

Outputs

1.a :-

```
pythonProject - zeros in between list.py
1 import numpy as np
2 a = np.array([1, 4, 7, 5, 6])
3 print("original array : ")
4 print(a)
5 z = 5
6 Z = np.zeros(len(a) + (len(a)-1)*z)
7 Z[::z+1] = a
8 print("The new array : ")
9 print(Z)
10
```

Run: zeros in between list.py

C:\Users\perum\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/perum/PycharmProjects/pythonProject/zeros in b/zeros in between list.py"

original array :
[1 4 7 5 6]
The new array :
[1. 0. 0. 0. 0. 0. 4. 0. 0. 0. 0. 0. 7. 0. 0. 0. 0. 0. 5. 0. 0. 0. 0. 6.]

Process finished with exit code 0

2.a :-

```
pythonProject - list is equal or not.py
1 import numpy as np
2 x = np.random.randint(0,3,6)
3 print("1st array:")
4 print(x)
5 y = np.random.randint(0,3,6)
6 print("2nd array:")
7 print(y)
8 print("Test above two arrays are equal or not!")
9 array_equal = np.allclose(x, y)
10 print(array_equal)
11
```

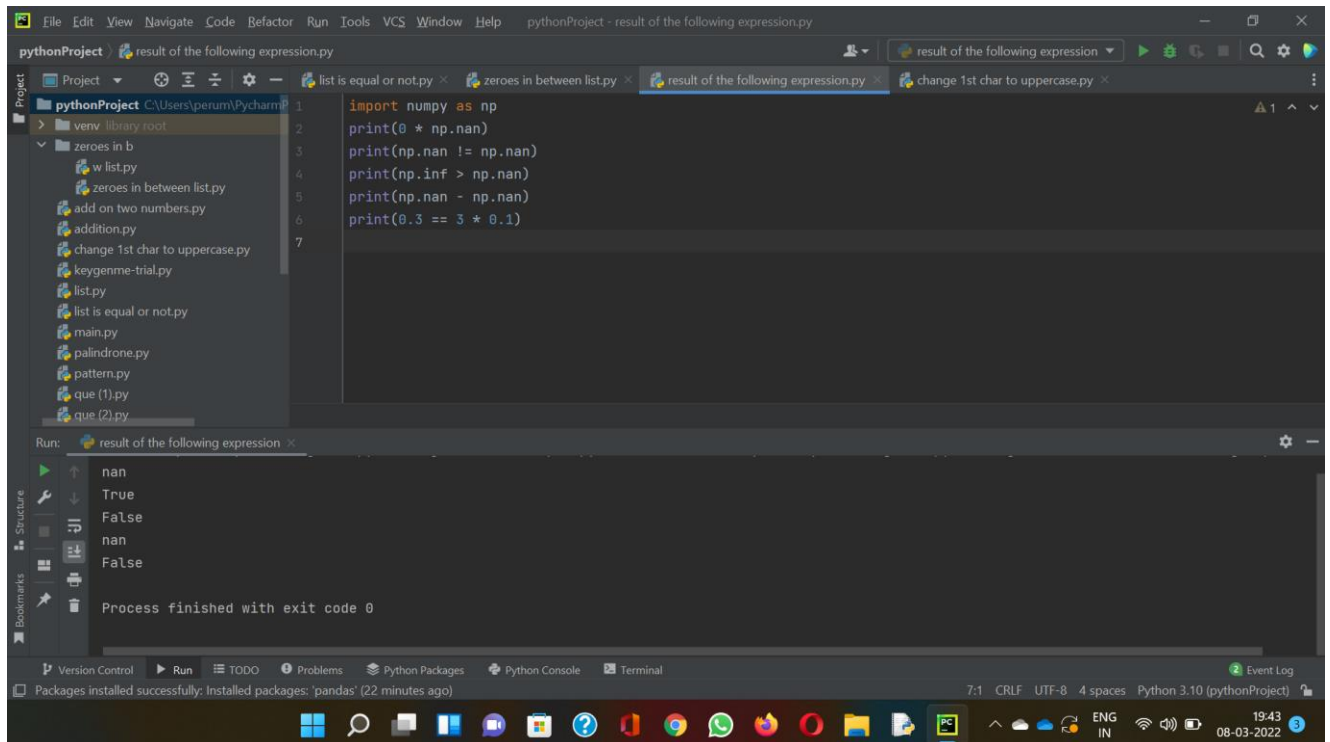
Run: list is equal or not.py

C:\Users\perum\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/perum/PycharmProjects/pythonProject/list is equal or not.py"

