

Basic Python

1. Split this string

```
s = "Hi there Sam!"  
a=s.split()  
a  
  
['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]  
'hello'
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
x=np.zeros(10)  
x  
array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])  
x=np.ones(10)*5;  
x  
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=np.arange(20,35,2)
arr
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

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

print (np.concatenate((a,b)))
[1 2 3 4 5 6]
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
data = [[1, 'jack'], [34,'rose'], [ 14,'raj']]
df = pd.DataFrame(data, columns=['ID','Name'])
df
```

	ID	Name
0	1	jack
1	34	rose
2	14	raj

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

```
d = pd.date_range(start='1/1/2023', end='2/10/2023')
print(d)
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', '2023-01-11', '2023-01-12',
'2023-01-13', '2023-01-14', '2023-01-15', '2023-01-16',
'2023-01-17', '2023-01-18', '2023-01-19', '2023-01-20',
'2023-01-21', '2023-01-22', '2023-01-23', '2023-01-24',
'2023-01-25', '2023-01-26', '2023-01-27', '2023-01-28',
'2023-01-29', '2023-01-30', '2023-01-31', '2023-02-01',
'2023-02-02', '2023-02-03', '2023-02-04', '2023-02-05',
'2023-02-06', '2023-02-07', '2023-02-08', '2023-02-09',
'2023-02-10'],
dtype='datetime64[ns]', 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.from_records(lists)
```

```
df
```

```

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

```