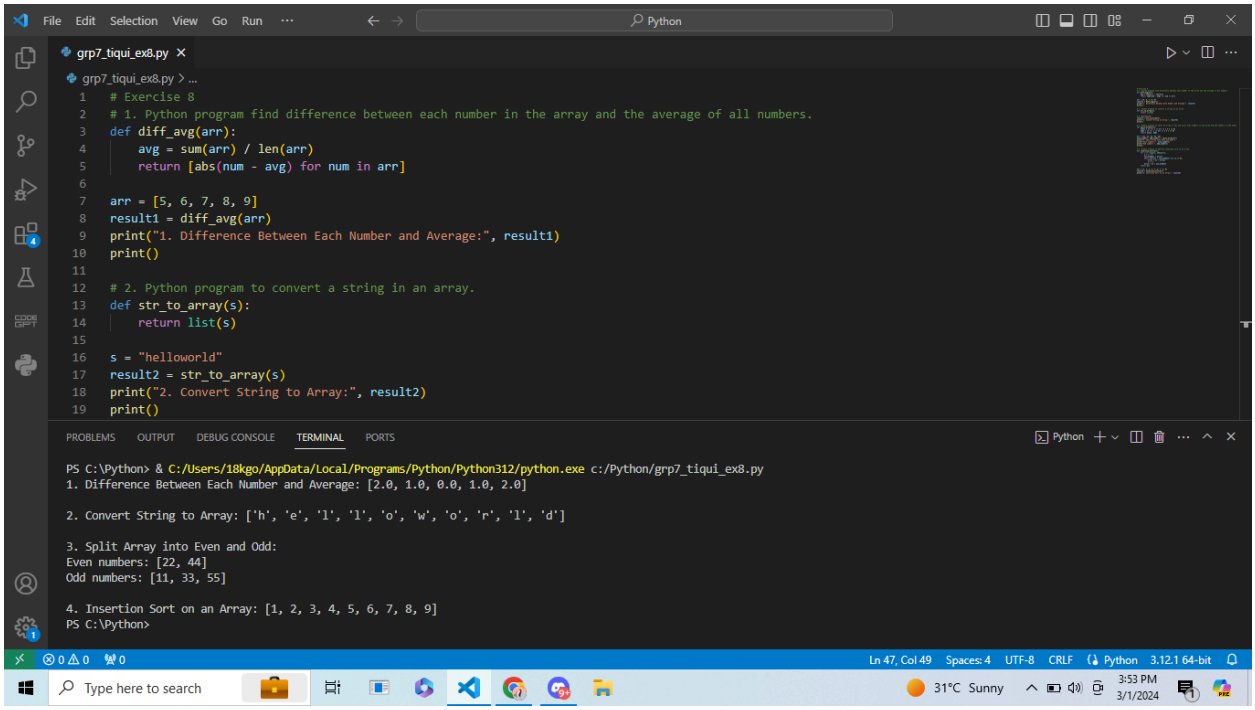
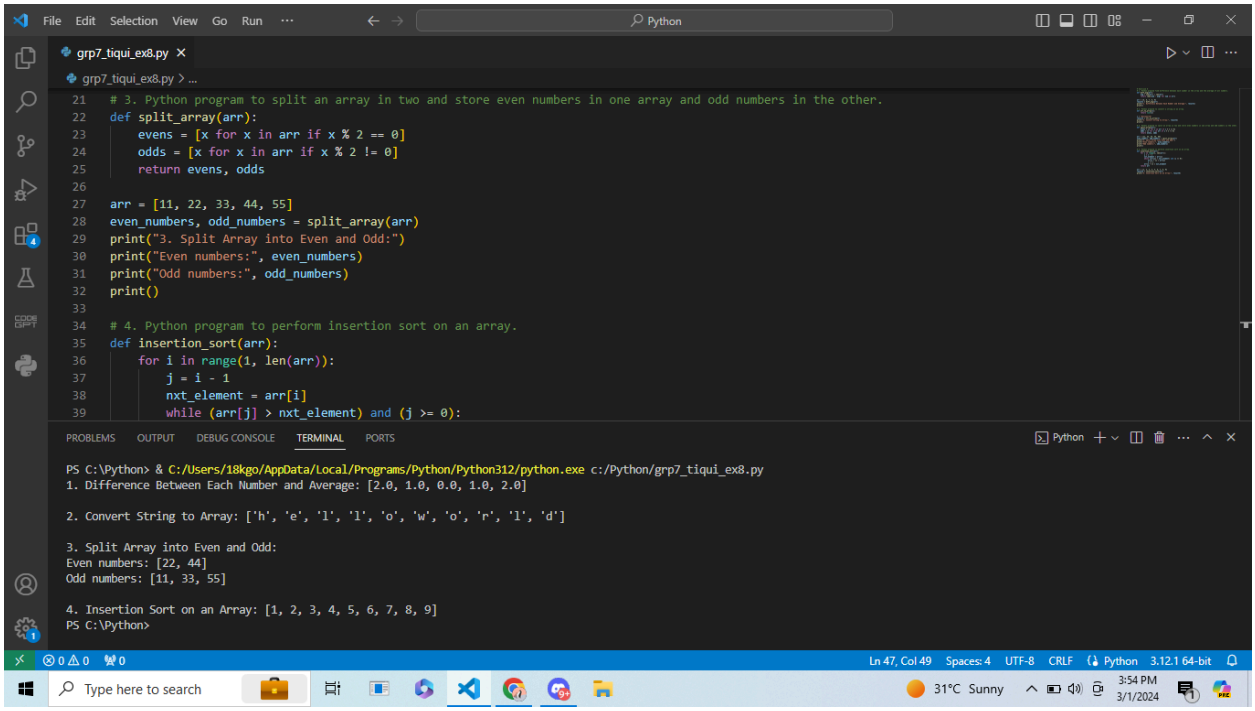