1st array:
[2 2 0 2]
2nd array:
[2 2 0 2]
Test above two arrays are equal or not!
False

Process finished with exit code 0

3.a :-



The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows a directory structure with files like 'w list.py', 'zeros in between list.py', 'add on two numbers.py', 'addition.py', 'change 1st char to uppercase.py', 'keygenme-trial.py', 'list.py', 'list is equal or not.py', 'main.py', 'palindrome.py', 'pattern.py', 'que (1).py', and 'que (2).py'. The main editor window displays a Python script named 'result of the following expression.py' with the following code:

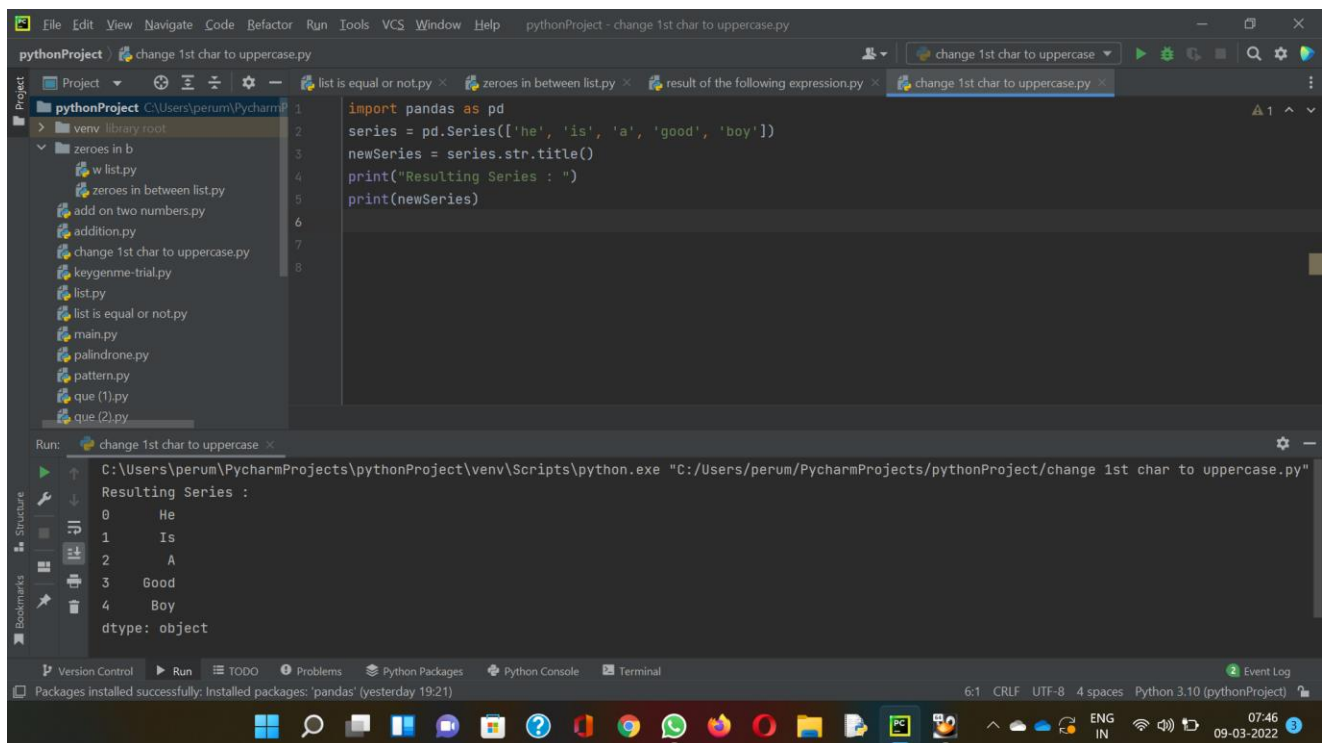
```
1 import numpy as np
2 print(0 * np.nan)
3 print(np.nan != np.nan)
4 print(np.inf > np.nan)
5 print(np.nan - np.nan)
6 print(0.3 == 3 * 0.1)
7
```

The Run console at the bottom shows the output of the script:

```
nan
True
False
nan
False
```

Below the output, it states 'Process finished with exit code 0'. The status bar at the bottom indicates '7:1 CRLF UTF-8 4 spaces Python 3.10 (pythonProject)' and the date '08-03-2022'.

