Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: Programming With Python (01CT1309)	**Aim:** Write a program to demonstrate working with tuples in python.	
Experiment No: 05	**Date:4-8-2025**	**Enrollment No: 92400133108**

Aim: Write a program to demonstrate working with tuples in python.

IDE:

Python Tuple

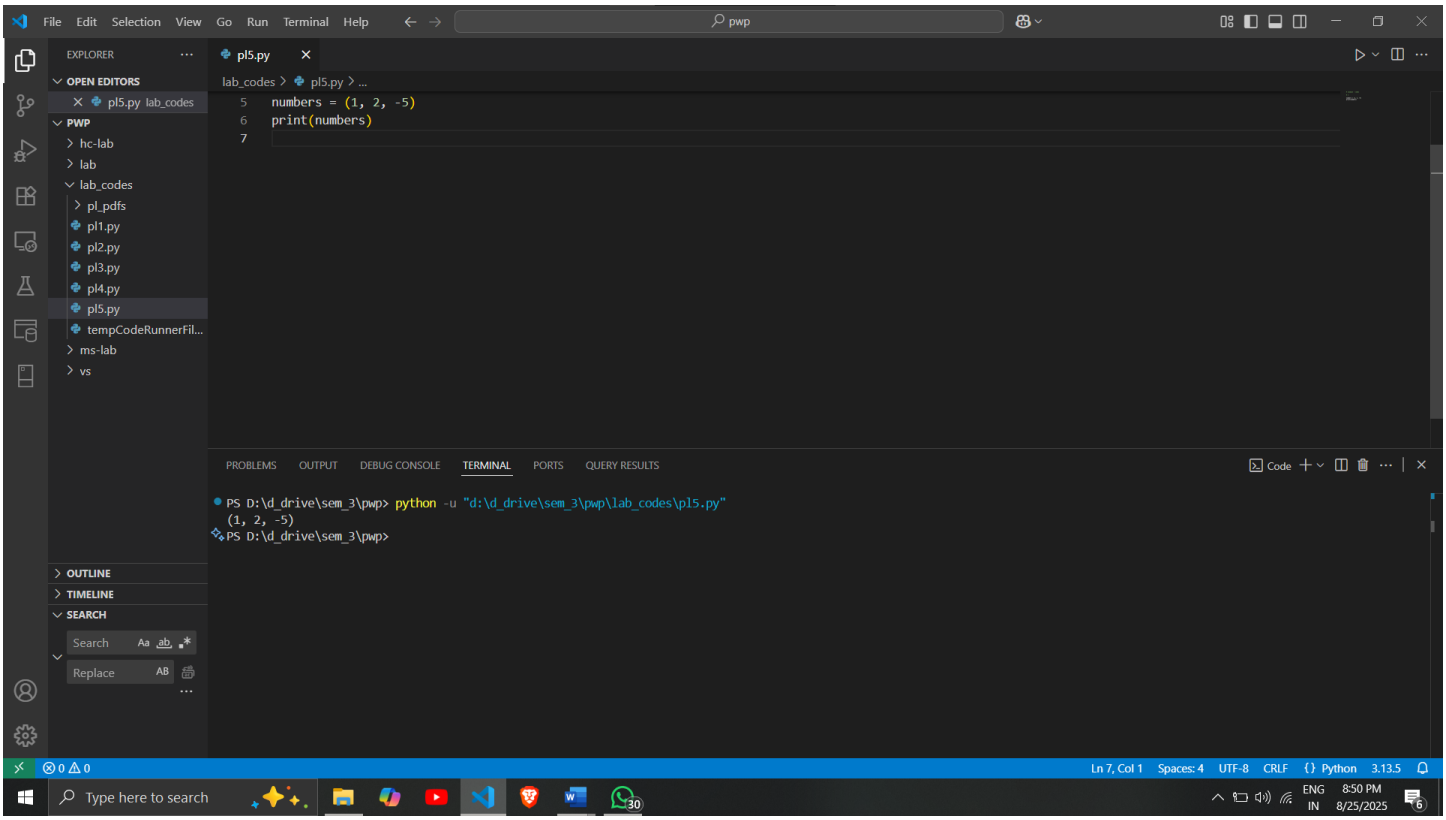
A tuple is a collection similar to a Python list. The primary difference is that we cannot modify a tuple once it is created.

A tuple represents a sequence of any objects separated by commas and enclosed in parentheses. A tuple is an immutable object, which means it cannot be changed, and we use it to represent fixed collections of items.

Create a Python Tuple

```
numbers = (1, 2, -5)
print(numbers)
```

Output:



Let's take a look at some examples of Python tuples:

() — an empty tuple

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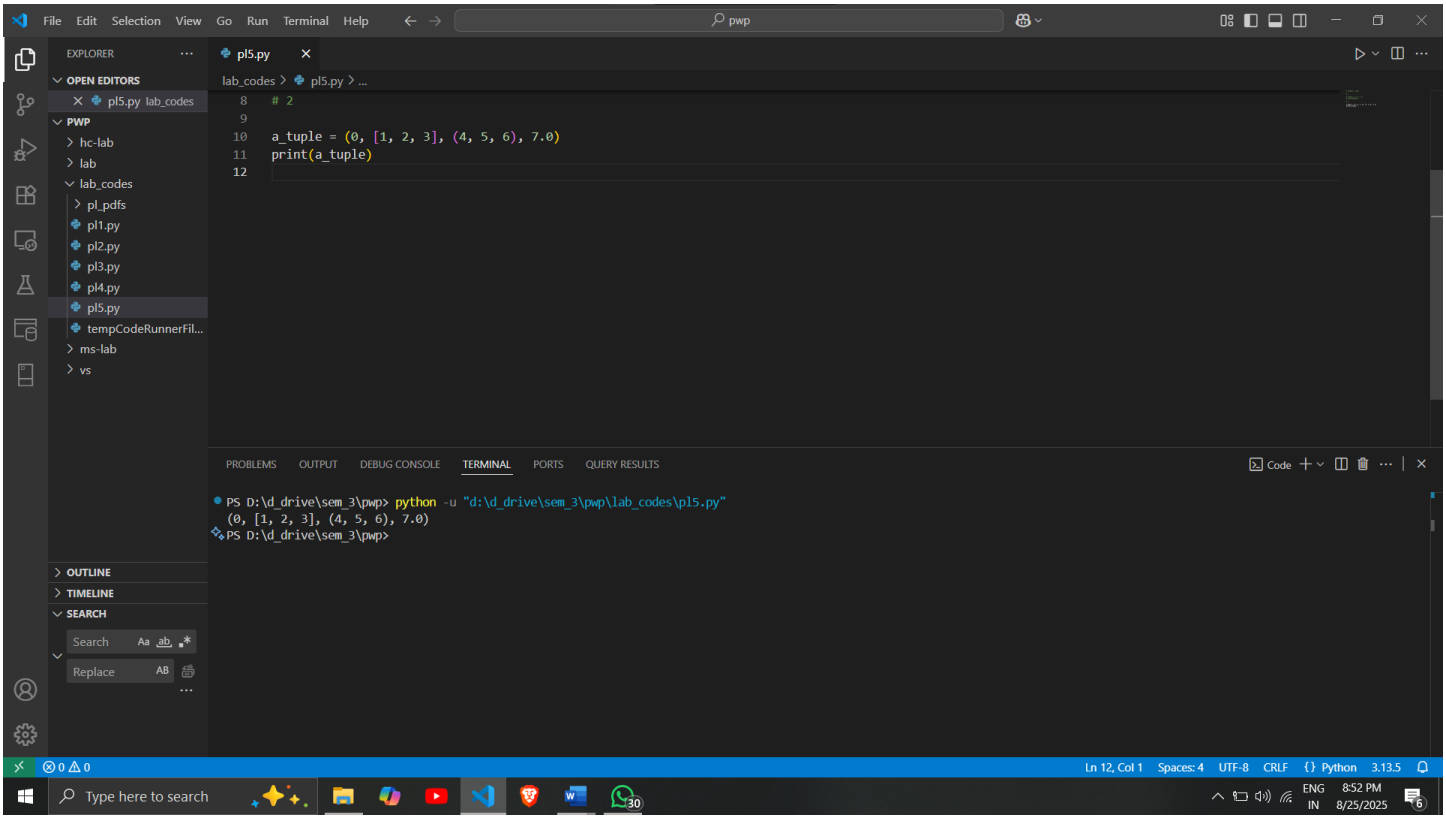
(1.0, 9.9, 10) — a tuple containing three numeric objects
('Casey', 'Darin', 'Bella', 'Mehdi') — a tuple containing four string objects
('10', 101, True) — a tuple containing a string, an integer, and a Boolean object
Also, other objects like lists and tuples can comprise a tuple, like this:
a_tuple = (0, [1, 2, 3], (4, 5, 6), 7.0)
print(a_tuple)
output



Access Tuple Items
Each item in a tuple is associated with a number, known as a index.
languages = ('Python', 'Swift', 'C++')
languages = ('Python', 'Swift', 'C++')
# access the first item
print(languages[0]) # Python
Output:

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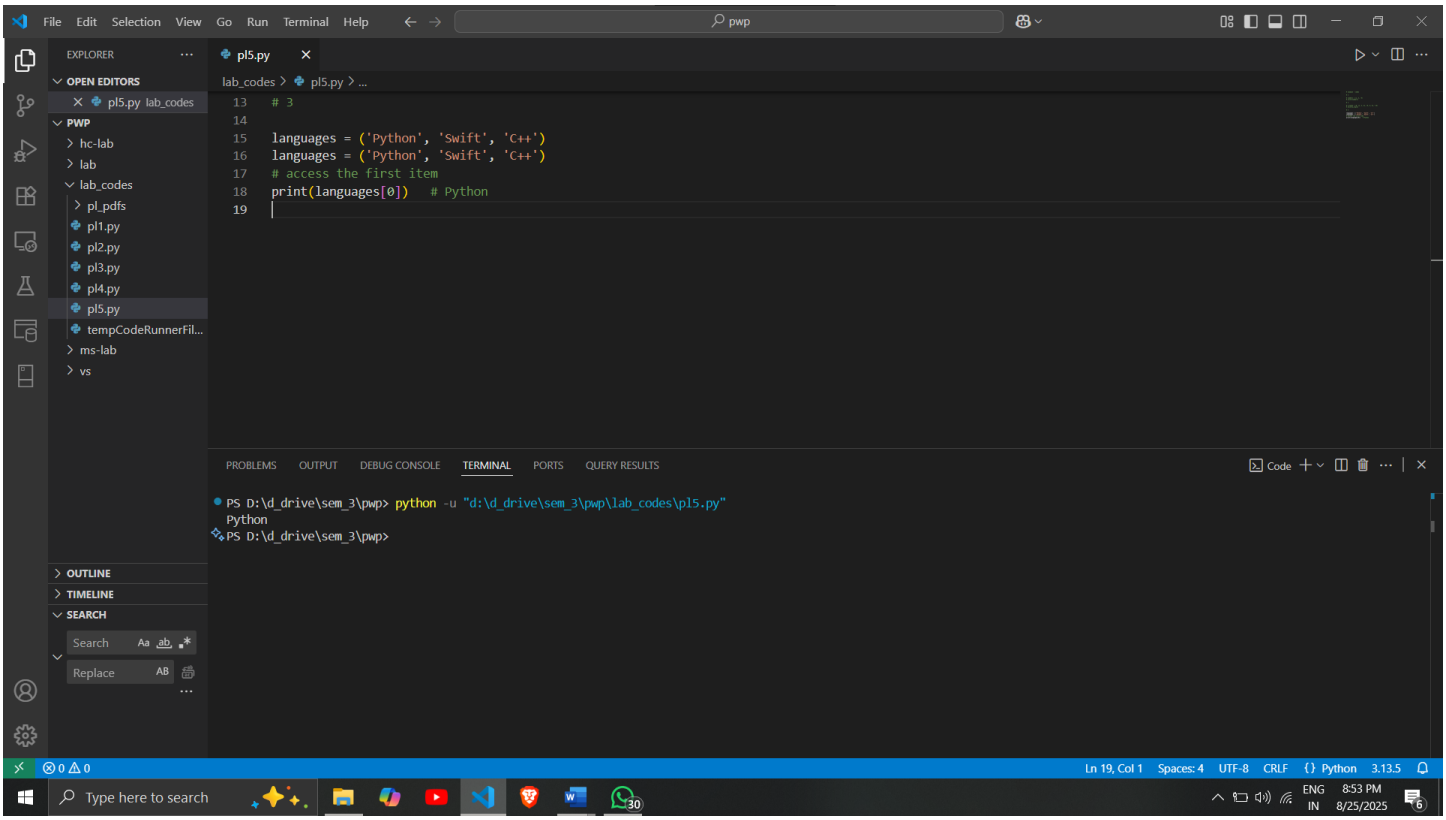

Python Tuple Length

```
cars = ('BMW', 'Tesla', 'Ford', 'Toyota')
print('Total Items:', len(cars))
```

output

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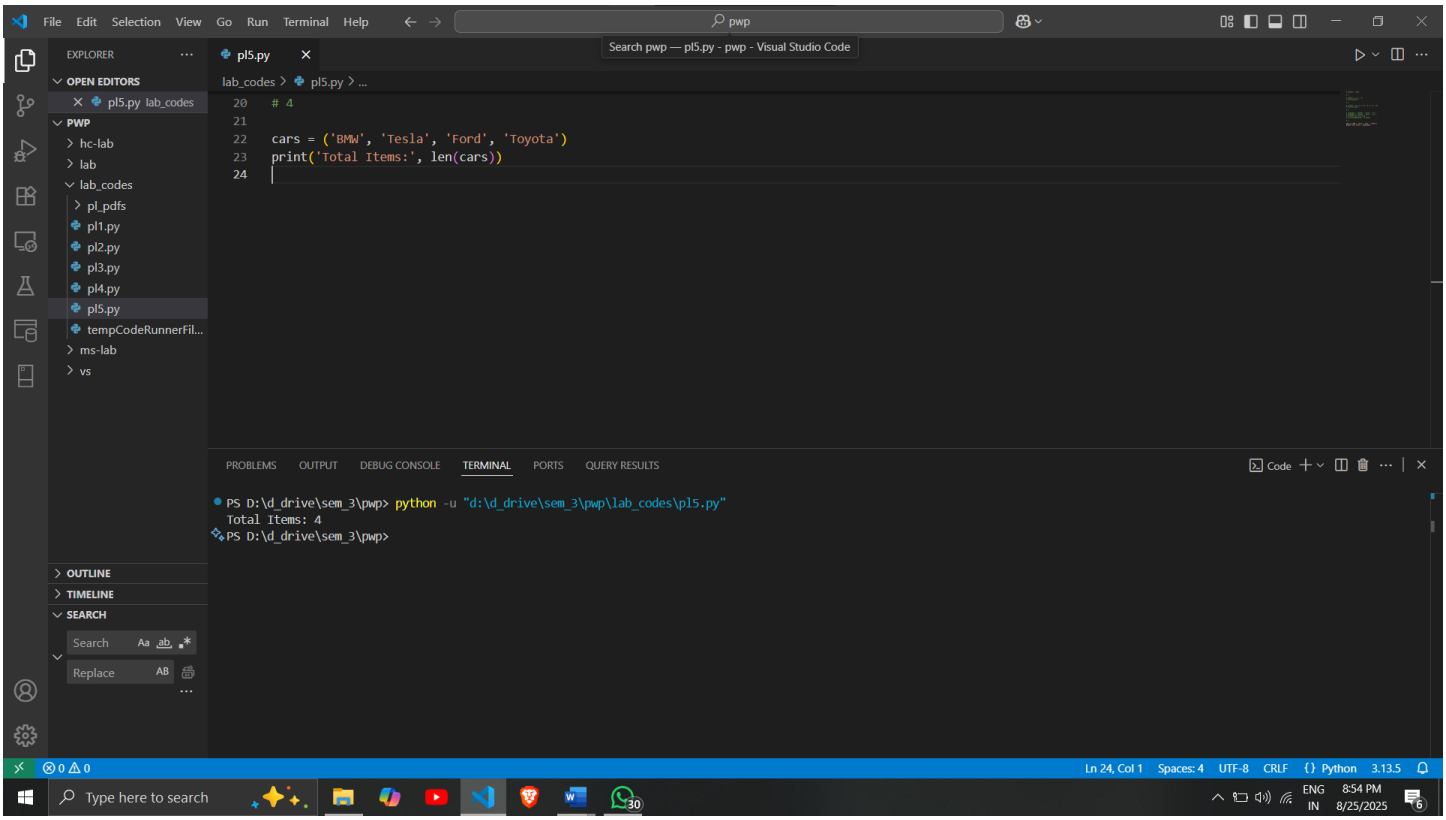

Task

```
a = tuple(range(5))
b = tuple(range(5,10))
print(b)
c = tuple(range(0,10,2))
print(c)
d = tuple(range(10,0,-2))
print(d)
```

output:

