# Basic Python

## 1. Split this string

In [ ]:

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

In [ ]:

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

```
planet = "Earth"
diameter = 12742
```

In [ ]:

```
planet = "Earth"
diameter = 12742
astro = 'The diameter of {} is {} kilometers.'
print(astro.format(planet, diameter))
```

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

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

In [ ]:

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

In [ ]:

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

Out[ ]:

```
'hello'
```

# Numpy

In [ ]:

```
import numpy as np
```

## 4.1 Create an array of 10 zeros?

## 4.2 Create an array of 10 fives?

In [ ]:

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

Out[ ]:

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

In [ ]:

```
np.ones(10)*5
```

Out[ ]:

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

5. Create a array of Even integre from 20 to 35

In [ ]:

```
np.arange(20, 36, 2)
```

Out[ ]:

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

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

In [ ]:

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

Out[ ]:

```
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])

In [ ]:

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

# Pandas

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

In [ ]:

```
import pandas as pd
```

In [ ]:

```
import numpy as np
```

```
import pandas as pd
A= np.random.randint(5, size =(3,2))
dataframe = pd.DataFrame(A)
print(dataframe)
```

```
   0  1
0  3  4
1  0  3
2  3  4
```

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

In [ ]:

```
import pandas as pd
from datetime import datetime
pd.date_range(start="2023-01-01" ,end="2023-02-10")
```

Out[ ]:

```
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]]

In [ ]:

```
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
df = pd.DataFrame(lists, columns = ['Num','Var','Age'])
df
```

Out[ ]:

| | Num | Var | Age |
|---|---|---|---|
| **0** | 1 | aaa | 22 |
| **1** | 2 | bbb | 25 |
| **2** | 3 | ccc | 24 |

In [ ]: