

Basic Python

1. Split this string

In []:

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

In []:

```
s="Hi there sam"  
s.split()
```

Out[42]:

```
['Hi', 'there', 'sam']
```

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

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

In []:

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

In []:

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

The diameter of Earth is 12742 kilmometers.

In []:

3. In this nest dictionary grab the word "hello"

In []:

```
= {'k1':[1,2,3,{'tridcky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}  
d
```

Out[8]:

```
{'k1': [1,  
2,  
3,  
{'tricky': ['oh', 'man', 'inception', {'target': [1, 2, 3, 'hello']}]}]}
```

In []:

```
g=d['k1'][3]['tricky'][3]['target'][3]  
print(g)
```

hello

Numpy

In []:

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

In []:

```
#An array of 10 zeros  
np.zeros(10)
```

Out[13]:

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

In []:

```
#An array of 10 fives  
np.ones(10)*5
```

Out[14]:

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

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

In []:

```
np.arange(20,35,2,dtype=int)
```

Out[15]:

```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

In []:

```
import numpy as np
e=np.arange(9)
f=e.reshape(3,3)
print("A 3x3 matrix with values ranging from 0 to 8 is given below")
print("{}".format(f))
```

A 3x3 matrix with values ranging from 0 to 8 is given below

```
[[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])

In []:

```
import numpy as np
a=np.array([1,2,3])
b=np.array([4,5,6])
cc=np.concatenate((a,b),axis=0)
print("Concatination of a and b is {}".format(cc))
```

Concatination of a and b is [1 2 3 4 5 6]

Pandas

8. Create a dataframe with 3 rows and 2 columns

In []:

```
import pandas as pd
d=np.arange(6).reshape(3,2)
c=['2','4']
r=['2','4','6']
dataframe=pd.DataFrame(data=d,index=r,columns=c)
print("A datafram with 3 rows and 2 columns is given below")
print("{}".format(dataframe))
```

A datafram with 3 rows and 2 columns is given below

```
   2  4
2  0  1
4  2  3
6  4  5
```

In []:

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

2023

In []:

```
pd.date_range(start="2023-01-01",end="2023-02-10").tolist()
```

Out[41]:

```
[Timestamp('2023-01-01 00:00:00', freq='D'),
 Timestamp('2023-01-02 00:00:00', freq='D'),
 Timestamp('2023-01-03 00:00:00', freq='D'),
 Timestamp('2023-01-04 00:00:00', freq='D'),
 Timestamp('2023-01-05 00:00:00', freq='D'),
 Timestamp('2023-01-06 00:00:00', freq='D'),
 Timestamp('2023-01-07 00:00:00', freq='D'),
 Timestamp('2023-01-08 00:00:00', freq='D'),
 Timestamp('2023-01-09 00:00:00', freq='D'),
 Timestamp('2023-01-10 00:00:00', freq='D'),
 Timestamp('2023-01-11 00:00:00', freq='D'),
 Timestamp('2023-01-12 00:00:00', freq='D'),
 Timestamp('2023-01-13 00:00:00', freq='D'),
 Timestamp('2023-01-14 00:00:00', freq='D'),
 Timestamp('2023-01-15 00:00:00', freq='D'),
 Timestamp('2023-01-16 00:00:00', freq='D'),
 Timestamp('2023-01-17 00:00:00', freq='D'),
 Timestamp('2023-01-18 00:00:00', freq='D'),
 Timestamp('2023-01-19 00:00:00', freq='D'),
 Timestamp('2023-01-20 00:00:00', freq='D'),
 Timestamp('2023-01-21 00:00:00', freq='D'),
 Timestamp('2023-01-22 00:00:00', freq='D'),
 Timestamp('2023-01-23 00:00:00', freq='D'),
 Timestamp('2023-01-24 00:00:00', freq='D'),
 Timestamp('2023-01-25 00:00:00', freq='D'),
 Timestamp('2023-01-26 00:00:00', freq='D'),
 Timestamp('2023-01-27 00:00:00', freq='D'),
 Timestamp('2023-01-28 00:00:00', freq='D'),
 Timestamp('2023-01-29 00:00:00', freq='D'),
 Timestamp('2023-01-30 00:00:00', freq='D'),
 Timestamp('2023-01-31 00:00:00', freq='D'),
 Timestamp('2023-02-01 00:00:00', freq='D'),
 Timestamp('2023-02-02 00:00:00', freq='D'),
 Timestamp('2023-02-03 00:00:00', freq='D'),
 Timestamp('2023-02-04 00:00:00', freq='D'),
 Timestamp('2023-02-05 00:00:00', freq='D'),
 Timestamp('2023-02-06 00:00:00', freq='D'),
 Timestamp('2023-02-07 00:00:00', freq='D'),
 Timestamp('2023-02-08 00:00:00', freq='D'),
 Timestamp('2023-02-09 00:00:00', freq='D'),
 Timestamp('2023-02-10 00:00:00', freq='D')]
```

10. Create 2D list to DataFrame

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

Type *Markdown* and LaTeX: α^2

In []:

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

In []:

```
import pandas as pd
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df=pd.DataFrame(lists,columns=['S/No','Name','Rollno'])
print(df)
```

| | S/No | Name | Rollno |
|---|------|------|--------|
| 0 | 1 | aaa | 22 |
| 1 | 2 | bbb | 25 |
| 2 | 3 | ccc | 24 |

In []: