Basic Python

1. Split this string

```
s = "Hi there Sam!"
```

```
s="Hi there sam!"
n=s.split()
print(n)
```

```
['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
```

```
planet="Earth"
diameter=12742
star="The diameter of {p} is {k} kilometer"
print(star.format(p=planet,k=diameter))
```

```
The diameter of Earth is 12742 kilometer
```

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


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.]
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

```
a=np.arange(20,35,2)
print(a)
```

```
[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]]
```


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(a)
print(b)
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
data=[['Nimrusra',10],['mrunisra',20],['rasnimru',30]]
a=pd.DataFrame(data,columns=['Name','Age',])
print(a)
```

```
        Name  Age
0  Nimrusra   10
1  mrunisra   20
2  rasnimru   30
```

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

```
from datetime import datetime, timedelta

def date_range(start, end):
    delta = end - start  # as timedelta
    days = [start + timedelta(days=i) for i in range(delta.days + 1)]
    return days

start_date = datetime(2023, 1, 1)
end_date = datetime(2023, 2, 10)

print(date_range(start_date, end_date))
```

```
[datetime.datetime(2023, 1, 1, 0, 0), datetime.datetime(2023, 1, 2, 0, 0), datetime.
```


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]]
```

```
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df=pd.DataFrame(lists,columns=['Number','FName','Age'])
print(df)
```

```
   Number FName  Age
0       1   aaa   22
1       2   bbb   25
2       3   ccc   24
```