4.a :-



The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows the same directory structure as in the previous screenshot. The main editor window displays a Python script named 'change 1st char to uppercase.py' with the following code:

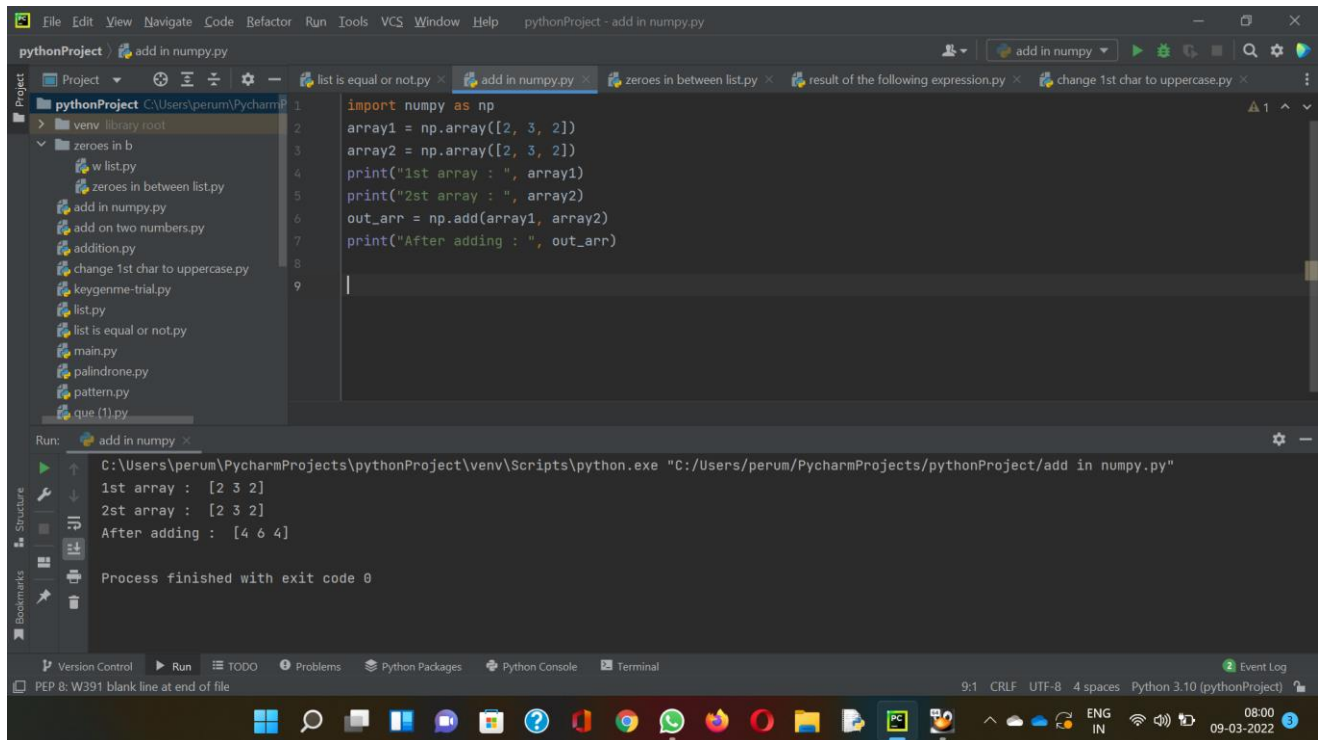
```
1 import pandas as pd
2 series = pd.Series(['he', 'is', 'a', 'good', 'boy'])
3 newSeries = series.str.title()
4 print("Resulting Series : ")
5 print(newSeries)
6
7
8
```

The Run console at the bottom shows the output of the script:

```
C:\Users\perum\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:\Users\perum\PycharmProjects\pythonProject\change 1st char to uppercase.py"
Resulting Series :
0    He
1    Is
2     A
3   Good
4    Boy
dtype: object
```

The status bar at the bottom indicates '6:1 CRLF UTF-8 4 spaces Python 3.10 (pythonProject)' and the date '09-03-2022'.

