_width','petal_length','petal_width','class']
```

Step 4. Write a code to check if there are any missing values in the dataframe?

Answer4: (write your code)

```
iris_data.isnull().tail()
```

*Hints: there is no missing values but check it thorough the code*

Step 5. Write a code to set the values of the rows 10 to 29 of the column 'petal_length' to NaN.

Answer5: (write your code)

```
iris_data.loc[9:29, 'petal_length']= pd.np.NaN
```

Step 6. Now again, check if there is any missing values (NaN) in the dataframe? Count, how many missing values.

Answer6: (write your code)

```
iris_data.isnull()

pd.isnull(iris_data).sum().sum()
```

*Hints: this time you will have missing values.*

Step 7. Substitute the NaN values to 10.0

Answer7: (write your code)

```
iris_data.fillna(10.0)
```

## Section 2

*Numpy is an open source library written in C++, with Python being the basic package for scientific computing.*

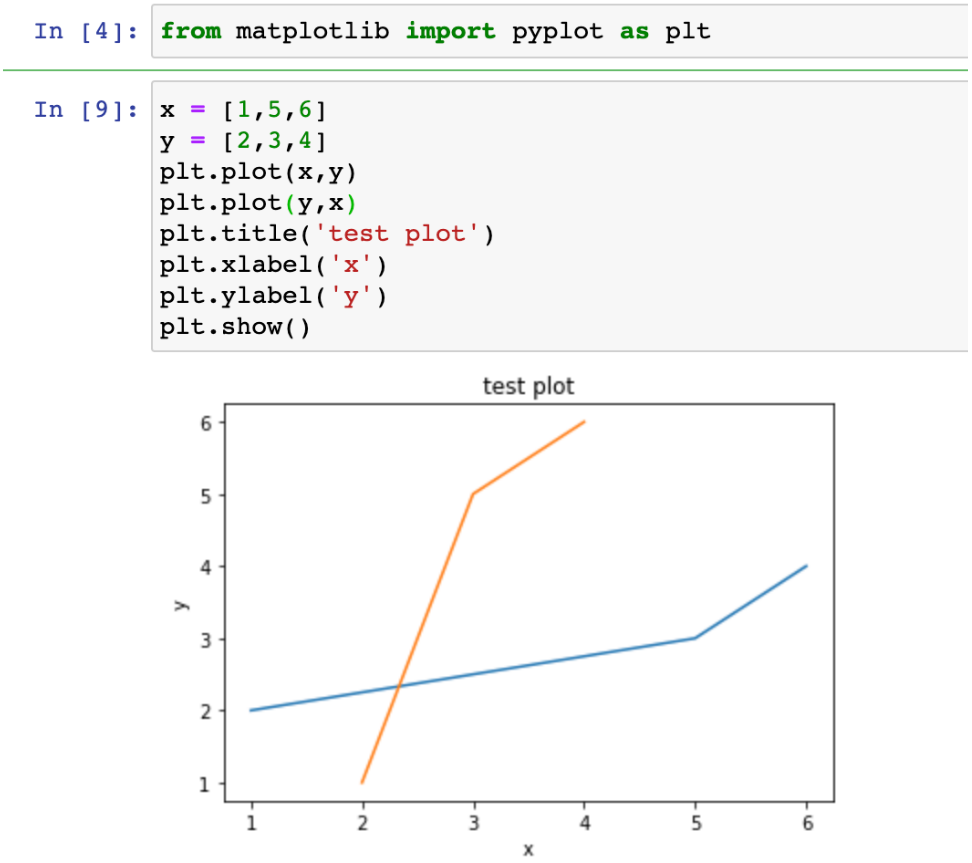
*It includes a range of methods for most machine learning tasks, algorithms*

*Pandas is an open source data analysis and manipulation tool that is quick, efficient, versatile and easy to use, built on top of the programming language of Python*

*Matplotlib is a Python programming language plotting library and its NumPy numerical mathematics extension*

*We can use slicing and indexing in python for creating a subset of the given data frame. It can be also used to operate on a particular section in the given dataset.*

Visualising data gives us a very intuitive insight of the data we want to work with. Matplotlib is one of the best visualization tools available in Python.



```
In [4]: from matplotlib import pyplot as plt

In [9]: x = [1,5,6]
        y = [2,3,4]
        plt.plot(x,y)
        plt.plot(y,x)
        plt.title('test plot')
        plt.xlabel('x')
        plt.ylabel('y')
        plt.show()
```