

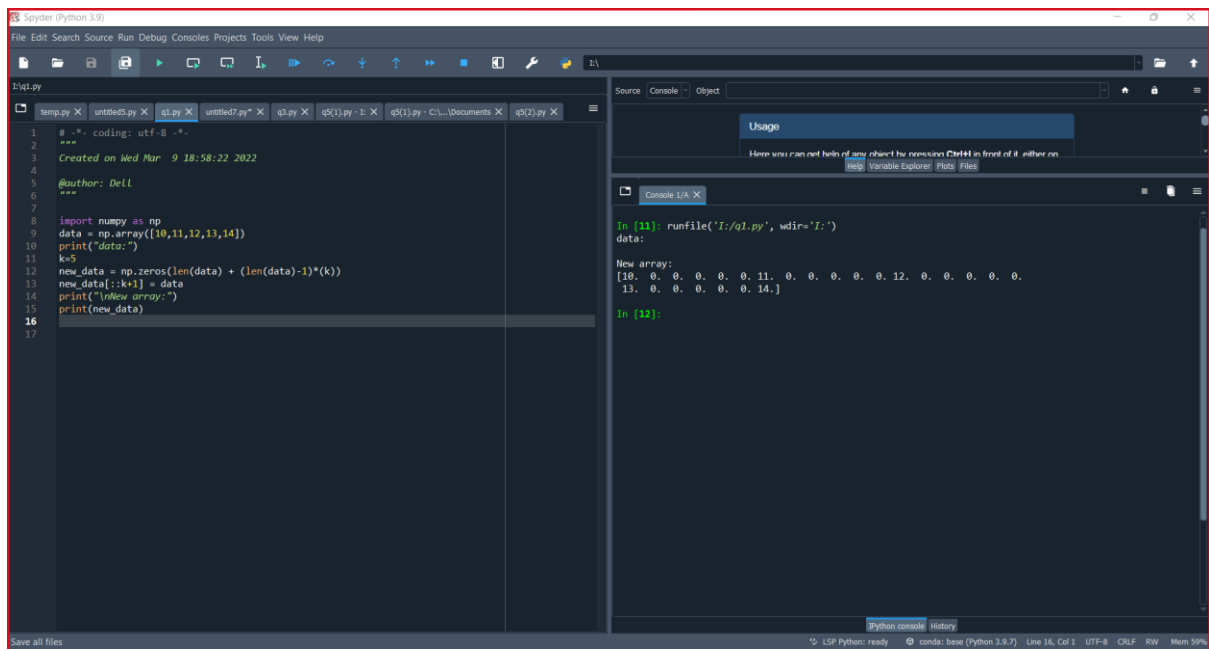
# TASK-8

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## QUESTION-1:



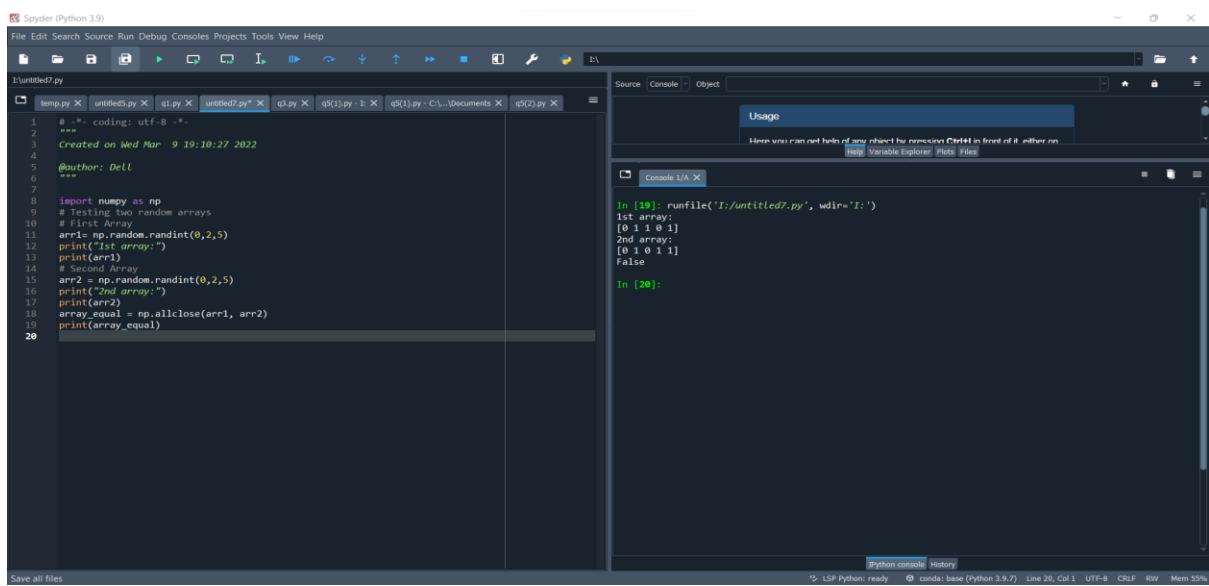
The screenshot shows the Spyder Python IDE with a file named 'q1.py' open. The code in the editor is as follows:

```
1 # -*- coding: utf-8 -*-
2 """
3 Created on Wed Mar  9 18:58:22 2022
4
5 @author: Dell
6 """
7
8 import numpy as np
9 data = np.array([10,11,12,13,14])
10 print("data:")
11 k=5
12 new_data = np.zeros(len(data) + (len(data)-1)*(k))
13 new_data[1:k+1] = data
14 print("\nnew array:")
15 print(new_data)
16
17
```

