Basic Python

1. Split this string

```
s = "Hi there Sam!"

s.split(" ")
```

```
['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

print(f"The diameter of {planet} is {diameter} kilometers.")
```

```
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?

```
import numpy as np
arr = np.zeros(10)
arr
```

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

```
from itertools import repeat
given_value ='5'
new_list=[]
new_list.extend(repeat(given_value,10))
print(new_list)
```

```
['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
a=np.arange(20,35,2)
print("Array of all the even integers from 20 to 35")
print(a)
```

```
Array of all the even integers from 20 to 35
[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)
x
```

```
array([[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
d = {'col1': [1, 2,3], 'col2': [3, 4,5],}
df = pd.DataFrame(data=d)
df
```

```
   col1  col2
0     1     3
1     2     4
2     3     5
```

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

```
import pandas as pd
from datetime import datetime
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]]

df = pd.DataFrame(lists)
df
```

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