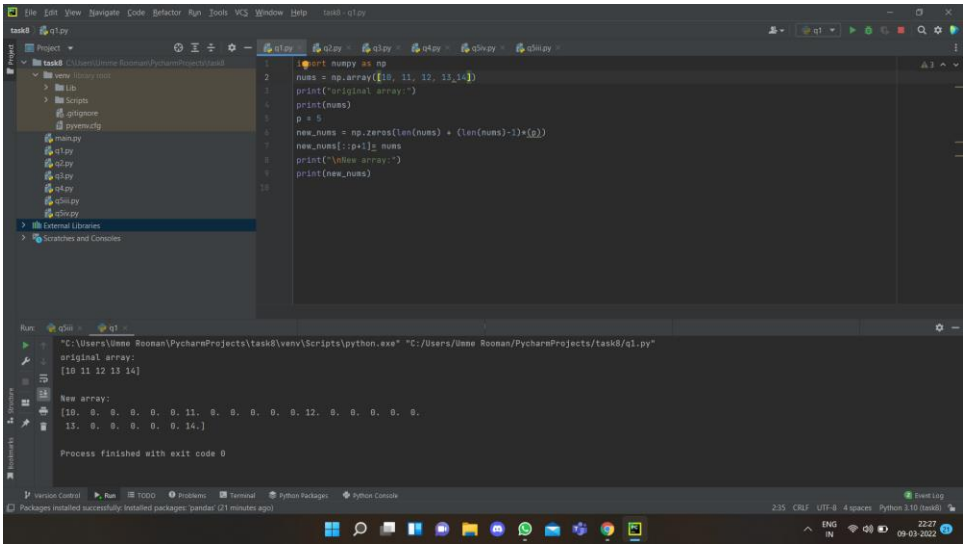
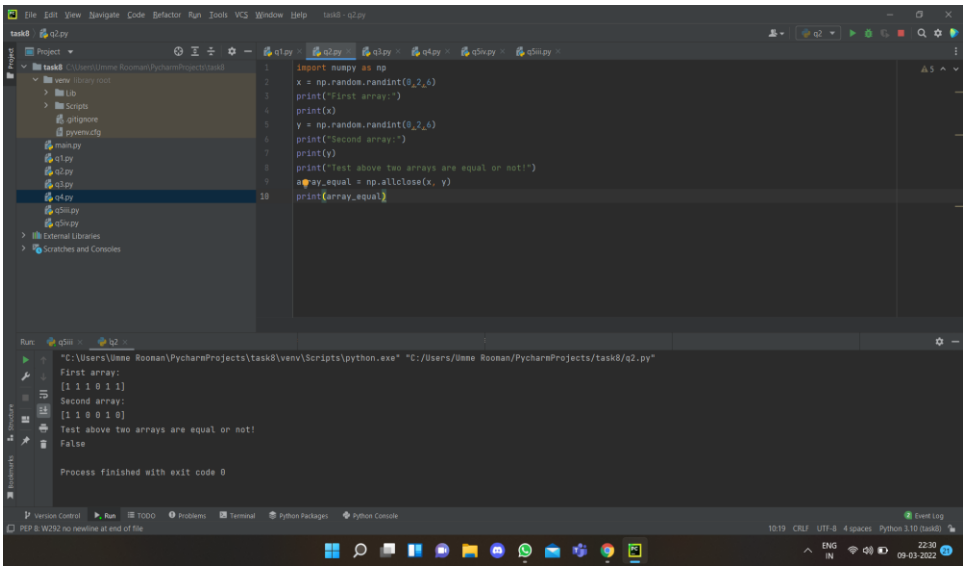
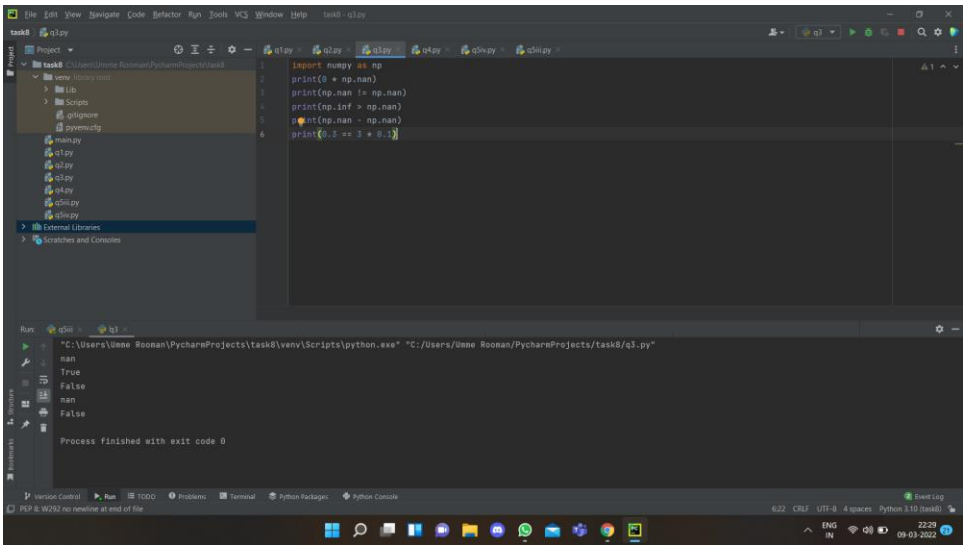
1.


