Basic Python

1. Split this string

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

```
s = "Hi there Sam!"
xx = s.split()
print(xx)
```

```
['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 = "The diameter of Earth "
diameter = " is 12742 kilometers "
print(planet + diameter.format())
```

```
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']}]}]}
```

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

```
{"type":"string"}
```

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
np.zeros(10)
```

```
array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0.])
```

```
import numpy as np
np.ones(10)*5
```

```
array([5., 5., 5., 5., 5., 5., 5., 5., 5., 5.])
```

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

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

```
[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])

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

```
array([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
df={'col_1':[0,1,2,3],
    'col_2':[4,5,6,7]}
df = pd.DataFrame(df)
print(df)
```

```
   col_1  col_2
0      0      4
1      1      5
2      2      6
3      3      7
```

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

```
import pandas as pd
dRan1 = pd.date_range(start='1-1-2023',
                      end = '10-01-2023',freq = 'M')
print(dRan1)
```

```
DatetimeIndex(['2023-01-31', '2023-02-28', '2023-03-31', '2023-04-30',
               '2023-05-31', '2023-06-30', '2023-07-31', '2023-08-31',
```

```
               '2023-09-30'],
              dtype='datetime64[ns]', freq='M')
```

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
arr = np.arraylists = [[1,'aaa',22],[2,'bbb',25],[3,'ccc',24]]
df=pd.DataFrame(arr)
print(df)
```

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