Basic Python

1. Split this string

In [2]:
```
s = "Hi there Sam!"
```

In [3]:
```
split_s=s.split()
split_s
```

Out[3]:
```
['Hi', 'there', 'Sam!']
```

2. Use .format() to print the following string.

Output should be: The diameter of Earth is 12742 kilometers.

In [4]:
```
planet = "Earth"
diameter = 12742
```

In [8]:
```
a="The diameter of {planet} is {diameter} kilometers".format(planet="Earth",diameter="12742")
a
```

Out[8]:
```
'The diameter of Earth is 12742 kilometers'
```

3. In this nest dictionary grab the word "hello"

In [35]:
```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [50]:
```
a=d['k1'][3]['tricky'][3]['target'][3]
a
```

Out[50]:
```
'hello'
```

Numpy

In [9]:
```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

In [14]:
```
arr=np.zeros(10,dtype=int)
arr
```

Out[14]:
```
array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0])
```

In [20]:
```
arr1=np.full(shape=10,fill_value=3,dtype=int)
arr1
```

Out[20]:
```
array([3, 3, 3, 3, 3, 3, 3, 3, 3, 3])
```

5. Create an array of all the even integers from 20 to 35

In [21]:
```
arr3=np.arange(20,36,2)
arr3
```

Out[21]:
```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

6. Create a 3x3 matrix with values ranging from 0 to 8

In [22]:
```
arr4=np.arange(0,9).reshape(3,3)
arr4
```

Out[22]:
```
array([[0, 1, 2],
       [3, 4, 5],
       [6, 7, 8]])
```

7. Concatinate a and b

a = np.array([1, 2, 3]), b = np.array([4, 5, 6])

In [24]:
```
a=np.array([1,2,3])
b=np.array([4,5,6])
arr5=np.concatenate((a,b),axis=0)
arr5
```

Out[24]:
```
array([1, 2, 3, 4, 5, 6])
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

In [25]:
```
import pandas as pd
```

In [33]:
```
data = {'column1': ['row1','row2','row3'],
        'column2': ['row1','row2','row3']}
df=pd.DataFrame(data)
df
```

Out[33]:

	column1	column2
0	row1	row1
1	row2	row2
2	row3	row3

9. Generate the series of dates from 1st Jan, 2023 to 10th Feb, 2023

In [27]:
```
dates = pd.date_range('1-01-2023', periods=41, freq='D')
dates
```

Out[27]:
```
DatetimeIndex(['2023-01-01', '2023-01-02', '2023-01-03', '2023-01-04',
               '2023-01-05', '2023-01-06', '2023-01-07', '2023-01-08',
               '2023-01-09', '2023-01-10', '2023-01-11', '2023-01-12',
               '2023-01-13', '2023-01-14', '2023-01-15', '2023-01-16',
               '2023-01-17', '2023-01-18', '2023-01-19', '2023-01-20',
               '2023-01-21', '2023-01-22', '2023-01-23', '2023-01-24',
               '2023-01-25', '2023-01-26', '2023-01-27', '2023-01-28',
               '2023-01-29', '2023-01-30', '2023-01-31', '2023-02-01',
               '2023-02-02', '2023-02-03', '2023-02-04', '2023-02-05',
               '2023-02-06', '2023-02-07', '2023-02-08', '2023-02-09',
               '2023-02-10'],
              dtype='datetime64[ns]', freq='D')
```

10. Create 2D list to DataFrame

lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]

In [30]:
```
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
```

In [32]:
```
df1=pd.DataFrame(lists)
df1
```

Out[32]:

	0	1	2
0	1	aaa	22
1	2	bbb	25
2	3	ccc	24