Assignment 1

Python Programming

Assignment Date	09-09-2022
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Maximum Marks	Each question carries 2 marks

Question 1

Split this string `s = "Hi there Sam!"`

Solution

```python
s = "Hi there Sam!"
x = s.split()
print(x)
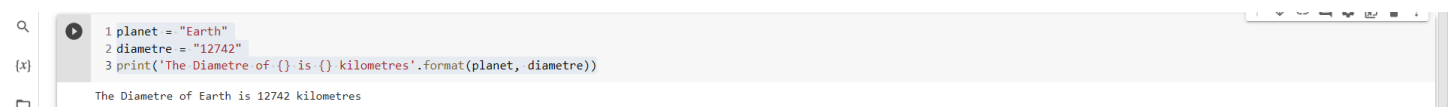```

```
1 s = "Hi there Sam!"
2 x = s.split()
3 print(x)

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

Question 2

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

Solution

```python
planet = "Earth"
diametre = "12742"
print('The Diametre of {} is {} kilometres'.format(planet, diametre))
```

```
1 planet = "Earth"
2 diametre = "12742"
3 print('The Diametre of {} is {} kilometres'.format(planet, diametre))

The Diametre of Earth is 12742 kilometres
```
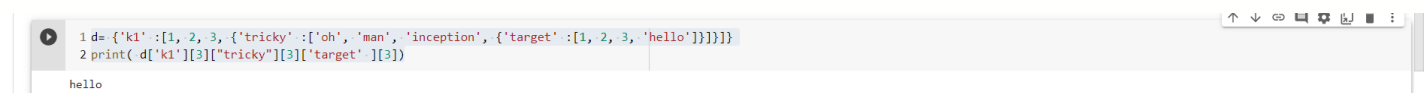
Question 3

In this nest dictionary grab the word "hello"

Solution

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

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

hello
```

Question 4

Numpy

4.1 Create an array of 10 zeros?
Solution

```python
import numpy as np
arr = np.zeros(10)
print("Array of 10 Zeros")
print(arr)
```

```
[ ]    1 import numpy as np
       2 arr = np.zeros(10)
       3 print("Array of 10 Zeros")
       4 print(arr)

    Array of 10 Zeros
    [0. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
```

4.2 Create an array of 10 fives?
Solution

```python
import numpy as np
arr = np.ones(10)*5
print("Array of 10 Fives")
print(arr)
```

```
    1 import numpy as np
    2 arr = np.ones(10)*5
    3 print("Array of 10 Fives")
    4 print(arr)

    Array of 10 Fives
    [5. 5. 5. 5. 5. 5. 5. 5. 5. 5.]
```

Question 5

Create an array of all the even integers from 20 to 36

Solution

```python
import numpy as np
arr= np.arange(20,36,2)
print("Array of all Even Numbers from 20 to 36")
print(arr)
```

```
    1 import numpy as np
    2 arr= np.arange(20,36,2)
    3 print("Array of all Even Numbers from 20 to 36")
    4 print(arr)

    Array of all Even Numbers from 20 to 36
    [20 22 24 26 28 30 32 34]
```
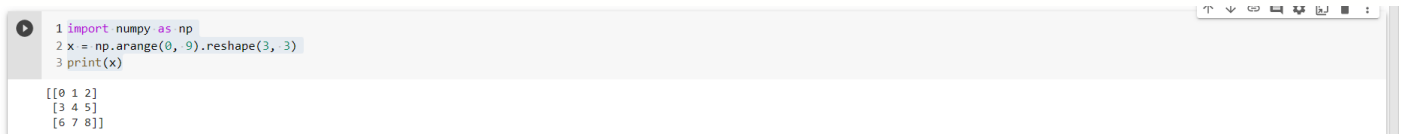
Question 6

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

Solution

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

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

[[0 1 2]
 [3 4 5]
 [6 7 8]]
```
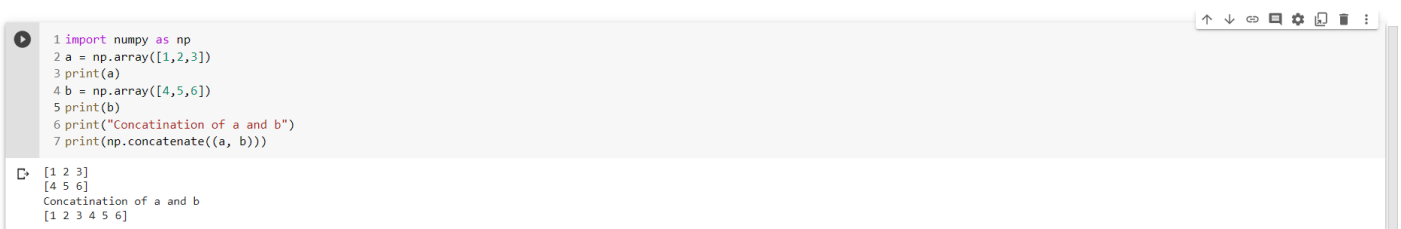
Question 7

Concatenate a and b

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

Solution

```python
import numpy as np
a = np.array([1,2,3])
print(a)
b = np.array([4,5,6])
print(b)
print("Concatination of a and b")
print(np.concatenate((a, b)))
```

```
1 import numpy as np
2 a = np.array([1,2,3])
3 print(a)
4 b = np.array([4,5,6])
5 print(b)
6 print("Concatination of a and b")
7 print(np.concatenate((a, b)))

[1 2 3]
[4 5 6]
Concatination of a and b
[1 2 3 4 5 6]
```

Question 8

Pandas : Create a dataframe with 3 rows and 2 columns

Solution

```python
import pandas as pd
data = [['tom', 10], ['nick', 15], ['juli', 14]]
df = pd.DataFrame(data, columns=['Name', 'Age'])
df
```

```
[7]   1 import pandas as pd
      2 data = [['tom', 10], ['nick', 15], ['juli', 14]]
      3 df = pd.DataFrame(data, columns=['Name', 'Age'])
      4 df

      Name  Age
   0  tom   10
   1  nick  15
   2  juli  14
```

Question 9

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

Solution

```python
import pandas
from datetime import datetime, timedelta

startDate = datetime(2023, 1, 1)
endDate = datetime(2023, 2, 10)

# Getting List of Days using pandas
datesRange = pandas.date_range(startDate,endDate-timedelta(days=1),freq='d')
print(datesRange);
```

```
   1 import pandas
   2 from datetime import datetime, timedelta
   3
   4 startDate = datetime(2023, 1, 1)
   5 endDate = datetime(2023, 2, 10)
   6
   7 # Getting List of Days using pandas
   8 datesRange = pandas.date_range(startDate,endDate-timedelta(days=1),freq='d')
   9 print(datesRange);

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'],
              dtype='datetime64[ns]', freq='D')
```

Question 10

Create 2D list to DataFrame

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

Solution

```python
import pandas as pd
lst = [[1, 'aaa', 22], [2, 'bbb', 25],[3, 'ccc', 24]]
df = pd.DataFrame(lst)
print(df )
```

```
1 import pandas as pd
2 lst = [[1, 'aaa', 22], [2, 'bbb', 25],[3, 'ccc', 24]]
3 df = pd.DataFrame(lst)
4 print(df )

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

```
1 import pandas as pd
2 lst = [[1, 'aaa', 22], [2, 'bbb', 25],[3, 'ccc', 24]]
3 df = pd.DataFrame(lst)
4 print(df )

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