# Basic Python

## 1. Split this string

```
s = "Hi there Sam!"
```

```
s = "Hi there Sam!"
s = s.split()

print(s)
```

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

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

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

```
planet = "Earth"
diameter = 12742
```

```
print("The diameter of the {} is {} kilometers.".format(planet , diameter))
```
```
    The diameter of the Earth is 12742 kilometers.
```

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

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

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

print(d['k1'][3]['tricky'][3]['target'][3])
```
```
    hello
```

# Numpy

```
import numpy as np
```

## 4.1 Create an array of 10 zeros?

## 4.2 Create an array of 10 fives?

```
#4.1 Create an array of 10 zeros
array=np.zeros(10)
print("An array of 10 zeros:")
print(array)
```

```
An array of 10 zeros:
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

```
#4.2 Create an array of 10 fives
array=np.ones(10)*5
print("An array of 10 fives:")
print(array)
```

```
An array of 10 fives:
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

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

```
array=np.arange(20,35,2)
print("Array of all the even integers from 20 to 35")
print(array)
```

```
Array of all the even integers from 20 to 35
[20 22 24 26 28 30 32 34]
```

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

```
a =  np.arange(0, 9).reshape(3,3)
print(a)
```

```
[[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])

```
a = np.array([[1, 2, 3]])
b = np.array([[4, 5, 6]])
np.concatenate((a, b), axis=None)
```

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

## ▾ Pandas

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

```
import pandas as pd
```

```
data = [450,260,370]

df = pd.DataFrame(data, columns=[''])

# print dataframe.
df
```

|   |     |
|---|-----|
| 0 | 450 |
| 1 | 260 |
| 2 | 370 |

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

```
pd.date_range(start="2023-01-01",end="2023-02-10").tolist()
```

```
[Timestamp('2023-01-01 00:00:00', freq='D'),
 Timestamp('2023-01-02 00:00:00', freq='D'),
 Timestamp('2023-01-03 00:00:00', freq='D'),
 Timestamp('2023-01-04 00:00:00', freq='D'),
 Timestamp('2023-01-05 00:00:00', freq='D'),
 Timestamp('2023-01-06 00:00:00', freq='D'),
 Timestamp('2023-01-07 00:00:00', freq='D'),
 Timestamp('2023-01-08 00:00:00', freq='D'),
 Timestamp('2023-01-09 00:00:00', freq='D'),
 Timestamp('2023-01-10 00:00:00', freq='D'),
 Timestamp('2023-01-11 00:00:00', freq='D'),
 Timestamp('2023-01-12 00:00:00', freq='D'),
 Timestamp('2023-01-13 00:00:00', freq='D'),
 Timestamp('2023-01-14 00:00:00', freq='D'),
```

```
            Timestamp('2023-01-15 00:00:00', freq='D'),
            Timestamp('2023-01-16 00:00:00', freq='D'),
            Timestamp('2023-01-17 00:00:00', freq='D'),
            Timestamp('2023-01-18 00:00:00', freq='D'),
            Timestamp('2023-01-19 00:00:00', freq='D'),
            Timestamp('2023-01-20 00:00:00', freq='D'),
            Timestamp('2023-01-21 00:00:00', freq='D'),
            Timestamp('2023-01-22 00:00:00', freq='D'),
            Timestamp('2023-01-23 00:00:00', freq='D'),
            Timestamp('2023-01-24 00:00:00', freq='D'),
            Timestamp('2023-01-25 00:00:00', freq='D'),
            Timestamp('2023-01-26 00:00:00', freq='D'),
            Timestamp('2023-01-27 00:00:00', freq='D'),
            Timestamp('2023-01-28 00:00:00', freq='D'),
            Timestamp('2023-01-29 00:00:00', freq='D'),
            Timestamp('2023-01-30 00:00:00', freq='D'),
            Timestamp('2023-01-31 00:00:00', freq='D'),
            Timestamp('2023-02-01 00:00:00', freq='D'),
            Timestamp('2023-02-02 00:00:00', freq='D'),
            Timestamp('2023-02-03 00:00:00', freq='D'),
            Timestamp('2023-02-04 00:00:00', freq='D'),
            Timestamp('2023-02-05 00:00:00', freq='D'),
            Timestamp('2023-02-06 00:00:00', freq='D'),
            Timestamp('2023-02-07 00:00:00', freq='D'),
            Timestamp('2023-02-08 00:00:00', freq='D'),
            Timestamp('2023-02-09 00:00:00', freq='D'),
            Timestamp('2023-02-10 00:00:00', freq='D')]
```

## 10. Create 2D list to DataFrame

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

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

```
df = pd.DataFrame(lists, columns = ['', '',''])
print(df )
```

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