The console output on the right shows the execution of the script:

```
In [11]: runfile('I:/q1.py', wdir='I:')
data:
New array:
[10.  0.  0.  0.  0. 11.  0.  0.  0.  0. 12.  0.  0.  0.  0.
 13.  0.  0.  0.  0. 14.]
In [12]:
```

## QUESTION-2:



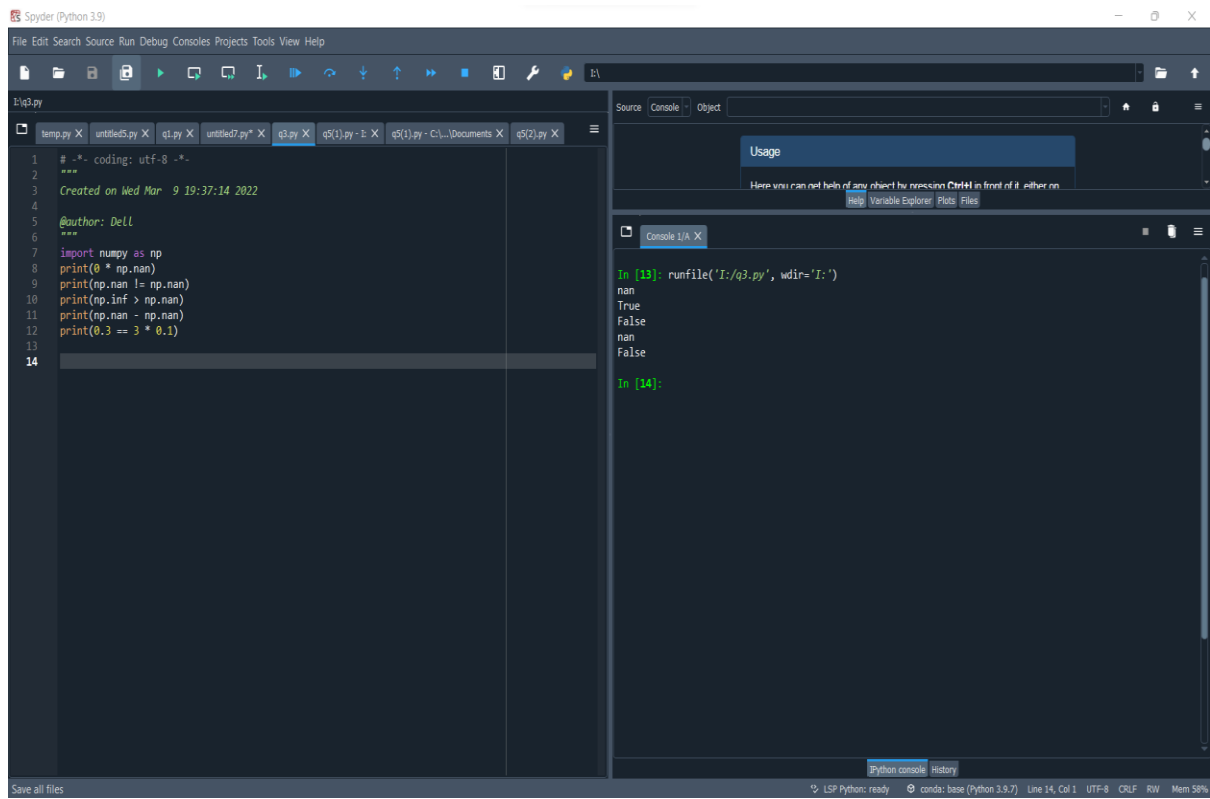
The screenshot shows the Spyder Python IDE with a file named 'untitled7.py' open. The code in the editor is as follows:

```
1 # -*- coding: utf-8 -*-
2 """
3 Created on Wed Mar  9 19:10:27 2022
4
5 @author: Dell
6 """
7
8 import numpy as np
9 # Testing two random arrays
10 # First Array
11 arr1 = np.random.randint(0,2,5)
12 print("1st array:")
13 print(arr1)
14 # Second Array
15 arr2 = np.random.randint(0,2,5)
16 print("2nd array:")
17 print(arr2)
18 array_equal = np.allclose(arr1, arr2)
19 print(array_equal)
20
```

