

## Assignment -1

### Python Programming

Assignment Date	9 September 2022
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Maximum Marks	2 Marks

#### BASIC PYTHON

##### Question-1:

Split this string

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

##### Solution:

```
s.split()
```

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

A screenshot of a Python IDE with a dark theme. The editor shows the following code:

```
Basic Python  
  
1. Split this string  
  
[1] s = "Hi there Sam!"  
  
s.split()  
['Hi', 'there', 'Sam!']
```

##### Question-2:

Use .format() to print the following string.

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

```
planet = "Earth"
```

```
diameter = 12742
```

##### Solution:

```
a="The diameter of {} is {} kilometers".format(planet,diameter)  
print(a)
```

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

```
2. Use .format() to print the following string.
Output should be: The diameter of Earth is 12742 kilometers.

[3] planet = "Earth"
    diameter = 12742

[4] str = "The diameter of {} is {} kilometers.".format(planet,diameter)
    print(str)

The diameter of Earth is 12742 kilometers.
```

### Question-3:

In this nest dictionary grab the word "hello"

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

### Solution:

```
print(d['k1'][3]["tricky"][3]['target'][3])

hello
```

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

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

[6] print(d['k1'][3]["tricky"][3]['target'][3])

hello
```

## NUMPY

import numpy as np

### Question-4:

1 Create an array of 10 zeros?

### Solution:

```
np.zeros(10)

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

2 Create an array of 10 fives?

### Solution:

```
np.ones(10)*5

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

```
▼ Numpy

[9] import numpy as np

▼ 4.1 Create an array of 10 zeros?
4.2 Create an array of 10 fives?

[10] 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.])
```

### Question-5:

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

**Solution:**

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

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

```
▼ 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])
```

### Question-6:

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

**Solution:**

```
np.array([[0,1,2],[3,4,5],[6,7,8]])
```

```
array([[0, 1, 2],
       [3, 4, 5],
       [6, 7, 8]])
```

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

▶ np.array([[0,1,2],[3,4,5],[6,7,8]])
array([[0, 1, 2],
       [3, 4, 5],
       [6, 7, 8]])
```

### Question-7:

Concatenate a and b

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

### Solution:

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

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

```
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

### Question-8:

Create a dataframe with 3 rows and 2 columns

```
import pandas as pd
```

### Solution:

```
data = {
    "calories": [420, 380, 390],
    "duration": [50, 40, 45]
}
```

```
#load data into a DataFrame object:
df = pd.DataFrame(data)
```

```
print(df)
```

```
   calories  duration
0       420        50
1       380        40
2       390        45
```

```
▼ Pandas

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

1 ✓ ▶ import pandas as pd

2 ✓ ▶ data = {
    "num1": [1, 2, 3],
    "num2": [4, 5, 6]
  }
  df = pd.DataFrame(data)
```

### Question-9:

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

#### Solution:

```
pd.date_range(start='1/1/2023',end='2/10/2023')
```

```
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')
```

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

1 ✓ ▶ pd.date_range(start='1/1/2023',end='2/10/2023')

2 ✓ ▶ 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')
```

### Question-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]]
```

**Solution:**

```
pd.DataFrame(lists)
```

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

```
10. Create 2D list to DataFrame
```

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

```
[18] 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