

## ▼ Basic Python

### ▼ 1. Split this string

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

```
s.split
```

```
<function str.split(sep=None, maxsplit=-1)>
```

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

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

```
planet = "Earth"
```

```
diameter = 12742
```

```
'The diameter of {0} is {1} kilometers'.format(planet,diameter)
```

```
'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?

```
arr1 = np.zeros(10)
print(arr1)

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

```
arr2 = np.ones(10)*5
print(arr2)

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

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

```
arr3 = np.arange(20,36,2)
print(arr3)

[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])
#Concatenate
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
```

```
A = np.random.randint(10, size=(3,2))
#dataframe
df = pd.DataFrame(A,columns=['cola', 'colb'])
df
```

	cola	colb
0	5	2
1	3	6
2	0	8

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


```
import pandas as pd

# calling DataFrame constructor
df = pd.DataFrame()

# Create 6 dates
df['time'] = pd.date_range(start="1/1/2023",end="2/10/2023", freq = '24H')
# print dataframe

# Extract features - year, month, day, hour, and minute
df['year'] = df['time'].dt.year
df['month'] = df['time'].dt.month
df['day'] = df['time'].dt.day

# Show six rows
df.head(len(df["time"]))
```


	time	year	month	day	
0	2023-01-01	2023	1	1	
1	2023-01-02	2023	1	2	
2	2023-01-03	2023	1	3	
3	2023-01-04	2023	1	4	
4	2023-01-05	2023	1	5	
5	2023-01-06	2023	1	6	
6	2023-01-07	2023	1	7	
7	2023-01-08	2023	1	8	
8	2023-01-09	2023	1	9	
9	2023-01-10	2023	1	10	
10	2023-01-11	2023	1	11	
11	2023-01-12	2023	1	12	
12	2023-01-13	2023	1	13	
13	2023-01-14	2023	1	14	
14	2023-01-15	2023	1	15	
15	2023-01-16	2023	1	16	
16	2023-01-17	2023	1	17	
17	2023-01-18	2023	1	18	
18	2023-01-19	2023	1	19	
19	2023-01-20	2023	1	20	
20	2023-01-21	2023	1	21	
21	2023-01-22	2023	1	22	
22	2023-01-23	2023	1	23	
23	2023-01-24	2023	1	24	
24	2023-01-25	2023	1	25	
25	2023-01-26	2023	1	26	
26	2023-01-27	2023	1	27	
27	2023-01-28	2023	1	28	
28	2023-01-29	2023	1	29	
29	2023-01-30	2023	1	30	
30	2023-01-31	2023	1	31	

▼ 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]]

#2D list to DataFrame
df = pd.DataFrame(lists, columns =['col1',"col2","col3"])
df
```

	col1	col2	col3	
0	1	aaa	22	
1	2	bbb	25	
2	3	ccc	24	

[Colab paid products](#) - [Cancel contracts here](#)