The console output on the right shows the execution of the script:

```
In [18]: runfile('I:/untitled7.py', wdir='I:')
1st array:
[0 1 1 0 1]
2nd array:
[0 1 0 1 1]
False
In [20]:
```

## QUESTION-3:



The screenshot shows the Spyder Python IDE interface. The main editor displays a Python script named `q3.py` with the following code:

```
1 # -*- coding: utf-8 -*-
2
3 Created on Wed Mar  9 19:37:14 2022
4
5 @author: Dell
6
7 import numpy as np
8 print(0 * np.nan)
9 print(np.nan != np.nan)
10 print(np.inf > np.nan)
11 print(np.nan - np.nan)
12 print(0.3 == 3 * 0.1)
13
14
```

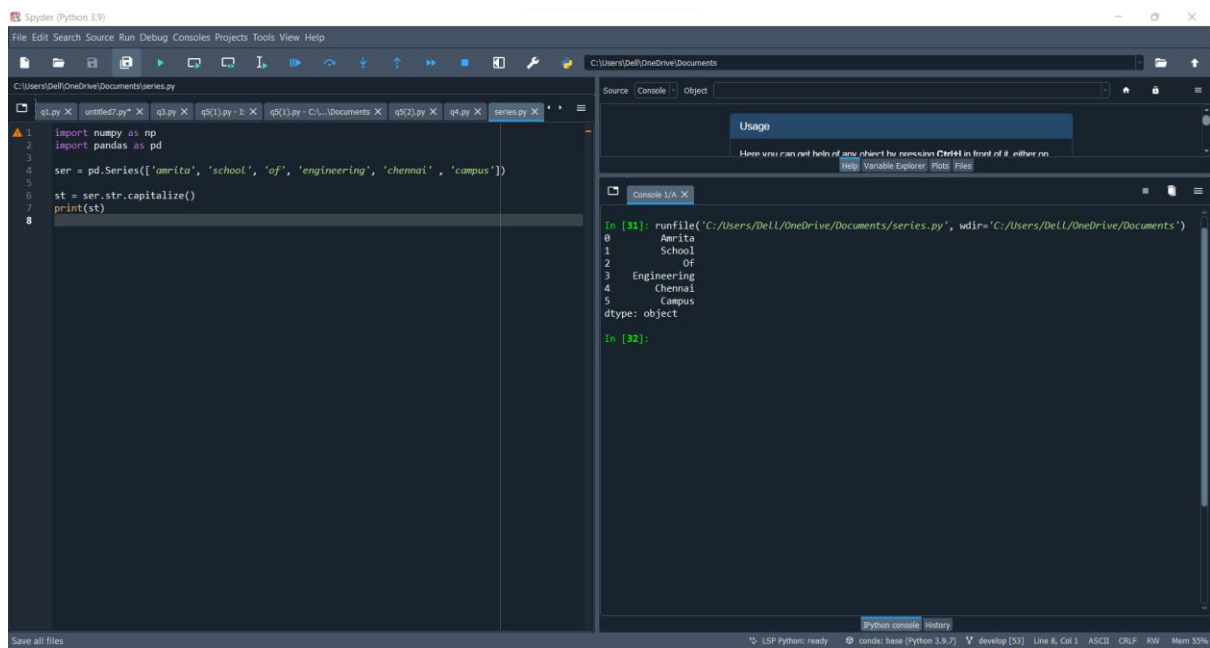
The right-hand pane shows the IPython console with the following output:

```
In [13]: runfile('I:/q3.py', wdir='I:')
nan
True
False
nan
False

In [14]:
```

The status bar at the bottom indicates the Python interpreter is ready and the current file is `q3.py`.

