

Basic Python

1. Split this string

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

```
x = s.split()
```

```
print(x)
```

```
['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)
print(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]
```

```
{"type":"string"}
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
array1=np.zeros(10)
```

```
print(array1)
```

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

```
array2=np.ones(10)*5
```

```
print(array2)
```

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

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

```
array3=np.arange(20,36,2)
print(array3)
```

```
[20 22 24 26 28 30 32 34]
```

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

```
y = np.arange(0, 9).reshape(3,3)
print(y)
```

```
[[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])
```

```
np.concatenate((a, b), axis=0)
```

```
array([1, 2, 3, 4, 5, 6])
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
data = {'Num': [1,2,3],
        'alpha': ['a','b','c']}
```

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

```
df
```

```
   Num alpha
0     1     a
1     2     b
2     3     c
```

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

```
per1 = pd.date_range(start = '1-1-2023', end = '10-02-2023')
```

```
for val in per1:
    print(val)
```

```
2023-01-01 00:00:00
2023-01-02 00:00:00
2023-01-03 00:00:00
2023-01-04 00:00:00
```

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```

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
```