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
print(txt)
```

```
The diameter of Earth is 12742 kilometers.
```

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

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?

```
array=np.zeros(10)
print("An array of 10 zeros:")
print(array)
```

```
An array of 10 zeros:
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

```
array=np.ones(10)*5
print("An array of 10 fives:")
print(array)
```

```
An array of 10 fives:
[5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

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

```
array=np.arange(20,35,2)
print("Array of all the even integers from 20 to 35")
print(array)
```

```
Array of all the even integers from 20 to 35
[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)
print(x)
```

```
[[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])
```

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

print (x)
```

```
[1 2 3 4 5 6]
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
data = {
   'col_a':[1,2,3],
   'col_b': [2,5,6],

}
df = pd.DataFrame(data)


df
```

	col_a	col_b
0	1	2
1	2	5
2	3	6

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

```
import datetime

start = datetime.date(2023,1,1)

k = 41

res = []

for day in range(k):
    date = (start + datetime.timedelta(days = day)).isoformat()
    res.append(date)

print("Next Dates list: " + str(res))
```

```
Next Dates list: ['2023-01-01', '2023-01-02', '2023-01-03', '2023-01-04', '2023-01-05',
```

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,columns =['SNo', 'Name', 'Age'])
print(df)
```

```
   SNo Name  Age
0    1  aaa   22
1    2  bbb   25
2    3  ccc   24
```