import numpy as np
nums = np.array([10, 11, 12, 13,14])
print("original array:")
print(nums)
p = 5
new_nums = np.zeros(len(nums) + (len(nums)-1)*(p))
new_nums[::p+1]= nums
print("\nNew array:")
print(new_nums)
"C:\Users\Umme Rooman\PycharmProjects\task8\venv\Scripts\python.exe" "C:/Users/Umme Rooman/PycharmProjects/task8/q1.py"
original array:
[10 11 12 13 14]
New array:
[10. 0. 0. 0. 0. 11. 0. 0. 0. 0. 12. 0. 0. 0. 0.
13. 0. 0. 0. 0. 14.]
Process finished with exit code 0

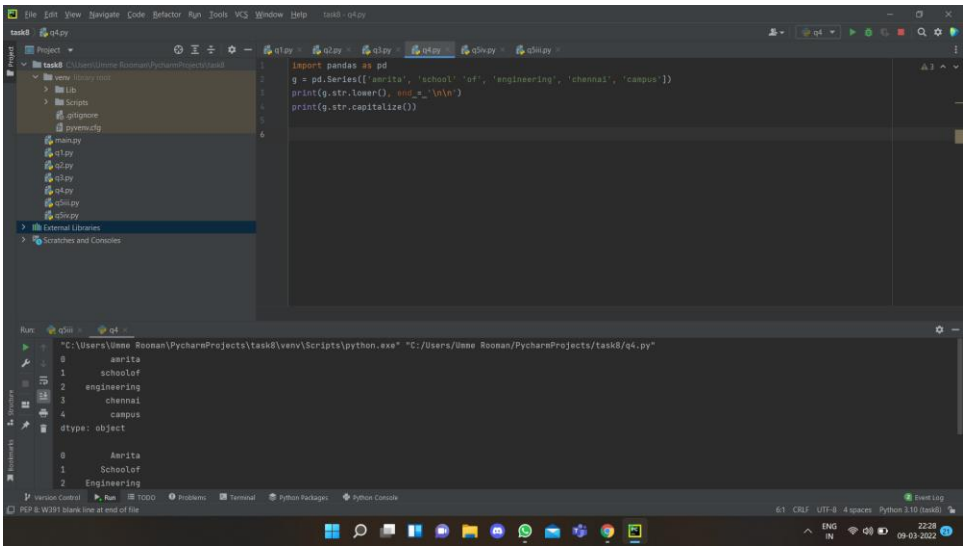
2.

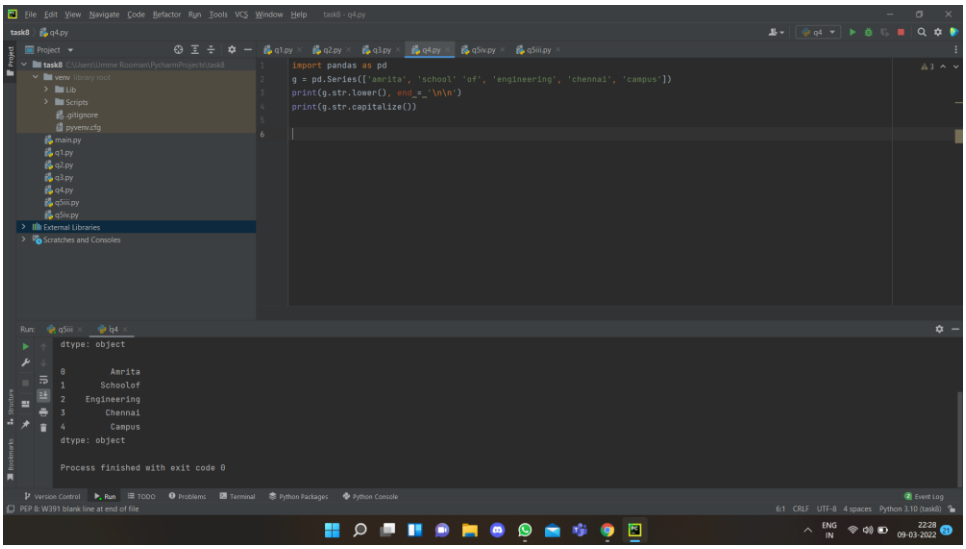

import numpy as np
x = np.random.randint(0,2,6)
print("First array:")
print(x)
y = np.random.randint(0,2,6)
print("Second array:")
print(y)
print("Test above two arrays are equal or not!")
array_equal = np.allclose(x, y)
print(array_equal)
"C:\Users\Umme Rooman\PycharmProjects\task8\venv\Scripts\python.exe" "C:/Users/Umme Rooman/PycharmProjects/task8/q2.py"
First array:
[1 1 1 0 1 1]
Second array:
[1 1 0 0 1 0]
Test above two arrays are equal or not!
False
Process finished with exit code 0

3.