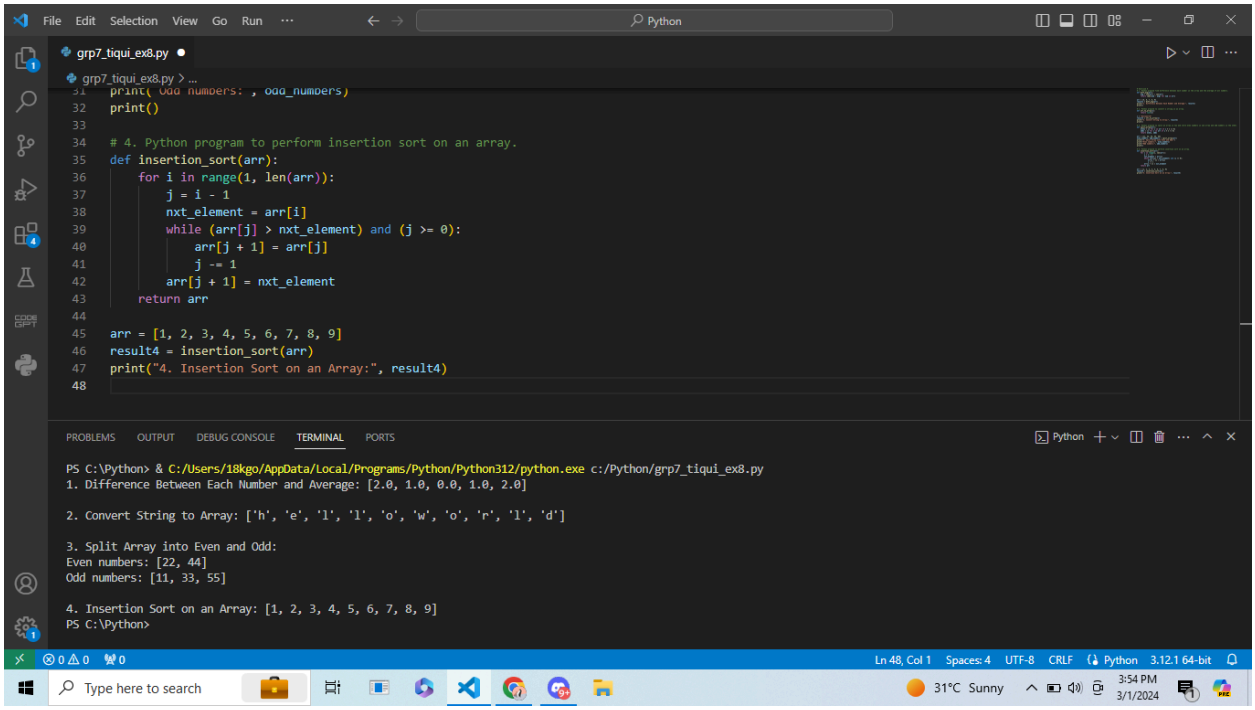
```python
# Exercise 8
# 1. Python program find difference between each number in the array and the average of all numbers.
def diff_avg(arr):
    avg = sum(arr) / len(arr)
    return [abs(num - avg) for num in arr]

arr = [5, 6, 7, 8, 9]
result1 = diff_avg(arr)
print("1. Difference Between Each Number and Average:", result1)
print()

# 2. Python program to convert a string in an array.
def str_to_array(s):
    return list(s)

s = "helloworld"
result2 = str_to_array(s)
print("2. Convert String to Array:", result2)
print()
```

```
PS C:\Python> & C:/Users/18kgo/AppData/Local/Programs/Python/Python312/python.exe c:/Python/grp7_tiqui_ex8.py
1. Difference Between Each Number and Average: [2.0, 1.0, 0.0, 1.0, 2.0]

2. Convert String to Array: ['h', 'e', 'l', 'l', 'o', 'w', 'o', 'r', 'l', 'd']

3. Split Array into Even and Odd:
Even numbers: [22, 44]
Odd numbers: [11, 33, 55]

4. Insertion Sort on an Array: [1, 2, 3, 4, 5, 6, 7, 8, 9]
PS C:\Python>
```



```python
# 3. Python program to split an array in two and store even numbers in one array and odd numbers in the other.
def split_array(arr):
    evens = [x for x in arr if x % 2 == 0]
    odds = [x for x in arr if x % 2 != 0]
    return evens, odds

arr = [11, 22, 33, 44, 55]
even_numbers, odd_numbers = split_array(arr)
print("3. Split Array into Even and Odd:")
print("Even numbers:", even_numbers)
print("Odd numbers:", odd_numbers)
print()

# 4. Python program to perform insertion sort on an array.
def insertion_sort(arr):
    for i in range(1, len(arr)):
