# Basic Python

## 1. Split this string

In [1]:
```
s = "Hi there Sam!"
```

In [2]:
```
print(s.split())
```

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

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

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

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

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

```
The diameter of Earth is 12742 kilometers
```

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

In [27]:
```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [30]:
```
d['k1'][3]['tricky'][3]['target'][3]
```

Out[30]:
```
'hello'
```

# Numpy

In [4]:
```
import numpy as np
```

## 4.1 Create an array of 10 zeros?

## 4.2 Create an array of 10 fives?

In [7]:
```
a = np.zeros(10)
a
```

Out[7]:
```
array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])
```

In [6]:
```
b = np.ones(10)*5
b
```

Out[6]:
```
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 [8]:
```
array = np.arange(20,35,2)
array
```

Out[8]:
```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

In [10]:
```
x = np.arange(0,9).reshape(3,3)
x
```

Out[10]:
```
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 [25]:
```
import numpy as np
a = np.array([1, 2, 3])
b = np.array([4, 5, 6])
c = np.concatenate([a,b])
c
```

Out[25]:
```
array([1, 2, 3, 4, 5, 6])
```

# Pandas

## 8. Create a dataframe with 3 rows and 2 columns

In [16]:
```
import pandas as pd
```

In [24]:
```
A =np.random.randint(10,size=(3,2))
df= pd.DataFrame(A)
df
```

Out[24]:

| | 0 | 1 |
|---|---|---|
| **0** | 8 | 4 |
| **1** | 7 | 8 |
| **2** | 3 | 2 |

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

In [19]:
```
dates = pd.date_range("1/1/2023","2/10/2023")
dates
```

Out[19]:
```
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 [22]:
```
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
```

In [23]:
```
df = pd.DataFrame(lists)
df
```

Out[23]:

| | 0 | 1 | 2 |
|---|---|---|---|
| **0** | 1 | aaa | 22 |
| **1** | 2 | bbb | 25 |
| **2** | 3 | ccc | 24 |

In [ ]:
```

```