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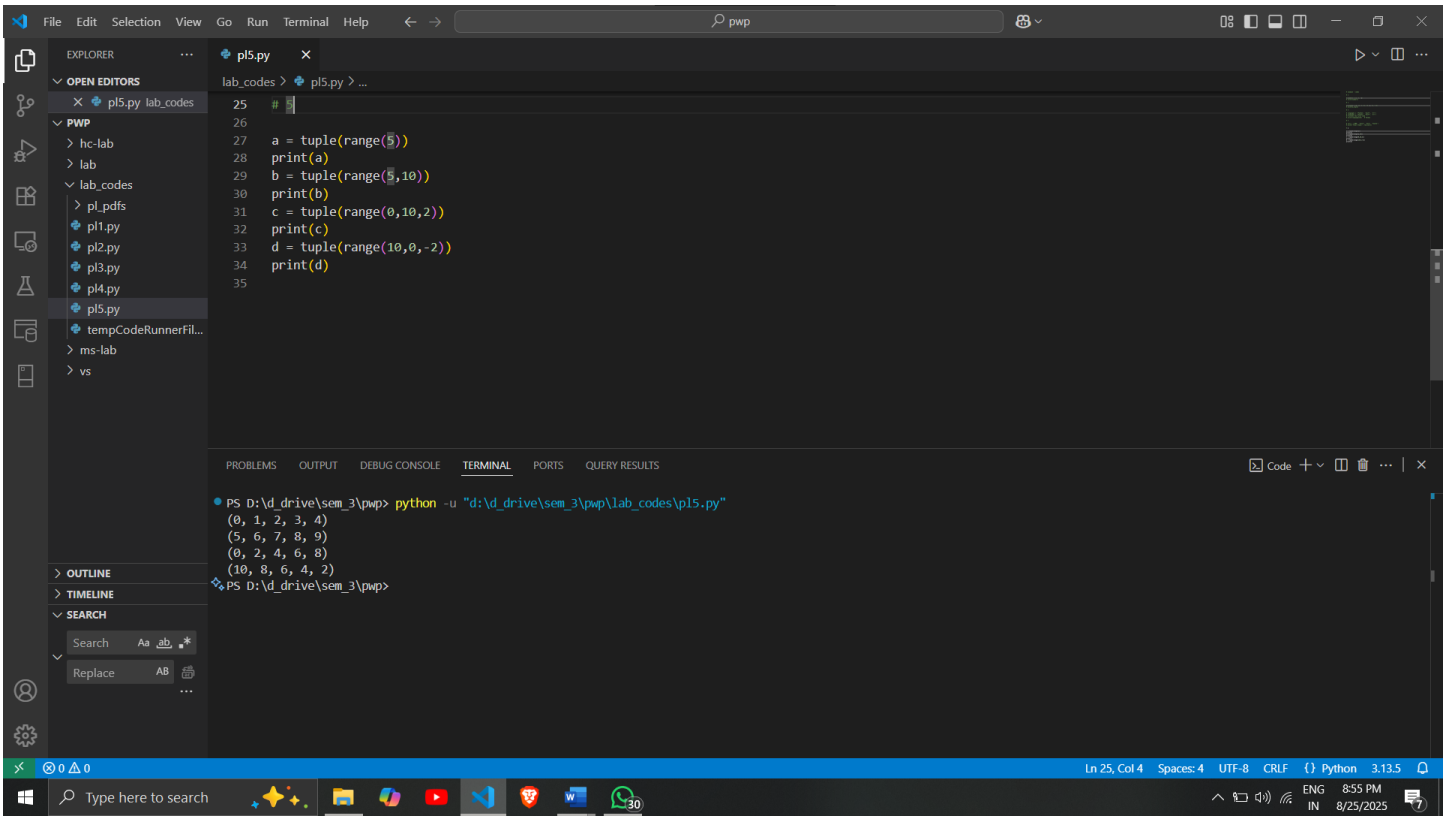

Task:
d = (3,[5,6,7],(4,5,6),[5,6,7,(6,7,8)],9,10)
Extract **6**
Syntax:
print(d[1][1])
print(d[2][2])
print(d[3][1])
print(d[3][3][0])

Important Functions of the Python Tuple
t1 = (2,3,4,5)
print(sum(t1))
output

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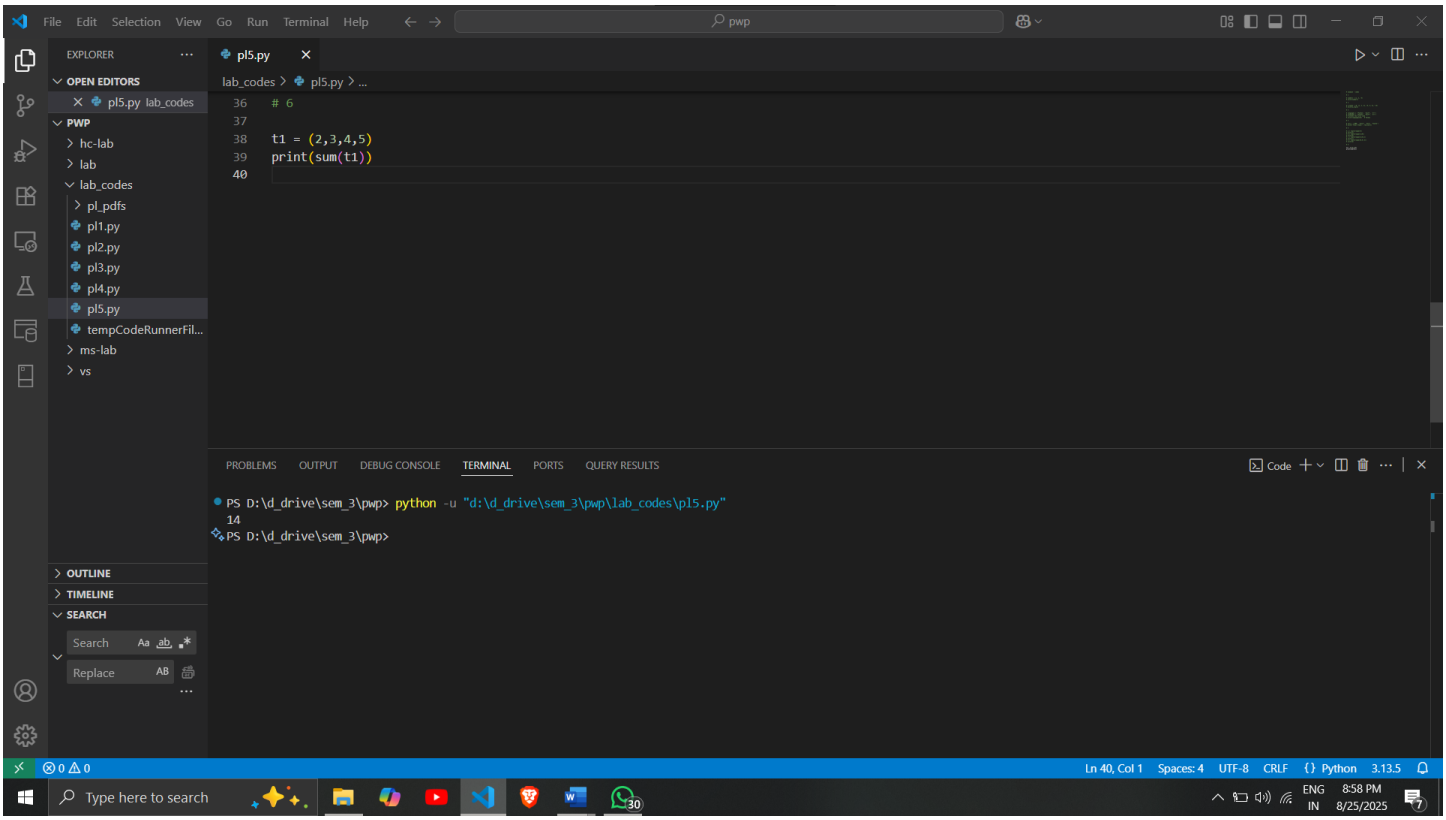

t3 = (3,4,4,2,2,3,6,7,4,4)
print(t3.count(4))
output

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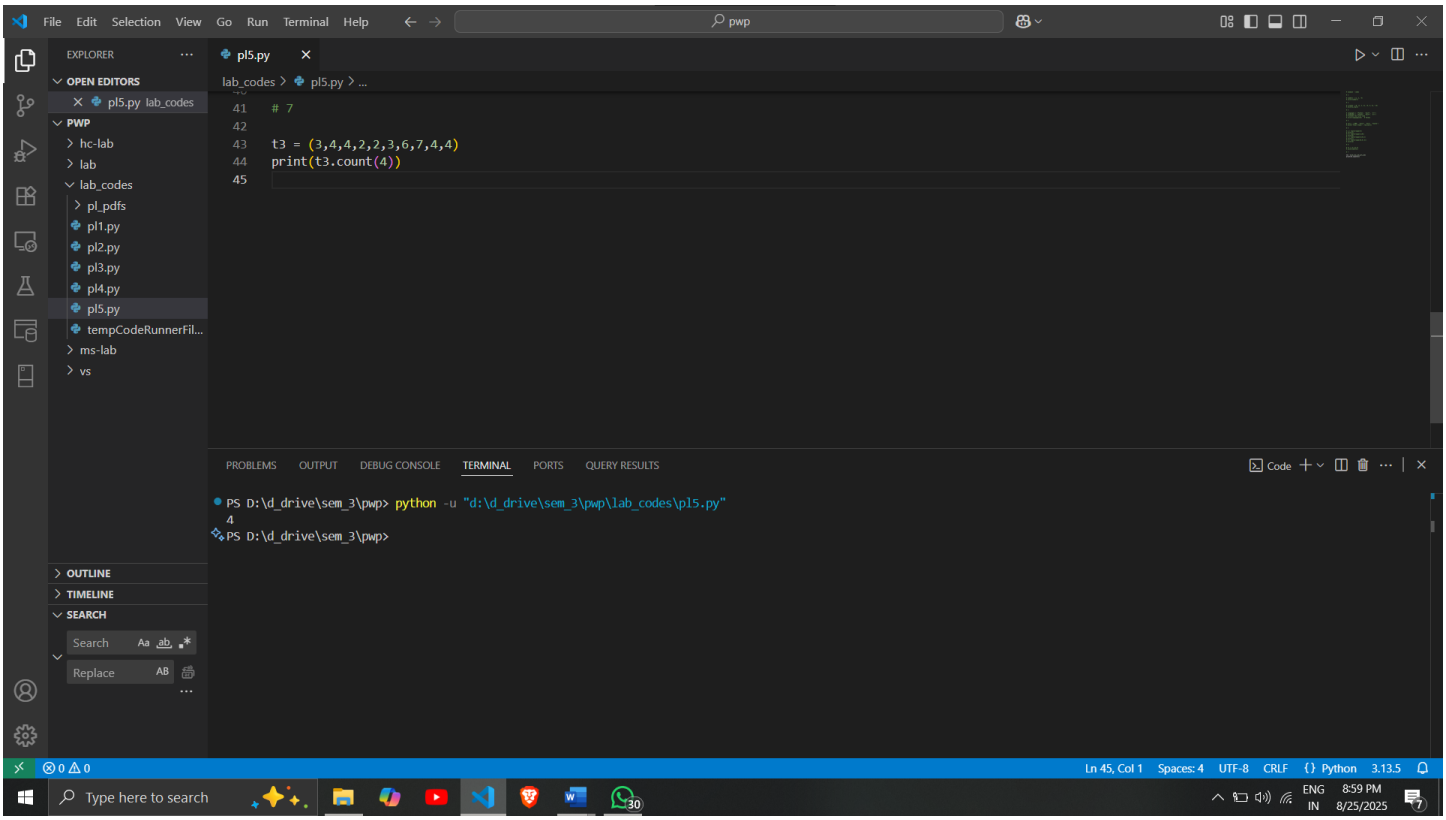

