

## Basic Python

### 1. Split this string

```
s = "Hi there Sam!"

s = "Hi there Sam!"
print(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

planet = "Earth"
diameter = 12742

print(f"The diameter of {planet} is {diameter} kilometers.")

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':[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?

```
import numpy as np
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

```
import numpy as np
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

```
import numpy as np
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])
import numpy as np
a = np.array([1, 2, 3])
b = np.array([4, 5, 6])
c=np.concatenate((a, b))
print (c)

[1 2 3 4 5 6]
```

## Pandas

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

```
import pandas as pd

import pandas as pd
data = {"Name": ['Tom', 'Joseph', 'John'], 'Age': [20, 21, 25]}
df = pd.DataFrame(data)
print(df)

   Name  Age
0    Tom   20
```

```
1 Joseph 21
2 John 25
```

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

```
import pandas as pd
from datetime import datetime
pd.date_range(end = datetime.today(), periods =
100).to_pydatetime().tolist()
pd.date_range(start="2023-01-01",end="2023-02-10").to_pydatetime()

array([datetime.datetime(2023, 1, 1, 0, 0),
      datetime.datetime(2023, 1, 2, 0, 0),
      datetime.datetime(2023, 1, 3, 0, 0),
      datetime.datetime(2023, 1, 4, 0, 0),
      datetime.datetime(2023, 1, 5, 0, 0),
      datetime.datetime(2023, 1, 6, 0, 0),
      datetime.datetime(2023, 1, 7, 0, 0),
      datetime.datetime(2023, 1, 8, 0, 0),
      datetime.datetime(2023, 1, 9, 0, 0),
      datetime.datetime(2023, 1, 10, 0, 0),
      datetime.datetime(2023, 1, 11, 0, 0),
      datetime.datetime(2023, 1, 12, 0, 0),
      datetime.datetime(2023, 1, 13, 0, 0),
      datetime.datetime(2023, 1, 14, 0, 0),
      datetime.datetime(2023, 1, 15, 0, 0),
      datetime.datetime(2023, 1, 16, 0, 0),
      datetime.datetime(2023, 1, 17, 0, 0),
      datetime.datetime(2023, 1, 18, 0, 0),
      datetime.datetime(2023, 1, 19, 0, 0),
      datetime.datetime(2023, 1, 20, 0, 0),
      datetime.datetime(2023, 1, 21, 0, 0),
      datetime.datetime(2023, 1, 22, 0, 0),
      datetime.datetime(2023, 1, 23, 0, 0),
      datetime.datetime(2023, 1, 24, 0, 0),
      datetime.datetime(2023, 1, 25, 0, 0),
      datetime.datetime(2023, 1, 26, 0, 0),
      datetime.datetime(2023, 1, 27, 0, 0),
      datetime.datetime(2023, 1, 28, 0, 0),
      datetime.datetime(2023, 1, 29, 0, 0),
      datetime.datetime(2023, 1, 30, 0, 0),
      datetime.datetime(2023, 1, 31, 0, 0),
      datetime.datetime(2023, 2, 1, 0, 0),
      datetime.datetime(2023, 2, 2, 0, 0),
      datetime.datetime(2023, 2, 3, 0, 0),
      datetime.datetime(2023, 2, 4, 0, 0),
      datetime.datetime(2023, 2, 5, 0, 0),
      datetime.datetime(2023, 2, 6, 0, 0),
      datetime.datetime(2023, 2, 7, 0, 0),
      datetime.datetime(2023, 2, 8, 0, 0),
```

```
datetime.datetime(2023, 2, 9, 0, 0),
datetime.datetime(2023, 2, 10, 0, 0)], dtype=object)
```

## 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]]
```

```
import pandas as pd
```

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

```
df = pd.DataFrame.from_records(data)
print (df)
```

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