

## ▼ Basic Python

### ▼ 1. Split this string

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

```
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.

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

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

```
'the diameter ofEarth 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'][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?

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

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

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

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

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

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

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

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

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

```
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])
```

```
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

```
import pandas as pd
```

```
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

```
import datetime

# The size of each step in days
day_delta = datetime.timedelta(days=1)

start_date = datetime.datetime.strptime("01-1-2023", "%d-%m-%Y")

end_date = start_date + 41*day_delta

for i in range((end_date - start_date).days):
    print(start_date + i*day_delta)

2023-01-01 00:00:00
2023-01-02 00:00:00
2023-01-03 00:00:00
```

```
2023-01-04 00:00:00
2023-01-05 00:00:00
2023-01-06 00:00:00
2023-01-07 00:00:00
2023-01-08 00:00:00
2023-01-09 00:00:00
2023-01-10 00:00:00
2023-01-11 00:00:00
2023-01-12 00:00:00
2023-01-13 00:00:00
2023-01-14 00:00:00
2023-01-15 00:00:00
2023-01-16 00:00:00
2023-01-17 00:00:00
2023-01-18 00:00:00
2023-01-19 00:00:00
2023-01-20 00:00:00
2023-01-21 00:00:00
2023-01-22 00:00:00
2023-01-23 00:00:00
2023-01-24 00:00:00
2023-01-25 00:00:00
2023-01-26 00:00:00
2023-01-27 00:00:00
2023-01-28 00:00:00
2023-01-29 00:00:00
2023-01-30 00:00:00
2023-01-31 00:00:00
2023-02-01 00:00:00
2023-02-02 00:00:00
2023-02-03 00:00:00
2023-02-04 00:00:00
2023-02-05 00:00:00
2023-02-06 00:00:00
2023-02-07 00:00:00
2023-02-08 00:00:00
2023-02-09 00:00:00
2023-02-10 00:00:00
```

## ▼ 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( columns = ['Category', 'Name', 'Marks'])
print(df)
```

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

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✓ 0s completed at 09:45