4. Python index() Method

t3 = (3,4,4,2,2,3,6,7,4,4)
print(t3.index(2))
print(t3.index(4,3,9))
Output:

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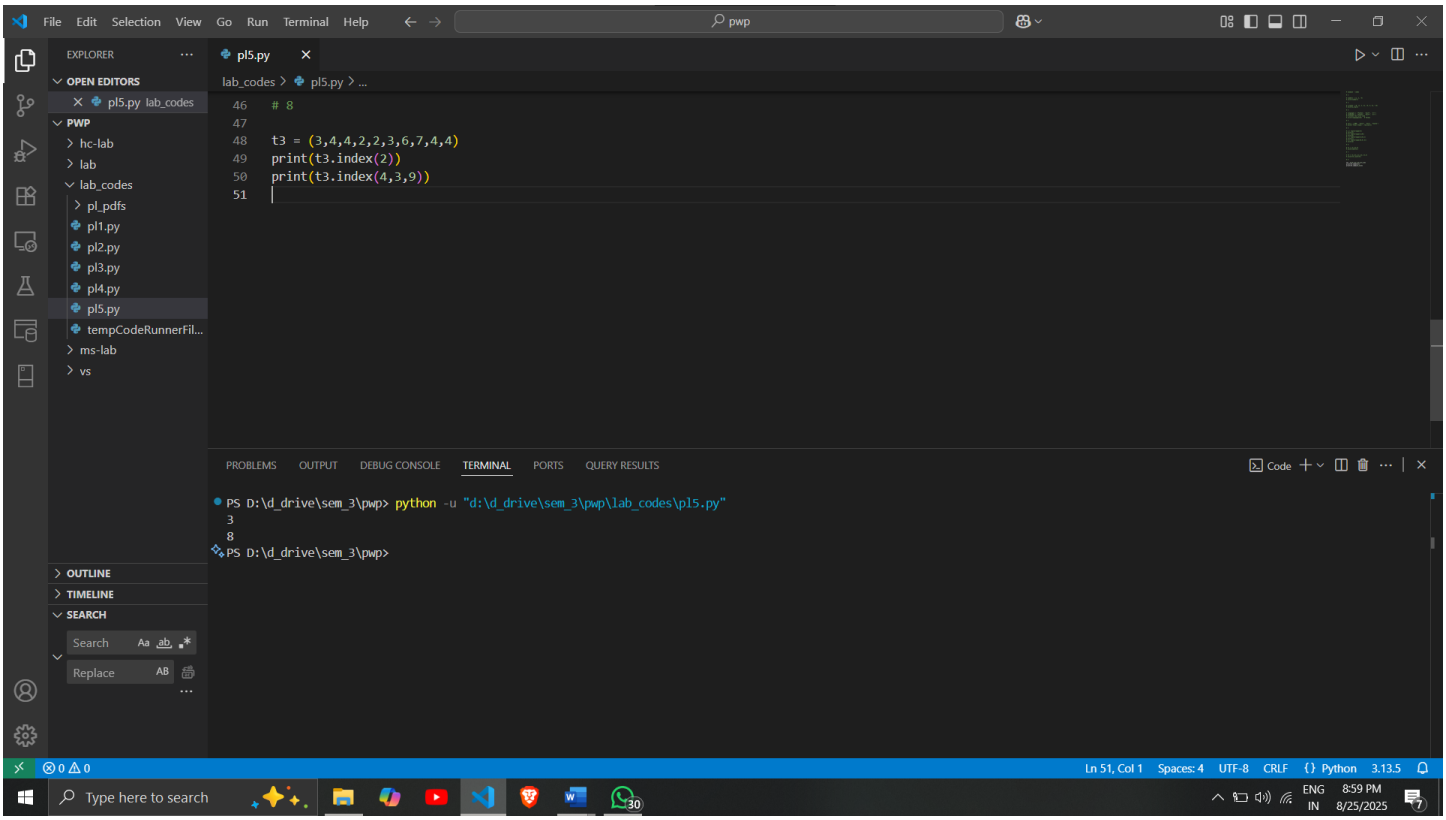

5. Python min() Method

t3 = (3,4,4,2,2,3,6,7,4,4)
print(min(t3))
output

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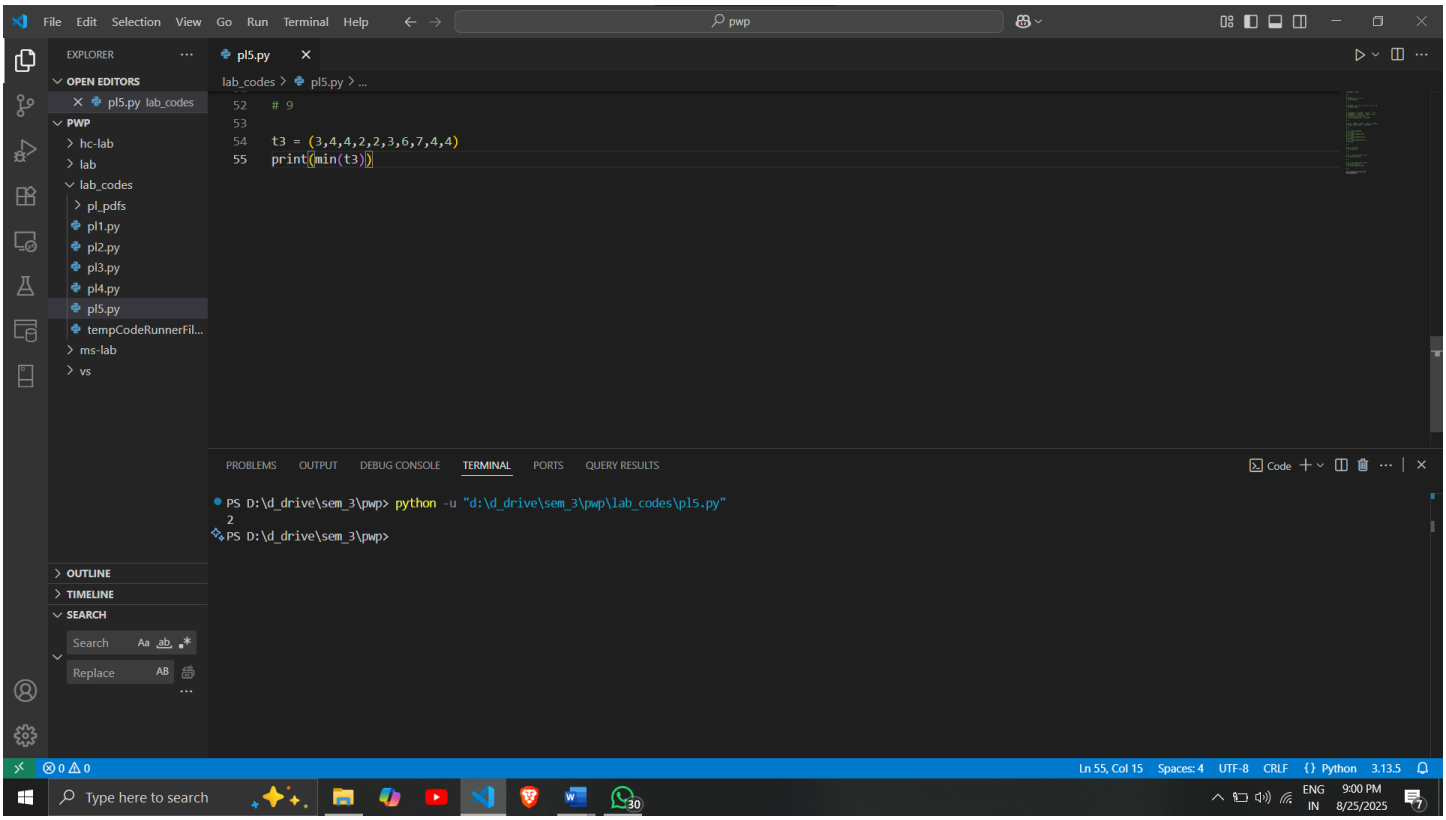

