

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  
  
print('The diameter of {} is {} 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']}]}]}  
  
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?

```
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

```
np.arange(20,35,2)  
  
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

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

```
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])
```

```
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
```

```
d = { 'Name':["Akshara","Arjun","Vijay"], 'Age': [20,22,45]}
df = pd.DataFrame(d)
df
```

	Name	Age
0	Akshara	20
1	Arjun	22
2	Vijay	45

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

```
sd = pd.date_range('01/01/2023', '10/02/2023')
sd
```

```
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