

▼ Basic Python

▼ 1. Split this string

```
s = "Hi there Sam!"

s.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

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

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']}]}]}

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,dtype='int')  
  
array([0, 0, 0, 0, 0, 0, 0, 0, 0, 0])  
  
np.ones(10,dtype='int')*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

```
arr=[]  
for i in range(20,36,2):  
    arr.append(i)  
arr  
  
[20, 22, 24, 26, 28, 30, 32, 34]
```

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

```
import numpy as np  
  
arr = np.zeros((3,3),dtype='int')  
k=0  
for i in range(3):  
    for j in range(3):  
        arr[i][j]=k  
        k+=1  
arr  
  
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])  
np.concatenate([a,b])  
  
array([1, 2, 3, 4, 5, 6])
```

▼ Pandas

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

```
import pandas as pd
import numpy as np
A = np.random.randint(10, size=(3,2))
```

```
df = pd.DataFrame(A)
df
```

	0	1
0	6	4
1	6	6
2	7	7

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

```
pd.date_range(start='1/1/2023', end='10/02/2023')

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]]
```

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

```
df = pd.DataFrame(lists)
df
```

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

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