Basic Python

1. Split this string

```
s = "Hi there Sam!"

 print(*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{planet} is {diameter}
kilometers".format(planet="Earth",diameter=12742))
```

```
The diameter ofEarth 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']}]}]}

p=d['k1'][3]
n=p['tricky'][3]
print(n['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(array)
```

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

```
array=np.ones(10)*5
print(array)
```

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

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

```
I=[]
for i in range(20,35):
  if i%2==0:
    I.append(i)
    print(I)
```

```
[20]
[20, 22]
[20, 22, 24]
[20, 22, 24, 26]
[20, 22, 24, 26, 28]
[20, 22, 24, 26, 28, 30]
[20, 22, 24, 26, 28, 30, 32]
[20, 22, 24, 26, 28, 30, 32, 34]
```

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

```
m=[]
i=0
j=0
while i<8:
  j=0
  p=[]
  while j<3:
    p.append(i)
    i+=1
    j+=1
    m.append(p)
    print(m)
```

```
[[0]]
[[0, 1], [0, 1]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3, 4], [3, 4]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3, 4, 5], [3, 4, 5], [3, 4, 5]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3, 4, 5], [3, 4, 5], [3, 4, 5],
[6]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3, 4, 5], [3, 4, 5], [3, 4, 5], [6,
7], [6, 7]]
[[0, 1, 2], [0, 1, 2], [0, 1, 2], [3, 4, 5], [3, 4, 5], [3, 4, 5], [6,
7, 8], [6, 7, 8], [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),axis=0))
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd

data=[10,20,30]
df=pd.DataFrame(data, columns=['Numbers'])
print(df)
```

```
   Numbers
0       10
1       20
2       30
```

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

```
import datetime
test_date=datetime.datetime.strptime("01-01-2023", "%d-%m-%Y")
K=41
date_generated=pd.date_range(test_date,periods=K)
print(date_generated.strftime("%d-%m-%Y"))
```

```
Index(['01-01-2023', '02-01-2023', '03-01-2023', '04-01-2023', '05-01-
2023',
       '06-01-2023', '07-01-2023', '08-01-2023', '09-01-2023', '10-01-
2023',
       '11-01-2023', '12-01-2023', '13-01-2023', '14-01-2023', '15-01-
2023',
       '16-01-2023', '17-01-2023', '18-01-2023', '19-01-2023', '20-01-
2023',
       '21-01-2023', '22-01-2023', '23-01-2023', '24-01-2023', '25-01-
2023',
       '26-01-2023', '27-01-2023', '28-01-2023', '29-01-2023', '30-01-
2023',
       '31-01-2023', '01-02-2023', '02-02-2023', '03-02-2023', '04-02-
2023',
       '05-02-2023', '06-02-2023', '07-02-2023', '08-02-2023', '09-02-
2023',
       '10-02-2023'],
      dtype='object')
```

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 =['SI','Name','number'])
print(df )
```

```
   SI Name  number
0   1  aaa      22
1   2  bbb      25
2   3  ccc      24
```