Basic Python

1. Split this string

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

```
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
```

```
s = "The diameter of {planet} is {diameter} kilometres".format(planet = "Earth", diameter
print(s)
```

```
The diameter of Earth is 12742 kilometres
```

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']}]}]}
x=d['k1'][3]['tricky'][3]['target'][3]
print (x)
```

```
hello
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
import numpy as np
array=np.zeros(10,dtype='int')
print("An array of 10 zeros:",array)
```

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

```
import numpy as np
array=np.ones(10,dtype='int')*5
print("An array of 10 fives:",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

```
import numpy as np
x=np.arange(20,35,2)
print(x)
```

```
[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. Concatenate 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])
arr = np.concatenate((a,b))
print("before concatenation")
print("a \n",a)
print("b \n",b)
print("after concatenation \n",arr)
```

```
before concatenation
a
 [1 2 3]
b
 [4 5 6]
after concatenation
 [1 2 3 4 5 6]
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
import pandas as pd
data = [['tom', 10], ['nancy', 15]]
df = pd.DataFrame(data, columns=['Name', 'Age'])
print(df)
```

```
    Name  Age
0    tom   10
1  nancy   15
```

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

```
import pandas as pd
x=pd.date_range('1st Jan, 2023','10th Feb, 2023')
print("series of dates\n",x)
```

```
series of dates
 DatetimeIndex(['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'],
              dtype='datetime64[ns]', freq='D')
```

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]]
```

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

```
   A    B   C
0  1  aaa  22
1  2  bbb  25
2  3  ccc  24
```