

## Basic Python

### 1. Split this string

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

```
x = s.split()
```

```
print(x)
```

```
['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
```

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

The diameter of 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']}]}]}
```

```
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?

```
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.]

```
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(20,36,2)
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

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

```
[[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=0)

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

## Pandas

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

```
import pandas as pd

data = [['tom', 10], ['nick', 15], ['juli', 14]]
df = pd.DataFrame(data,columns=['first','second'])
print(df)
```

```
   first  second
0    tom      10
1   nick      15
2   juli      14
```

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

```
from datetime import timedelta, date
```

```
def daterange(date1, date2):
    for n in range(int ((date2 - date1).days)+1):
        yield date1 + timedelta(n)
```

```
start_dt = date(2023, 1, 1)
end_dt = date(2023, 2, 10)
for dt in daterange(start_dt, end_dt):
    print(dt.strftime("%Y-%m-%d"))
```

```
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
```

## 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]]  
  
# Create the pandas DataFrame  
df = pd.DataFrame(lists, columns = ['Number', 'Name', 'Id'])  
  
# print dataframe.  
print(df )
```

	Number	Name	Id
0	1	aaa	22
1	2	bbb	25
2	3	ccc	24