        j = i - 1
        nxt_element = arr[i]
        while (arr[j] > nxt_element) and (j >= 0):
```

```
PS C:\Python> & C:/Users/18kgo/AppData/Local/Programs/Python/Python312/python.exe c:/Python/grp7_tiqui_ex8.py
1. Difference Between Each Number and Average: [2.0, 1.0, 0.0, 1.0, 2.0]

2. Convert String to Array: ['h', 'e', 'l', 'l', 'o', 'w', 'o', 'r', 'l', 'd']

3. Split Array into Even and Odd:
Even numbers: [22, 44]
Odd numbers: [11, 33, 55]

4. Insertion Sort on an Array: [1, 2, 3, 4, 5, 6, 7, 8, 9]
PS C:\Python>
```


File Edit Selection View Go Run
Python
grp7_tiqui_ex8.py
print("Odd numbers: ", odd_numbers)
print()
# 4. Python program to perform insertion sort on an array.
def insertion_sort(arr):
for i in range(1, len(arr)):
j = i - 1
nxt_element = arr[i]
while (arr[j] > nxt_element) and (j >= 0):
arr[j + 1] = arr[j]
j -= 1
arr[j + 1] = nxt_element
return arr
arr = [1, 2, 3, 4, 5, 6, 7, 8, 9]
result4 = insertion_sort(arr)
print("4. Insertion Sort on an Array:", result4)
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
PS C:\Python> & C:/Users/18kgo/AppData/Local/Programs/Python/Python312/python.exe c:/Python/grp7_tiqui_ex8.py
1. Difference Between Each Number and Average: [2.0, 1.0, 0.0, 1.0, 2.0]
2. Convert String to Array: ['h', 'e', 'l', 'l', 'o', 'w', 'o', 'r', 'l', 'd']
3. Split Array into Even and Odd:
Even numbers: [22, 44]
Odd numbers: [11, 33, 55]
4. Insertion Sort on an Array: [1, 2, 3, 4, 5, 6, 7, 8, 9]
PS C:\Python>
Ln 48, Col 1 Spaces: 4 UTF-8 CRLF Python 3.12.1 64-bit
Type here to search
31°C Sunny
3:54 PM
3/1/2024