# Basic Python

## 1. Split this string

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

```
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("The diameter of {} is {} kilometers.".format(planet,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?

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

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

```
import numpy as np
array=np.ones(10)*5
print("An array of 10 fives:")
print(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
array=np.arange(20,36,2)
print("Array of all the even integers from 20 to 35")
print(array)
```

```
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

```
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])
```

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

## Pandas

## 8. Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
data = [{'a': 1, 'b': 2},
        {'a': 10, 'b': 20},
        {'a' : 100, 'b':200}]
df = pd.DataFrame(data)
df
```

| | a | b |
|---|---|---|
| **0** | 1 | 2 |
| **1** | 10 | 20 |
| **2** | 100 | 200 |

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

```
pd.date_range(start='01/10/2023', end='02/10/2023')
```

```
DatetimeIndex(['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
lst = [[1, 'aaa', 22], [2, 'bbb', 25], [3,'ccc', 24]]

df = pd.DataFrame(lst, columns =['num', 'name', 'Age'])
print(df)
```

```
   num name  Age
0    1  aaa   22
1    2  bbb   25
2    3  ccc   24
```