Basic Python

1. Split this string

In [ ]:
```
s = "Hi there Sam!"
```

In [ ]:
```
strsplit = s.split(" ")
print(strsplit)
```

```
['Hi', 'there', 'Sam!']
```

2. Use .format() to print the following string.

Output should be: The diameter of Earth is 12742 kilometers.

In [ ]:
```
planet = "Earth"
diameter = 12742
```

In [ ]:
```
ans = "The diameter of {0} is {1} kilometers".format(planet,diameter)
print(ans)
```

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

3. In this nest dictionary grab the word "hello"

In [ ]:
```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

In [ ]:
```
print(d['k1'][3]['tricky'][3]['target'][3])
```

```
hello
```

Numpy

In [ ]:
```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

In [ ]:
```
arr = np.zeros(10)
print(arr)
```

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

In [ ]:
```
arr2 = np.array([5]*10)
print(arr2)
```

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

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

In [ ]:
```
array = np.arange(20,35,2)
array
```

Out[ ]:
```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

In [ ]:
```
mat = np.arange(0,9).reshape(3,3)
mat
```

Out[ ]:
```
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])

In [ ]:
```
a = np.array([1,2,3])
b = np.array([4,5,6])
conc = np.concatenate((a,b),axis = 0)
conc
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

In [ ]:
```
import pandas as pd
```

In [ ]:
```
mat2 = np.ones(6).reshape(3,2)
mydf = pd.DataFrame(mat2)
mydf
```

Out[ ]:

	0	1
0	1.0	1.0
1	1.0	1.0
2	1.0	1.0

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

In [ ]:
```
import pandas as pd
import datetime
test_date = datetime.datetime.strptime("01-01-2022", "%d-%m-%Y")

date_generated = pd.date_range(test_date, periods=41)
print(date_generated.strftime("%d-%m-%Y"))
```

```
Index(['01-01-2022', '02-01-2022', '03-01-2022', '04-01-2022', '05-01-2022',
       '06-01-2022', '07-01-2022', '08-01-2022', '09-01-2022', '10-01-2022',
       '11-01-2022', '12-01-2022', '13-01-2022', '14-01-2022', '15-01-2022',
       '16-01-2022', '17-01-2022', '18-01-2022', '19-01-2022', '20-01-2022',
       '21-01-2022', '22-01-2022', '23-01-2022', '24-01-2022', '25-01-2022',
       '26-01-2022', '27-01-2022', '28-01-2022', '29-01-2022', '30-01-2022',
       '31-01-2022', '01-02-2022', '02-02-2022', '03-02-2022', '04-02-2022',
       '05-02-2022', '06-02-2022', '07-02-2022', '08-02-2022', '09-02-2022',
       '10-02-2022'],
      dtype='object')
```

10. Create 2D list to DataFrame

lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]

In [ ]:
```
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
```

In [ ]:
```
df = pd.DataFrame(lists, columns = ['ID', 'NAME', 'AGE'])
df
```

Out[ ]:

	ID	NAME	AGE
0	1	aaa	22
1	2	bbb	25
2	3	ccc	24