6. Python max() Method

Calculates the maximum of all the elements of the tuple.

numbers = (7, 2, 8, 5, 9)

print(max(numbers))

output

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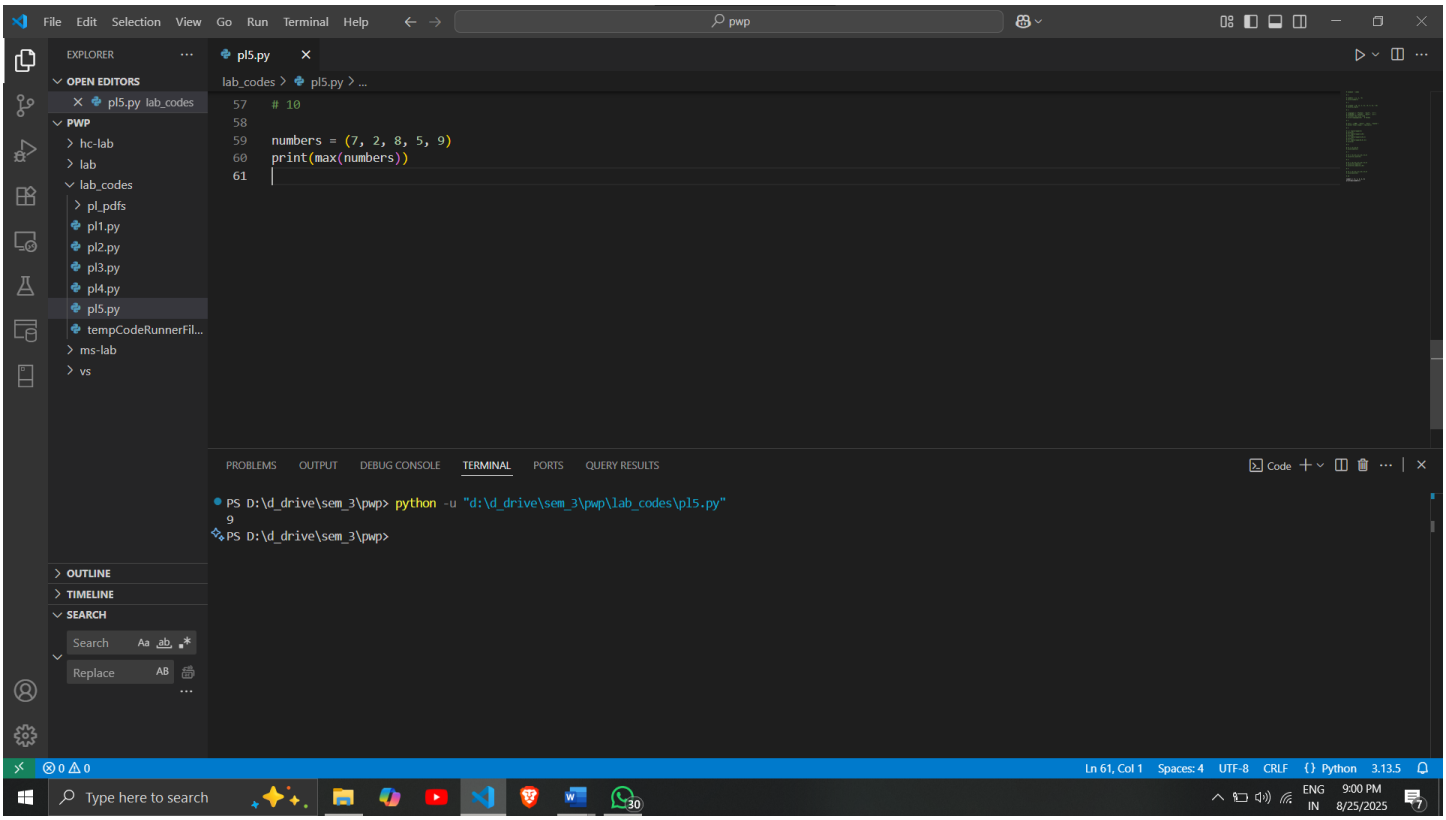

# removing duplicates from a tuple using dictionaries
a = (5,6,7,5,5,9,7)
b = ("a","b","v","b")
my_tu_1 = tuple(dict.fromkeys(a))
print(my_tu_1)
my_tu_2 = tuple(dict.fromkeys(b))
print(my_tu_2)
Output:

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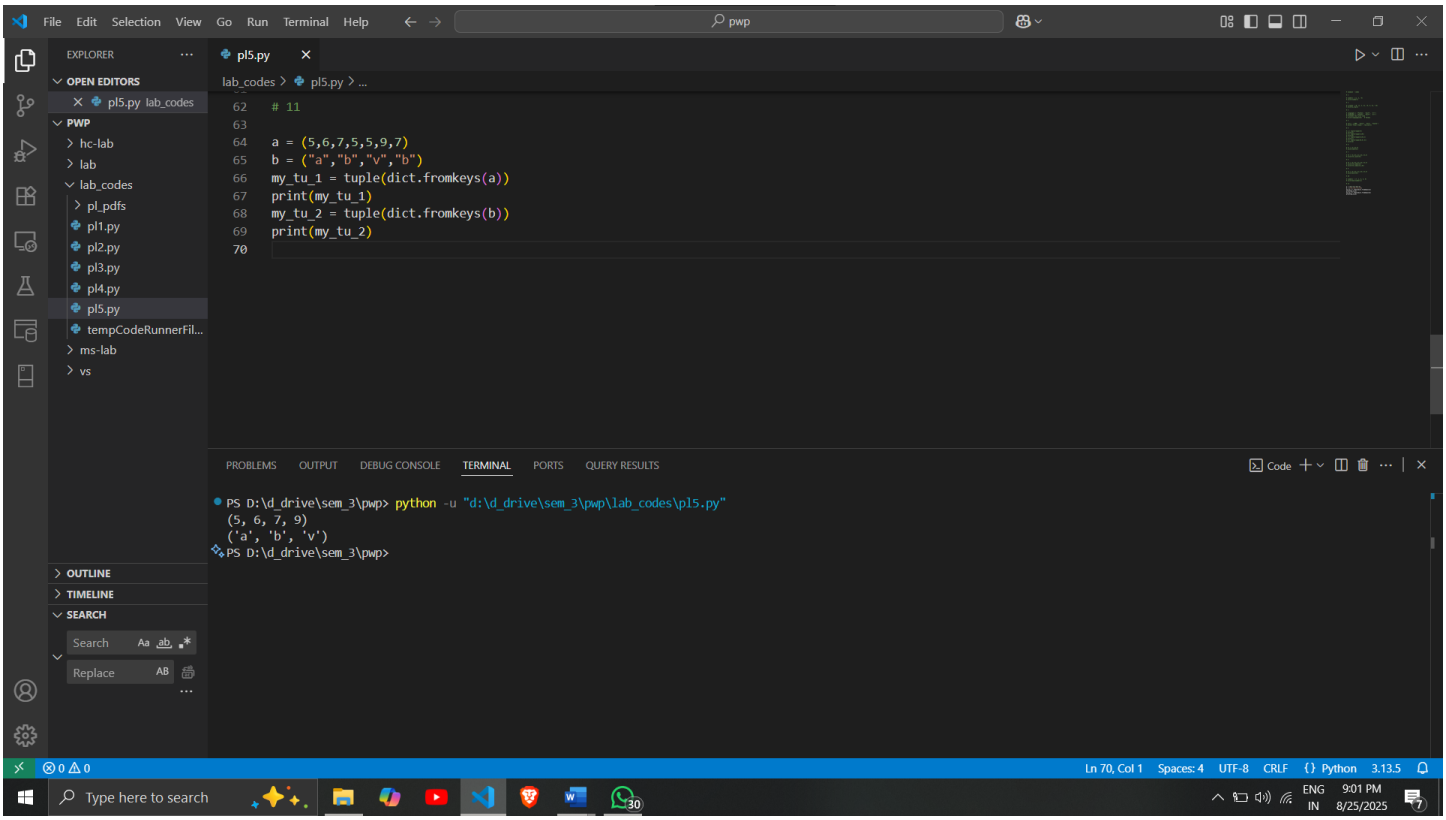