5.A.a

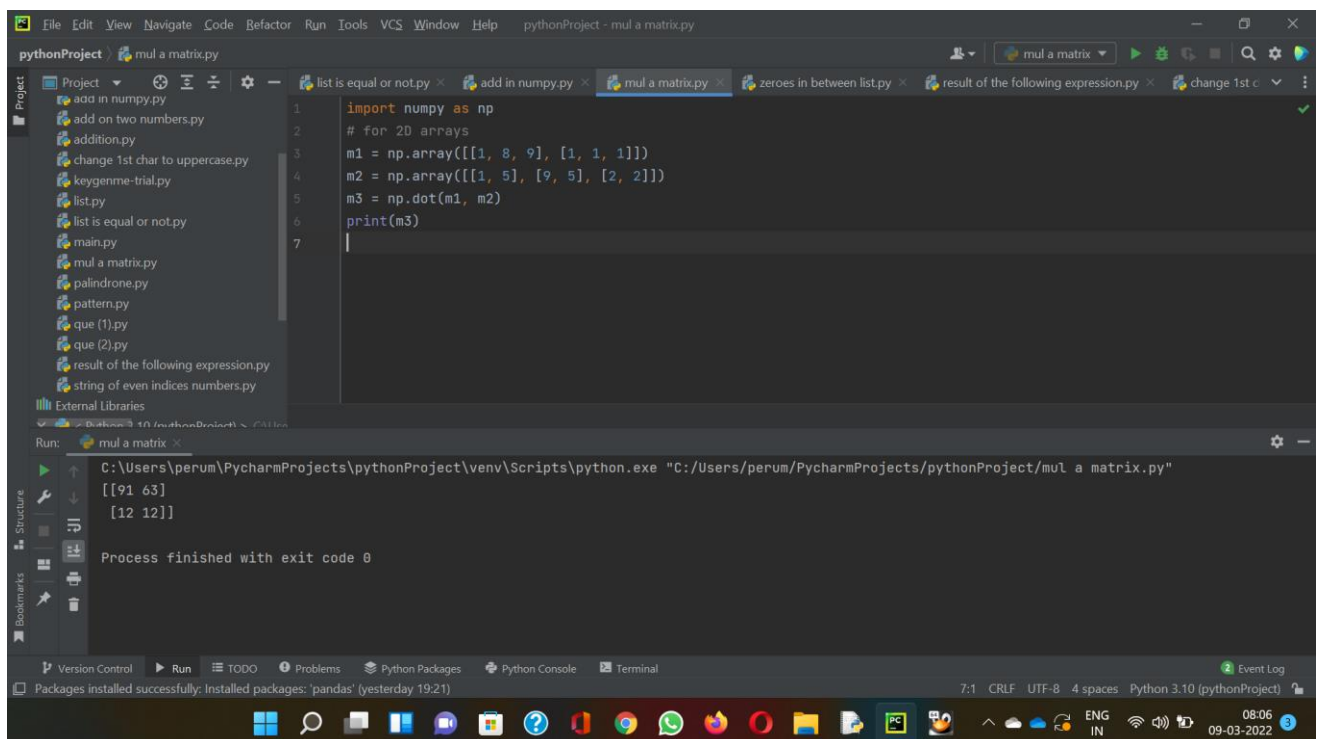


The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows a directory structure with files like 'list.py', 'zeros in between list.py', 'add in numpy.py', 'add on two numbers.py', 'addition.py', 'change 1st char to uppercase.py', 'keygenme-trial.py', 'list.py', 'list is equal or not.py', 'main.py', 'palindrome.py', 'pattern.py', and 'que (1).py'. The main editor window displays the code for 'add in numpy.py':

```
1 import numpy as np
2 array1 = np.array([2, 3, 2])
3 array2 = np.array([2, 3, 2])
4 print("1st array : ", array1)
5 print("2st array : ", array2)
6 out_arr = np.add(array1, array2)
7 print("After adding : ", out_arr)
8
9
```

The Run window at the bottom shows the command: `C:\Users\perum\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/perum/PycharmProjects/pythonProject/add in numpy.py"` and the output: `1st array : [2 3 2]`, `2st array : [2 3 2]`, `After adding : [4 6 4]`. The status bar at the bottom indicates 'Python 3.10 (pythonProject)'.

5.B.a :-



The screenshot shows the PyCharm IDE with a project named 'pythonProject'. The file explorer on the left shows a directory structure with files like 'add in numpy.py', 'add on two numbers.py', 'addition.py', 'change 1st char to uppercase.py', 'keygenme-trial.py', 'list.py', 'list is equal or not.py', 'main.py', 'mul a matrix.py', 'palindrome.py', 'pattern.py', 'que (1).py', 'que (2).py', 'result of the following expression.py', and 'string of even indices numbers.py'. The main editor window displays the code for 'mul a matrix.py':

```
1 import numpy as np
2 # for 2D arrays
3 m1 = np.array([[1, 8, 9], [1, 1, 1]])
4 m2 = np.array([[1, 5], [9, 5], [2, 2]])
5 m3 = np.dot(m1, m2)
6 print(m3)
7
```

The Run window at the bottom shows the command: `C:\Users\perum\PycharmProjects\pythonProject\venv\Scripts\python.exe "C:/Users/perum/PycharmProjects/pythonProject/mul a matrix.py"` and the output: `[[91 63]`, `[12 12]]`. The status bar at the bottom indicates 'Python 3.10 (pythonProject)'.