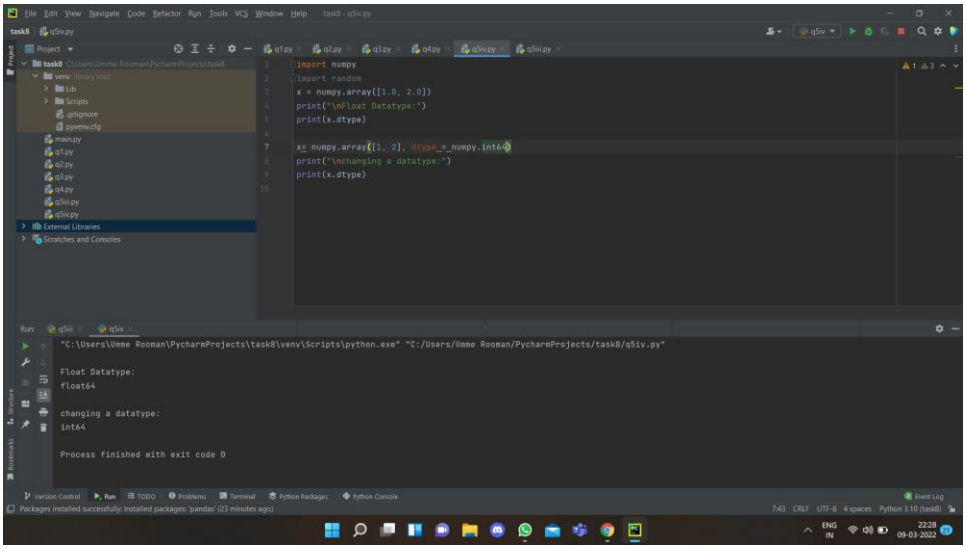

import numpy as np
print(0 * np.nan)
print(np.nan != np.nan)
print(np.inf > np.nan)
print(np.nan - np.nan)
print(0.3 == 3 * 0.1)
"C:\Users\Umme Rooman\PycharmProjects\task8\venv\Scripts\python.exe" "C:/Users/Umme Rooman/PycharmProjects/task8/q3.py"
nan
True
False
nan
False
Process finished with exit code 0

4.

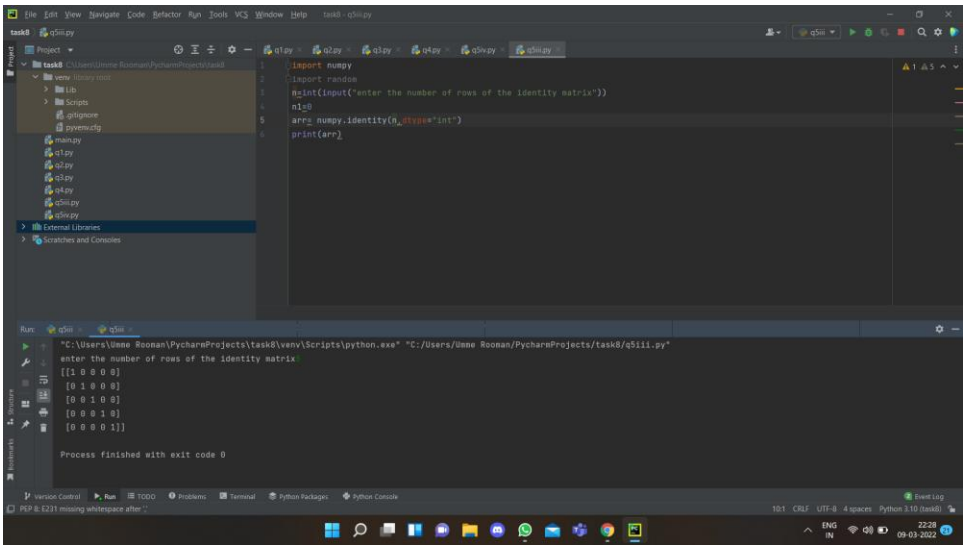

import pandas as pd
g = pd.Series(['amrita', 'school' 'of', 'engineering', 'chennai', 'campus'])
print(g.str.lower(), end_=_'\n\n')
print(g.str.capitalize())
"C:\Users\Umme Rooman\PycharmProjects\task8\venv\Scripts\python.exe" "C:/Users/Umme Rooman/PycharmProjects/task8/q4.py"
0 amrita
1 schoolof
2 engineering
3 chennai
4 campus
dtype: object
0 Amrita
1 Schoolof
2 Engineering



5. Datatype conversion



Identity matrix


import numpy
import random
n=int(input("enter the number of rows of the identity matrix"))
n1=0
arr= numpy.identity(n,dtype='int')
print(arr)
"C:\Users\Umme Rooman\PycharmProjects\task8\venv\Scripts\python.exe" "C:/Users/Umme Rooman/PycharmProjects/task8/q5iii.py"
enter the number of rows of the identity matrix5
[[1 0 0 0 0]
[0 1 0 0 0]
[0 0 1 0 0]
[0 0 0 1 0]
[0 0 0 0 1]]
Process finished with exit code 0