Combining tuples

first_names = ('Simon', 'Sarah', 'Mehdi', 'Fatime')

last_names = ('Sinek', 'Smith', 'Lotfinejad', 'Lopes')

ages = (49, 55, 39, 33)

zipped = tuple(zip(first_names, last_names,ages))

print(zipped)

output

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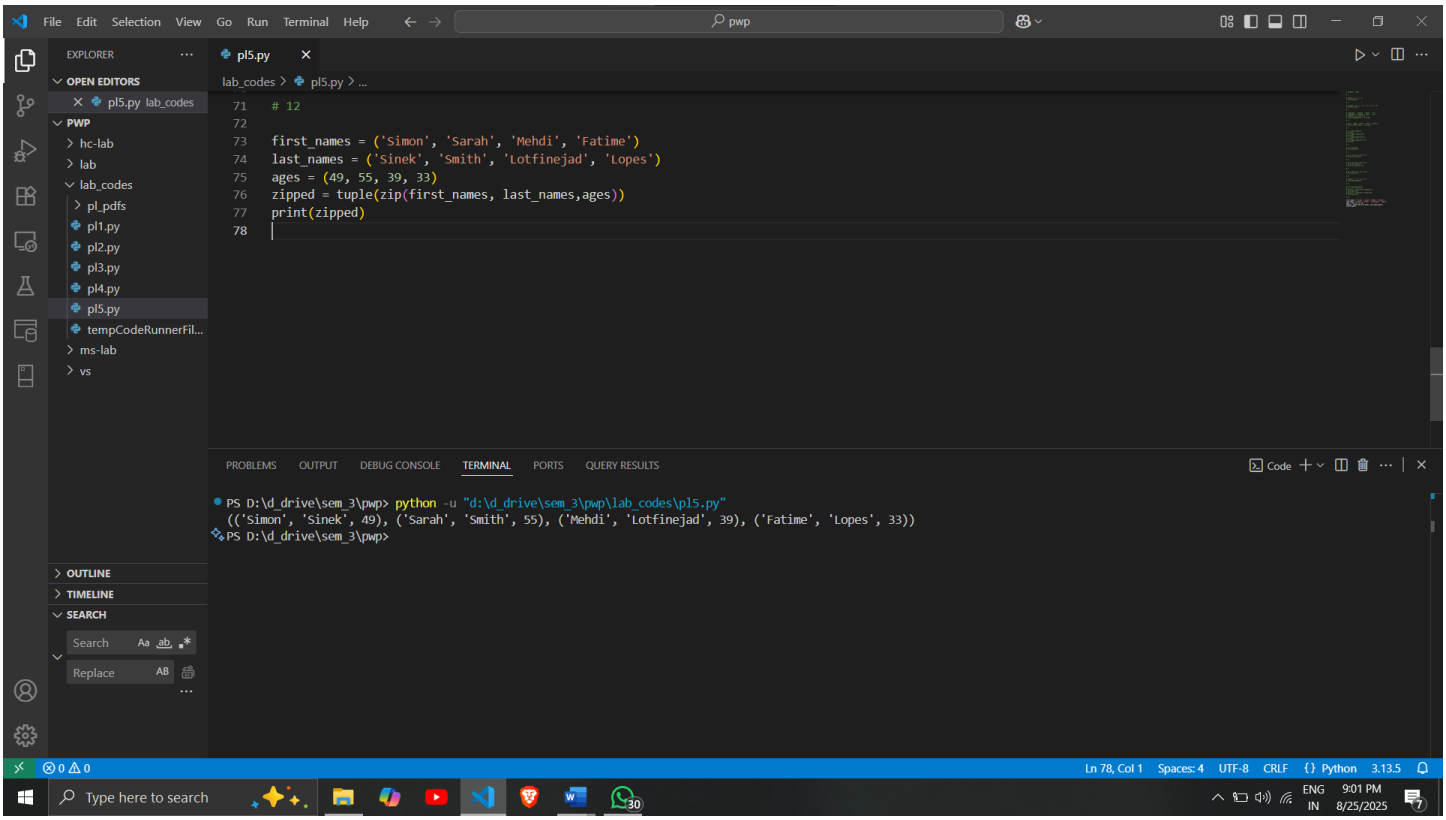

Flatten a tuple of tuples

b = ((1,2),(3,4),(5,6))
my = tuple(item for l in b for item in l)
print(my)
output

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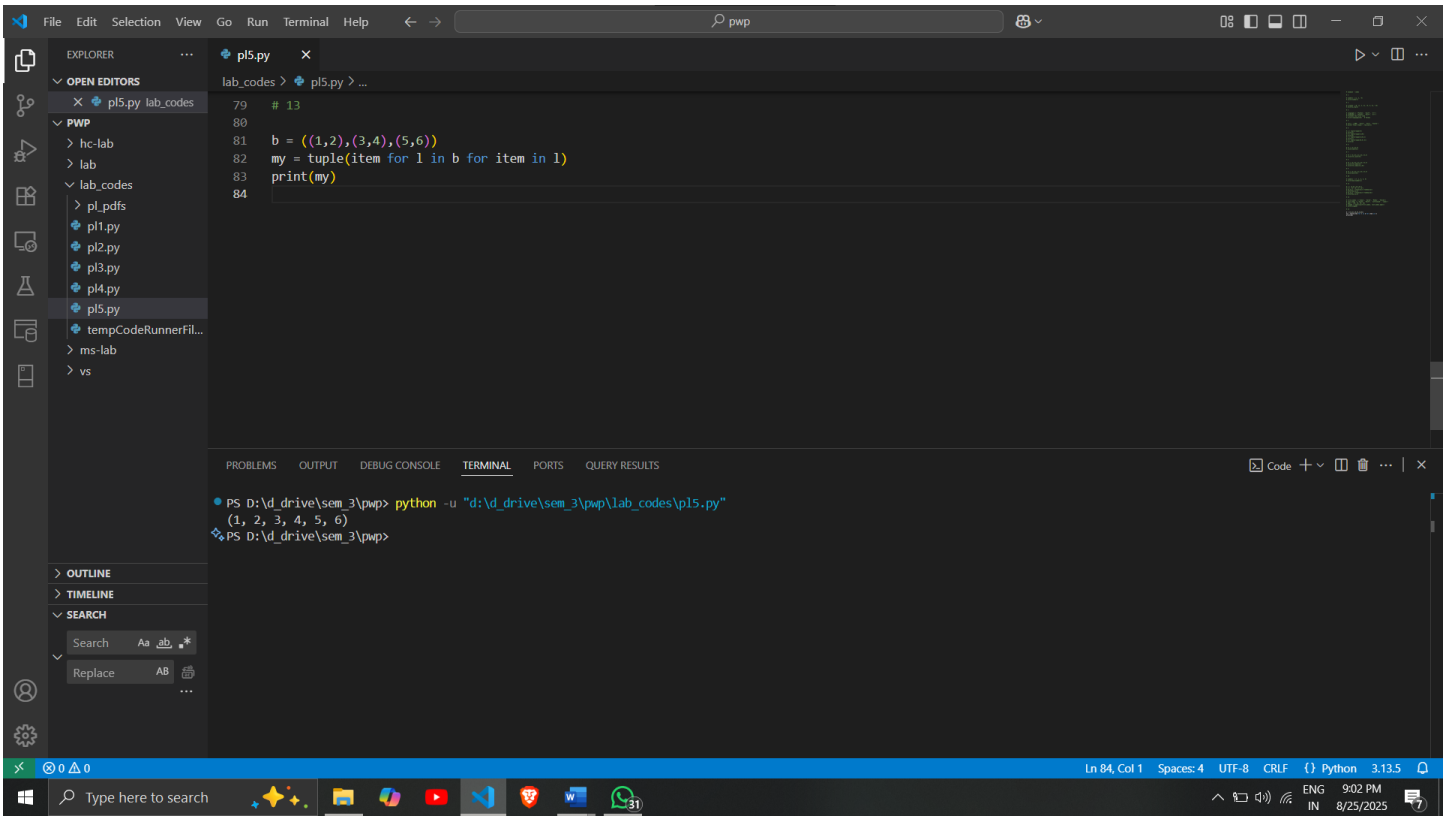

Post Lab Exercise:

