Basic Python

1. Split this string

In [8]:
```
s = "Hi there Sam!"
```

In [9]:
```
string="Hi there Sam!"
print(string.split())
```

```
['Hi', 'there', 'Sam!']
```

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

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

In [7]:
```
planet = "Earth"
diameter = 12742
```

In [3]:
```
planet = "Earth"
diameter = 12742
'The diameter of {} is {} kilometers.'.format(planet,diameter)
```

Out[3]:
```
'The diameter of Earth is 12742 kilometers.'
```

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

In [6]:
```
d =
{'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [10]:
```
d['k1'][3]['tricky'][3]['target'][3]
```

Out[10]:
```
'hello'
```

Numpy

In [45]:
```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

In [24]:

```
np.zeros(10)
```

Out[24]:

```
array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])
```

In [23]:

```
np.ones(10) * 5
```

Out[23]:

```
array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])
```

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

In [22]:

```
print(np.arange(20,36,2))
```

```
[20 22 24 26 28 30 32 34]
```

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

In [21]:

```
np.arange(0,9).reshape((3,3))
```

Out[21]:

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

7. Concatenate a and b

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

In [20]:

```
import numpy as np
a = np.array([1,2,3])
b = np.array([4,5,6])
arr = np.concatenate((a,b))
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

In [ ]:

```
import pandas as pd
```

In [31]:

```
df=pd.DataFrame({'X':[0,1,2],'y':[3,4,5]},index=['A','B','C'])
print(df)
print(df.T)
```

```
   X  y
A  0  3
B  1  4
C  2  5
   A  B  C
X  0  1  2
y  3  4  5
```

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

In [47]:

```
import pandas as pd
from dateutil.parser import parse
date_series = pd.Series(['Jan 2015', 'Feb 2016', 'Mar 2017', 'Apr 2018', 'May
2019'])
print("Original Series:")
print(date_series)
print("\nNew dates:")
result = date_series.map(lambda d: parse('11' + d))
print(result)
```

```
Original Series:
0    Jan 2015
1    Feb 2016
2    Mar 2017
3    Apr 2018
4    May 2019
dtype: object

New dates:
0   2015-01-11
1   2016-02-11
2   2017-03-11
3   2018-04-11
4   2019-05-11
dtype: datetime64[ns]
```

10. Create 2D list to DataFrame

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

In [ ]:

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

In [39]:

```
df = pd.DataFrame(columns = ['Category','Name','Marks'])
```

```
print(df);
```

```
Empty DataFrame
Columns: [Category, Name, Marks]
Index: []
```