Assignment 1

Python Programming

Assignment Date	19 October 2022
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Maximum Marks	2

Basic Python

1.Split this String

Solution

```
s = "Hi there Sam";
s=s.split()
print(s);
```

```
[ ] s = "Hi there Sam";

[ ] s=s.split()

[ ] print(s);

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

2. Use .format() to print the following string.

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

Solution

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

```
[ ] plant = "Earth"

[ ] diameter = 12742

[ ] 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”

Solution

```
d = {'k1':[1,2,3,{'tricky':['oh','man','inception',{'target':[1,
2,3,'hello']}]}]}
lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
a=lst[3][1][2];
print(a)
```

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

[ ] lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]

[ ] a=lst[3][1][2];

[ ] print(a)

    ['hello']
```

Numpy

```
import numpy as np
```

```
[ ] import numpy as np
```

4.1 Create an array of 10 zeros?

Solution

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

```
[ ] import numpy as np

[ ] array=np.zeros(10)

[ ] print("An array of 10zero")

    An array of 10zero

[ ] print(array)

    [0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

4.2 Create an array of 10 fives?

Solution

```
import numpy as np
array = np.ones(10)*5
print("An array of 10 five")
print(array)
```

```
[ ] import numpy as np

[ ] array = np.ones(10)*5

[ ] print("An array of 10 five")

    An array of 10 five

[ ] print(array)

    [5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

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

Solution

```
import numpy as np
array=np.arange(20,35,2)
print("Array of all the even integers from 20 to 35")
print(array)
```

```
import numpy as np

[ ] array=np.arange(20,35,2)

[ ] print("Array of all the even integers from 20 to 35")

    Array of all the even integers from 20 to 35

print(array)

    [20 22 24 26 28 30 32 34]
```

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

Solution

```
import numpy as np
x = np.arange(0, 9).reshape(3,3)
print(x)
```

```
[ ] 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])

Solution

```
import numpy as np
a = np. array ([1,2,3])
b = np. array ([4,5,6])
c = np.concatenate((a,b))
print(c)
```

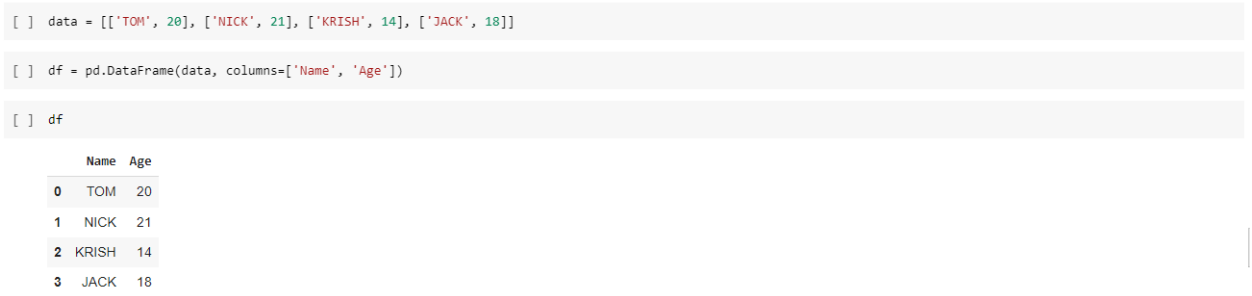
Pandas

```
import pandas as pd
```

8. Create a data frame with 3 rows and 2 columns

Solution

```
data = [['TOM', 20], ['NICK', 21], ['KRISH', 14], ['JACK', 18]]
df = pd.DataFrame(data, columns=['Name', 'Age'])
df
```



	Name	Age
0	TOM	20
1	NICK	21
2	KRISH	14
3	JACK	18

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

Solution

```
import pandas as pd
```

```
dRan1 = pd.date_range(start ='1-1-2023', periods = 41)
print(dRan1)
```

```
[ ] import pandas as pd
```

```
[ ] dRan1 = pd.date_range(start ='1-1-2023', periods = 41)
    print(dRan1)

    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

```
import pandas as pd
import numpy as np
lists = [[1, 'aaa', 22], [2, 'bbb', 25], [3, 'ccc', 24]]
list= {'name':['aaa', 'bbb', 'ccc'],
'points':[22,25,24]}
df = pd.DataFrame(list,index=['1','2','3'])
df
```

```
[ ] import pandas as pd
```

```
[ ] import numpy as np
```

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

```
[ ] list= {'name':['aaa', 'bbb', 'ccc'],
    'points':[22,25,24]}
```

```
[ ] df = pd.DataFrame(list,index=['1','2','3'])
```

```
df
```

	name	points
1	aaa	22
2	bbb	25
3	ccc	24