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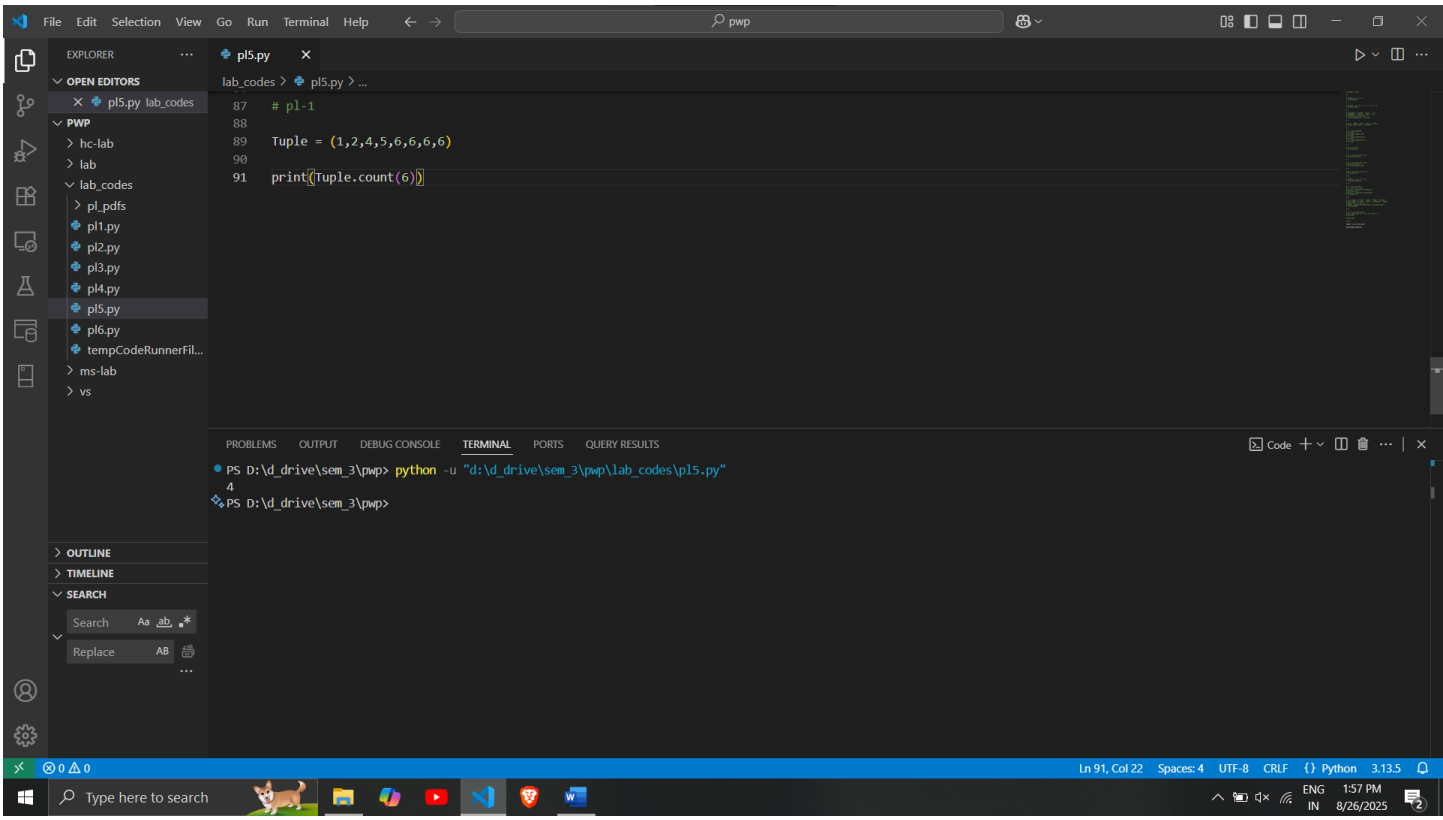
a. Write a Python program to Count the occurrences of an element in a tuple.



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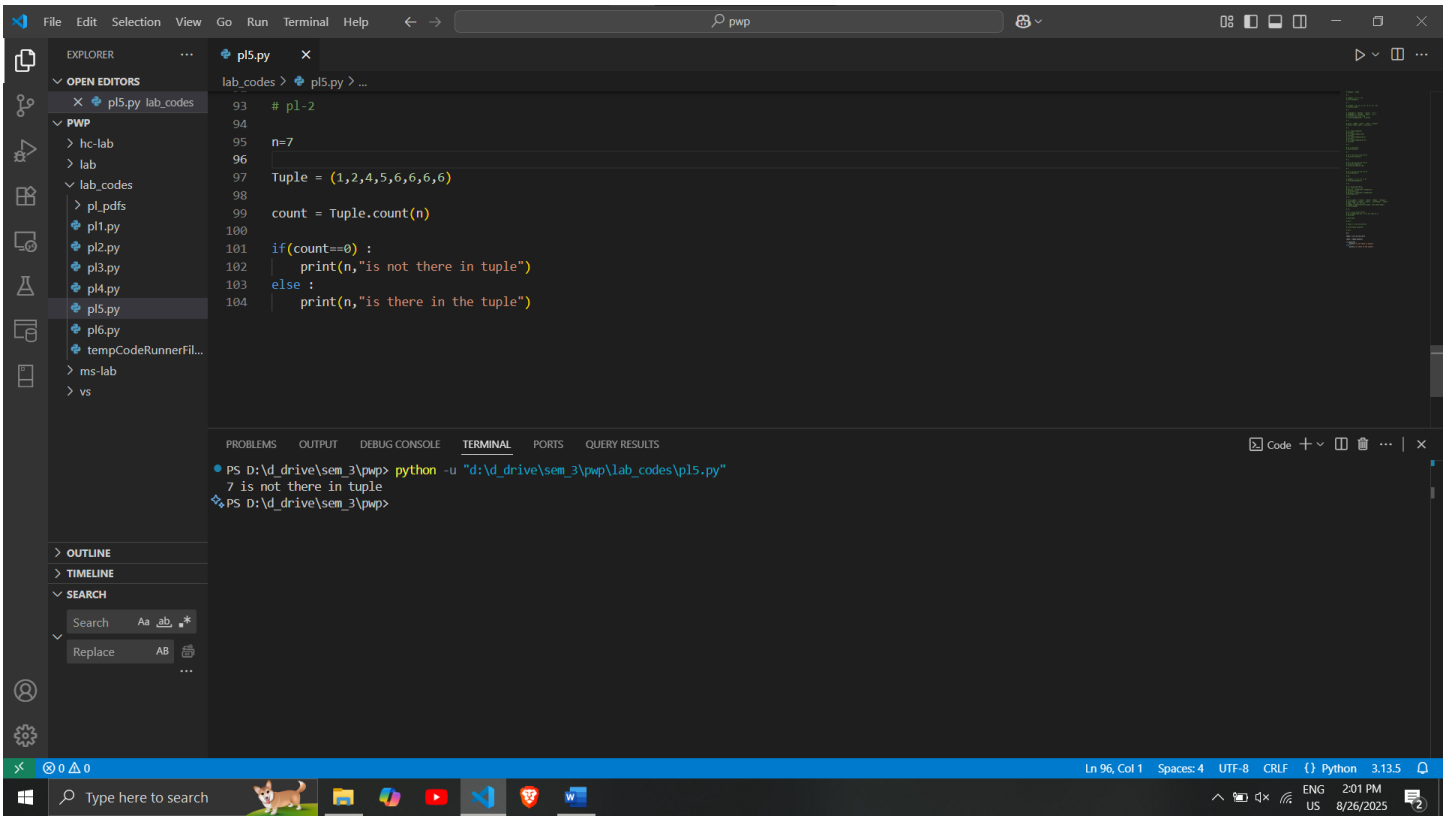
b. Write a Python program to Check if an element exists in a tuple.



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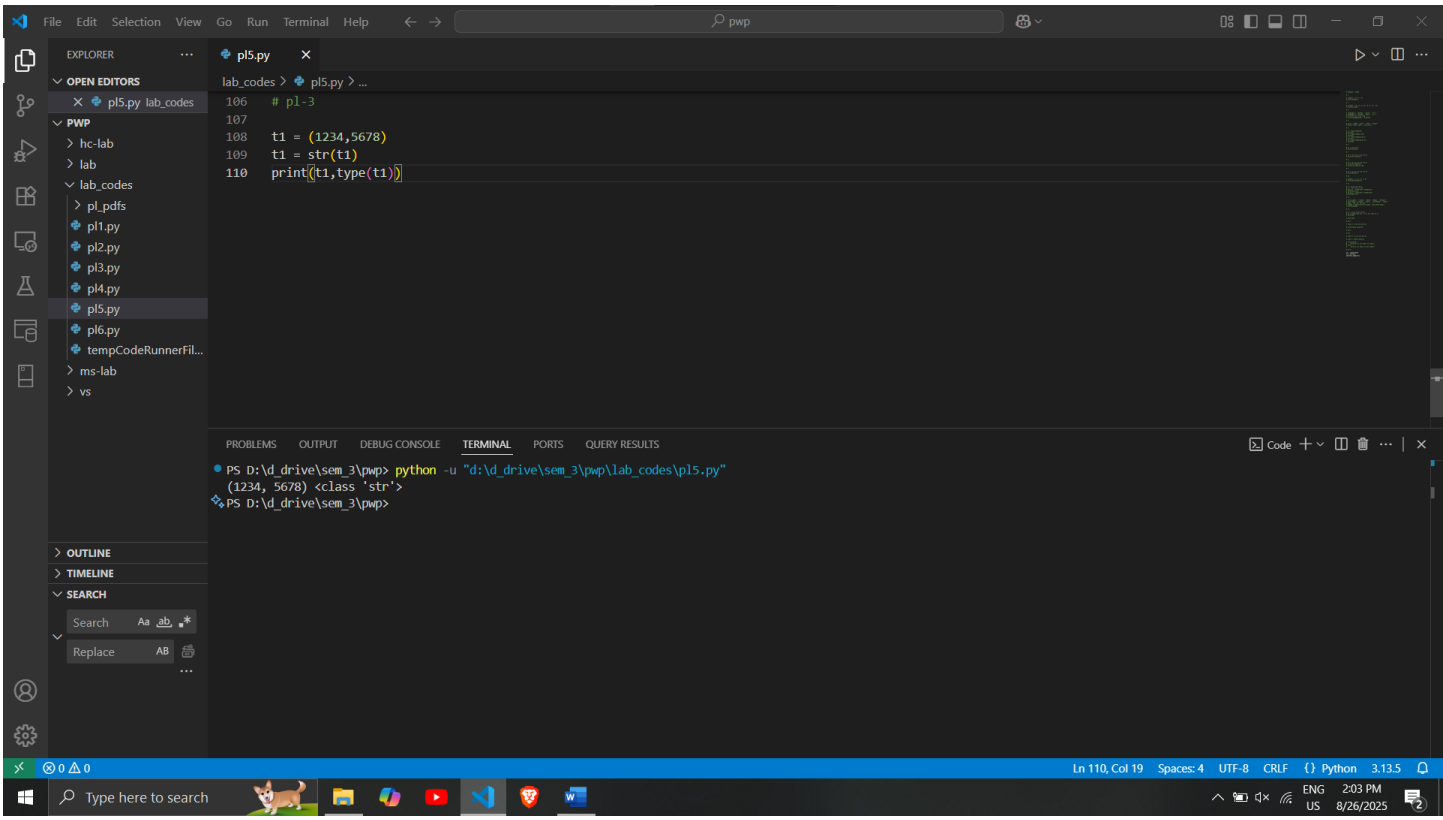
c. Write a Python program to Convert a tuple to a string.



