Basic Python

1. Split this string

```
s = "Hi there Sam!"

arr=s.split(" ")
for i in arr:
    print(i)
#print(arr)
```

```
Hi
there
Sam!
```

italicized text## 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 Earth is {} kilometers".format(diameter))
```

```
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"][3]["tricky"][3]["target"][3]
```

```
'hello'
```

Numpy

```
import numpy as np
```

4.1 Create an array of 10 zeros?

4.2 Create an array of 10 fives?

```
np.zeros(10)
```

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

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

```
np.arange(20,35,2)
```

```
array([20, 22, 24, 26, 28, 30, 32, 34])
```

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

```
np.arange(0,9).reshape(3,3)
```

```
array([[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])

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

```
(array([[1, 2, 3, 4, 5, 6]]), array([1, 2, 3, 4, 5, 6]))
```

Pandas

8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

```
pd.DataFrame(np.array([[1,2],[3,4],[5,6]]),columns=['a','b'])
```

```
(   a  b
 0  1  2
 1  3  4
 2  5  6,
    a  b
 0  1  4
 1  2  5
 2  3  6)
```

```
pd.DataFrame({"a":[1,2,3],"b":[4,5,6]})
```

```
   a  b
0  1  4
1  2  5
2  3  6
```

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

```
pd.date_range(start="2023-01-01",end="2023-02-10")
```

```
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]]

pd.DataFrame(lists)
```

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