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
```

```
print("The diameter of {} is {} kilometers.".format('Earth', 12742))
```

```
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?

```
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

```
np.arange(0,9).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])
```

```
np.vstack((a, b))
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd


s1=pd.Series(np.random.rand(2))
s2=pd.Series(np.random.rand(2))
s3=pd.Series(np.random.rand(2))
df = pd.DataFrame([s1, s2, s3])


df
```

	0	1
0	0.574896	0.162615
1	0.089249	0.578729
2	0.151687	0.772689

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

```
s = pd.date_range(start = '01-01-2023', end = '02-10-2023')


series=pd.Series(s)


series
```

```
0    2023-01-01
1    2023-01-02
2    2023-01-03
3    2023-01-04
4    2023-01-05
5    2023-01-06
6    2023-01-07
7    2023-01-08
8    2023-01-09
9    2023-01-10
10   2023-01-11
11   2023-01-12
12   2023-01-13
13   2023-01-14
14   2023-01-15
15   2023-01-16
16   2023-01-17
17   2023-01-18
18   2023-01-19
19   2023-01-20
```

```
20   2023-01-21
21   2023-01-22
22   2023-01-23
23   2023-01-24
24   2023-01-25
25   2023-01-26
26   2023-01-27
27   2023-01-28
28   2023-01-29
29   2023-01-30
30   2023-01-31
31   2023-02-01
32   2023-02-02
33   2023-02-03
34   2023-02-04
35   2023-02-05
36   2023-02-06
37   2023-02-07
38   2023-02-08
39   2023-02-09
40   2023-02-10
dtype: datetime64[ns]
```

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]	[2, bbb, 25]	[3, ccc, 24]

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