

Assignment 1

Python Programming

Assignment Date	09/09/2022
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Maximum Marks	

Question 1

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

Solution

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



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

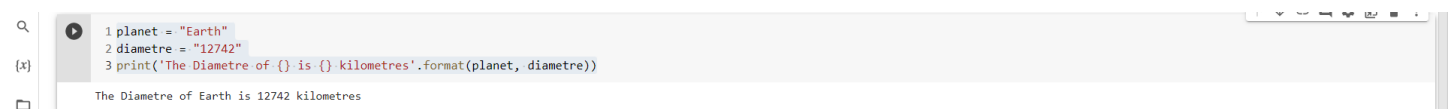
['Hi', 'there', 'Sam!']

Question 2

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

Solution

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



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

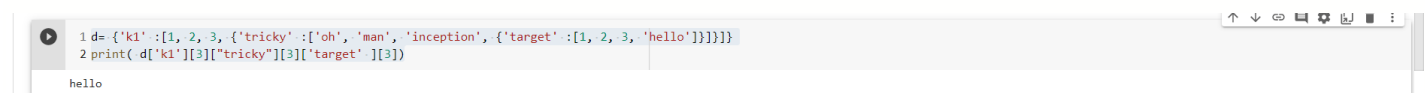
The Diametre of Earth is 12742 kilometres

Question 3

In this nest dictionary grab the word "hello"

Solution

```
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

```
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

```
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

```
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)
```

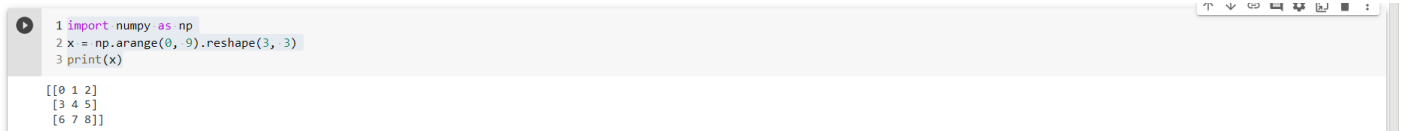
Array of all Even Numbers from 20 to 36
[20 22 24 26 28 30 32 34]

Question 6

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

Solution

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

A screenshot of a Jupyter Notebook cell. The code in the cell is:

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

 The output of the cell is a 3x3 matrix:

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

```
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]]
```

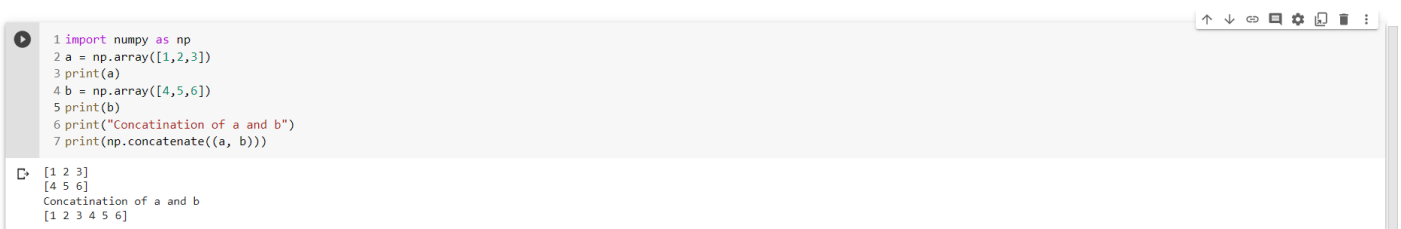
Question 7

Concatenate a and b

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

Solution

```
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)))
```

A screenshot of a Jupyter Notebook cell. The code in the cell is:

```
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)))
```

 The output of the cell is:

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

```
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

```
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

```
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

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



The image shows two identical screenshots of a Jupyter Notebook cell. Each cell contains the following Python code:

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

The output of the code is a DataFrame with three rows and three columns. The first column contains the integers 0, 1, and 2, which are the default row indices. The second column contains the strings 'aaa', 'bbb', and 'ccc'. The third column contains the integers 22, 25, and 24.

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