

# Basic Python

## 1. Split this string

In [2]:

```
s = "Hi there Sam!"  
  
['Hi', 'there', 'Sam!']
```

In [3]:

```
a= s.split()  
print(a)  
  
['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 [12]:

```
txt= "The diameter of {planet} is {diameter:n} kilometers.".format(planet="Earth",diameter = 12742)  
print(txt)
```

The diameter of Earth is 12742 kilometers.

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

In [ ]:

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

In [21]:

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

Out[21]:

'hello'

# Numpy

In [ ]:

```
import numpy as np
```

## 4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

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In [29]:

```
import numpy as np
arr=np.zeros(10)
print(arr)
```

```
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

In [28]:

```
import numpy as np
arr=np.ones(10)*5
print(arr)
```

```
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

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

In [37]:

```
import numpy as np
arr= np.arange(20,36,2)
print(arr)
```

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

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

In [38]:

```
import numpy as np
arr=np.arange(0,9,1).reshape(3,3)
print(arr)
```

```
[[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 [40]:

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

```
[1 2 3 4 5 6]
```

## Pandas

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

In [ ]:

```
import pandas as pd
```

In [47]:

```
import pandas
import numpy
data = numpy.random.randint(10, size=(3,2))
df=pandas.DataFrame(data)
print(df)
```

```
   0  1
0  4  6
1  0  4
2  2  2
```

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

In [50]:

```
import pandas
import numpy
dates=pandas.date_range(start= '1-1-2023', end= '10-2-2023', freq='D')
print(dates)
```

```
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',
               ...,
               '2023-09-23', '2023-09-24', '2023-09-25', '2023-09-26',
               '2023-09-27', '2023-09-28', '2023-09-29', '2023-09-30',
               '2023-10-01', '2023-10-02'],
              dtype='datetime64[ns]', length=275, freq='D')
```

## 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 [53]:

```
import pandas as pd
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df = pd.DataFrame(lists)
print(df)
```

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