Basic Python

1. Split this string

```
In [1]: s = "Hi there Sam!"
```

```
In [2]: print(s.split())
```

```
['Hi', 'there', 'Sam!']
```

2. Use .format() to print the following string.

Output should be: The diameter of Earth is 12742 kilometers.

```
In [3]: planet = "Earth"
        diameter = 12742
```

```
In [4]: st = "The diameter of {} is {} kilometers"
        print(st.format(planet,diameter))
```

```
The diameter of Earth is 12742 kilometers
```

3. In this nest dictionary grab the word "hello"

```
In [5]: d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
```

```
In [6]: print(d['k1'][3]['tricky'][3]['target'][3])
```

```
hello
```

Numpy

```
In [7]: import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
In [8]: print(np.zeros(10))
```

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

```
In [9]: print(np.ones(10,dtype="int")*5)
```

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

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

```
In [10]: print(np.arange(20,35,2))
```

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

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

```
In [11]: s=np.arange(0,9)
         print(s.reshape(3,3))
```

```
[[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])

```
In [12]: a=np.array([1,2,3])
         b=np.array([4,5,6])
         print(np.concatenate([a,b]))
```

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

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
In [13]: import pandas as pd
```

```
In [14]: data = [['a',10],['b',20],['c',30]]
         df = pd.DataFrame(data,columns=['Name','Integer'])
         print(df)
```

```
   Name  Integer
0     a       10
1     b       20
2     c       30
```

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

```
In [15]: print(pd.date_range(start='2023/01/01',end='2023/10/02'))
```

```
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',
               ...
               '2023-09-23', '2023-09-24', '2023-09-25', '2023-09-26',
               '2023-09-27', '2023-09-28', '2023-09-29', '2023-09-30',
               '2023-10-01', '2023-10-02'],
              dtype='datetime64[ns]', length=275, freq='D')
```

10. Create 2D list to DataFrame

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

```
In [16]: lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
```

```
In [17]: print(pd.DataFrame(lists))
```

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