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 {0} is {1} 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']}]}]}
print(d['k1'][3]["tricky"][3]['target'][3])
```

```
hello
```

Numpy
```
import numpy as np
```
4.1 Create an array of 10 zeros?

```
import numpy as np
array=np.zeros(10)
print(array)
```
```
[0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

4.2 Create an array of 10 fives?

```
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

```
for i in range(20,36):
  if(i%2==0):
    print(i,end=" ")
```
```
20 22 24 26 28 30 32 34
```

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

```
import numpy as np
x =  np.arange(0, 9).reshape(3,3)
print(x)
```

```
[[0 1 2]
 [3 4 5]
 [6 7 8]]
```

7. Concatinate a and b
```
a = np.array([1, 2, 3]), b = np.array([4, 5, 6])
```

```
import numpy as np
a = np.array([1, 2, 3])
```

```
b = np.array([4, 5, 6])
b=np.concatenate((a,b),axis=0)
print(b)
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

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

```
import datetime
import pandas as pd
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(str(res))
```

```
['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']
```

10. Create 2D list to DataFrame

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

```
import pandas as pd
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df = pd.DataFrame(lists)
print(df)
```

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