## QUESTION-4:



The screenshot shows the Spyder Python IDE interface. The main editor displays a Python script named `series.py` with the following code:

```
1 import numpy as np
2 import pandas as pd
3
4 ser = pd.Series(['amrita', 'school', 'of', 'engineering', 'chennai', 'campus'])
5
6 st = ser.str.capitalize()
7 print(st)
8
```

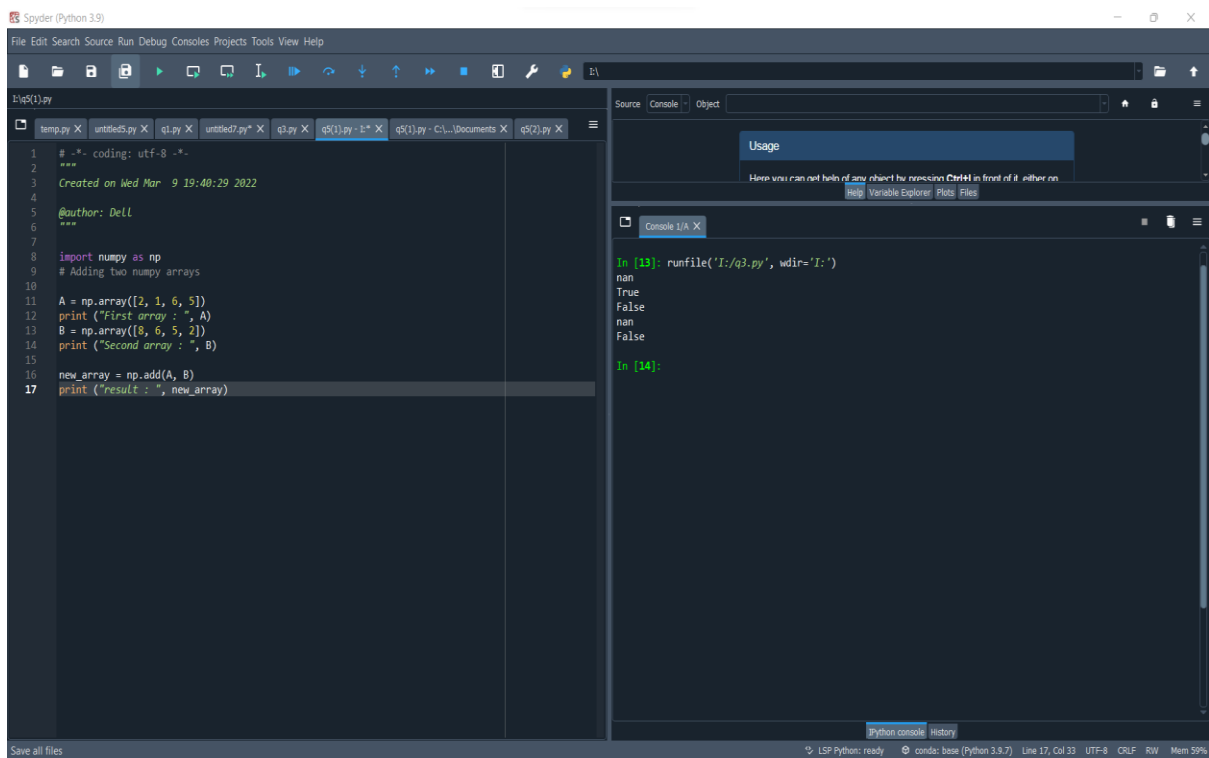
The right-hand pane shows the IPython console with the following output:

```
In [31]: runfile('C:/Users/Dell/OneDrive/Documents/series.py', wdir='C:/Users/Dell/OneDrive/Documents')
0
1 Amrita
2 School
3 Of
4 Engineering
5 Chennai
6 Campus
dtype: object

In [32]:
```

The status bar at the bottom indicates the Python interpreter is ready and the current file is `series.py`.

## QUESTION-5(1):



The screenshot displays the Spyder Python IDE interface. The main editor window shows a Python script with the following code:

```
1 # -*- coding: utf-8 -*-
2
3 Created on Wed Mar  9 19:40:29 2022
4
5 @author: Dell
6
7
8 import numpy as np
9 # Adding two numpy arrays
10
11 A = np.array([2, 1, 6, 5])
12 print ("First array : ", A)
13 B = np.array([8, 6, 5, 2])
14 print ("Second array : ", B)
15
16 new_array = np.add(A, B)
17 print ("result : ", new_array)
```

The console window on the right shows the output of the script:

```
In [13]: runfile('I:/q3.py', wdir='I:')
nan
True
False
nan
False

In [14]:
```

The status bar at the bottom indicates the current environment is 'conda: base (Python 3.9.7)' and the cursor is at 'Line 17, Col 33'.

## QUESTION-5(3):