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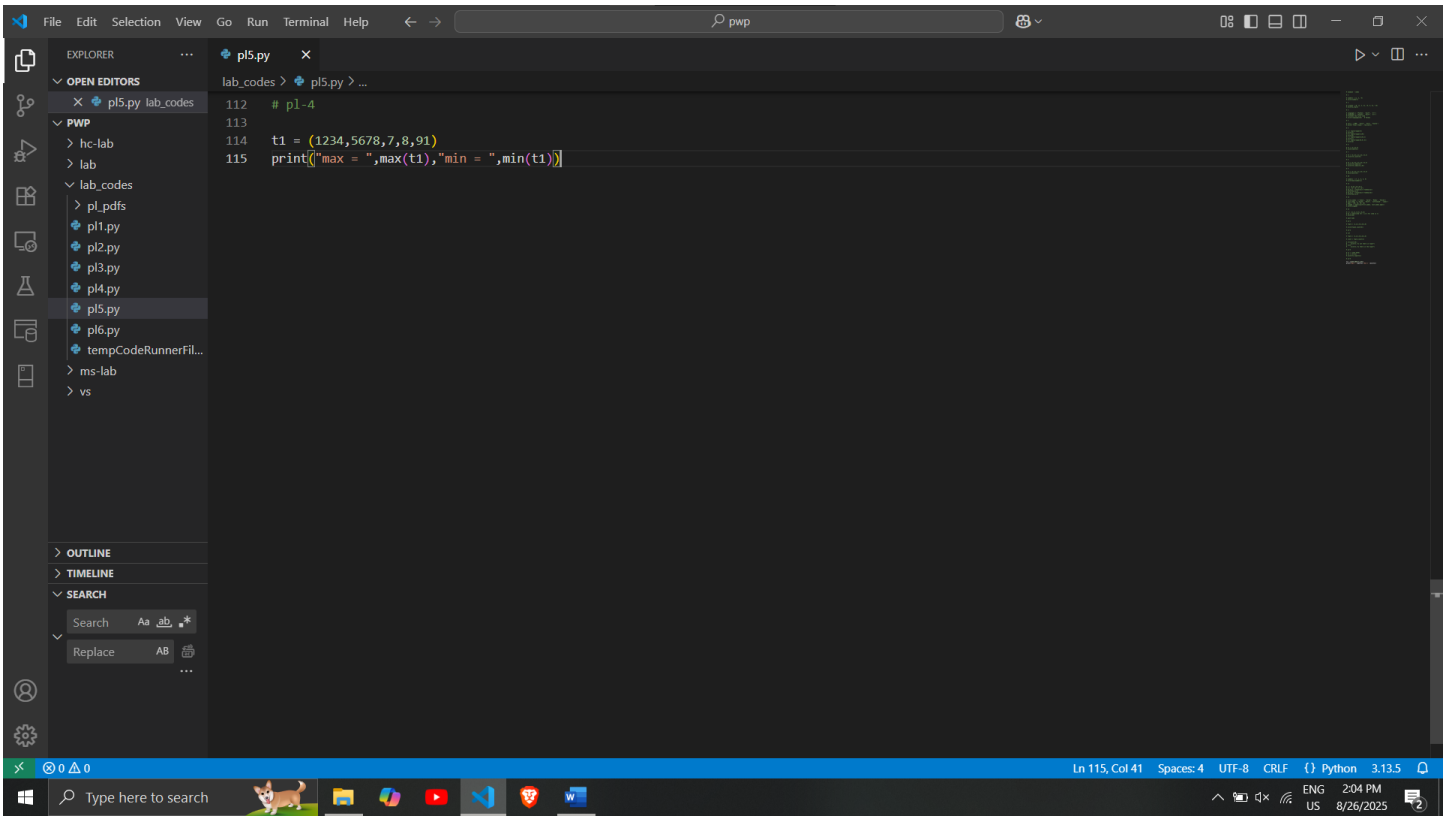
d. Write a Python program to Find the maximum and minimum elements in a tuple.



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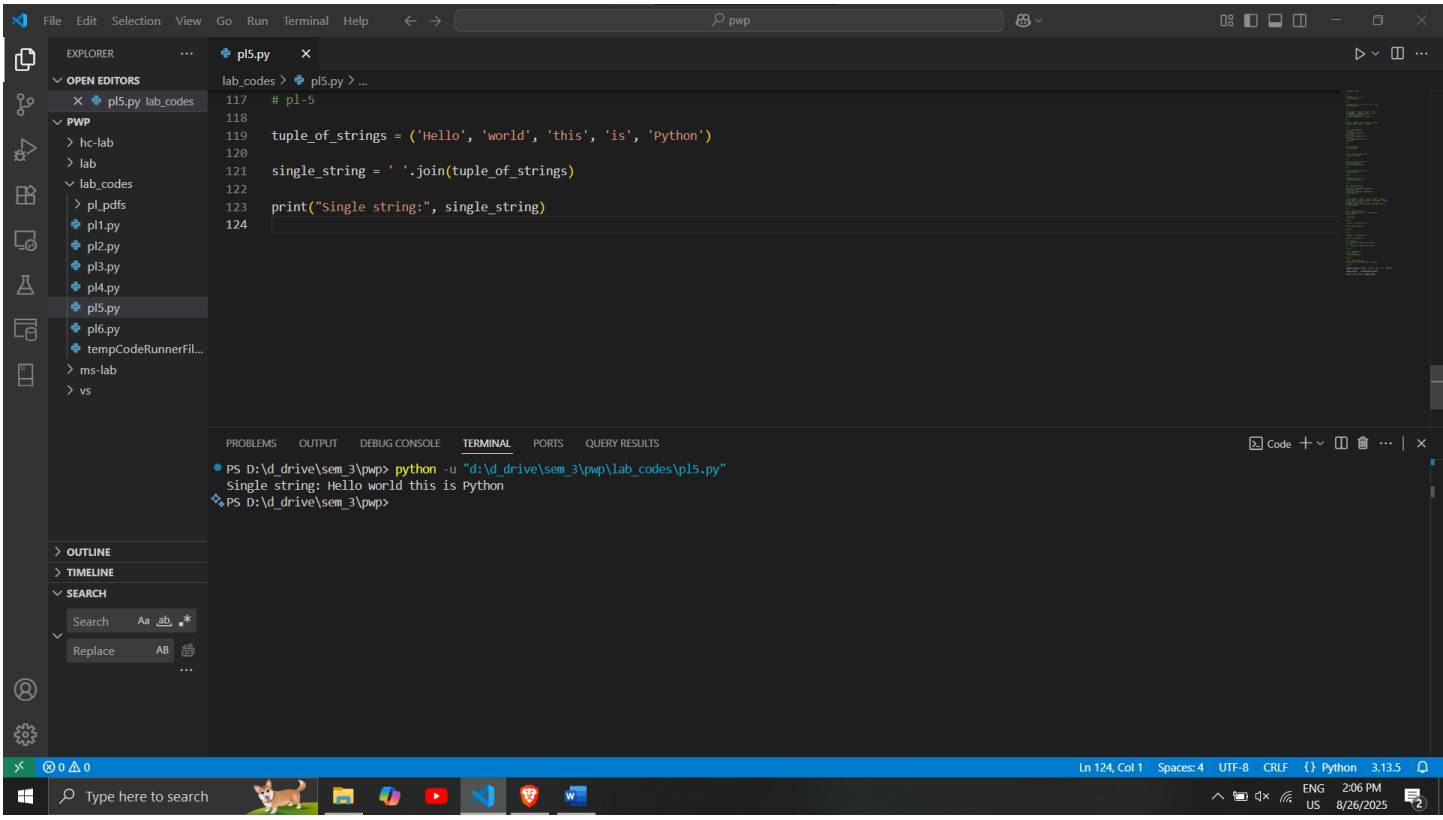
e. Write a Python program to convert a tuple of strings to a single string.



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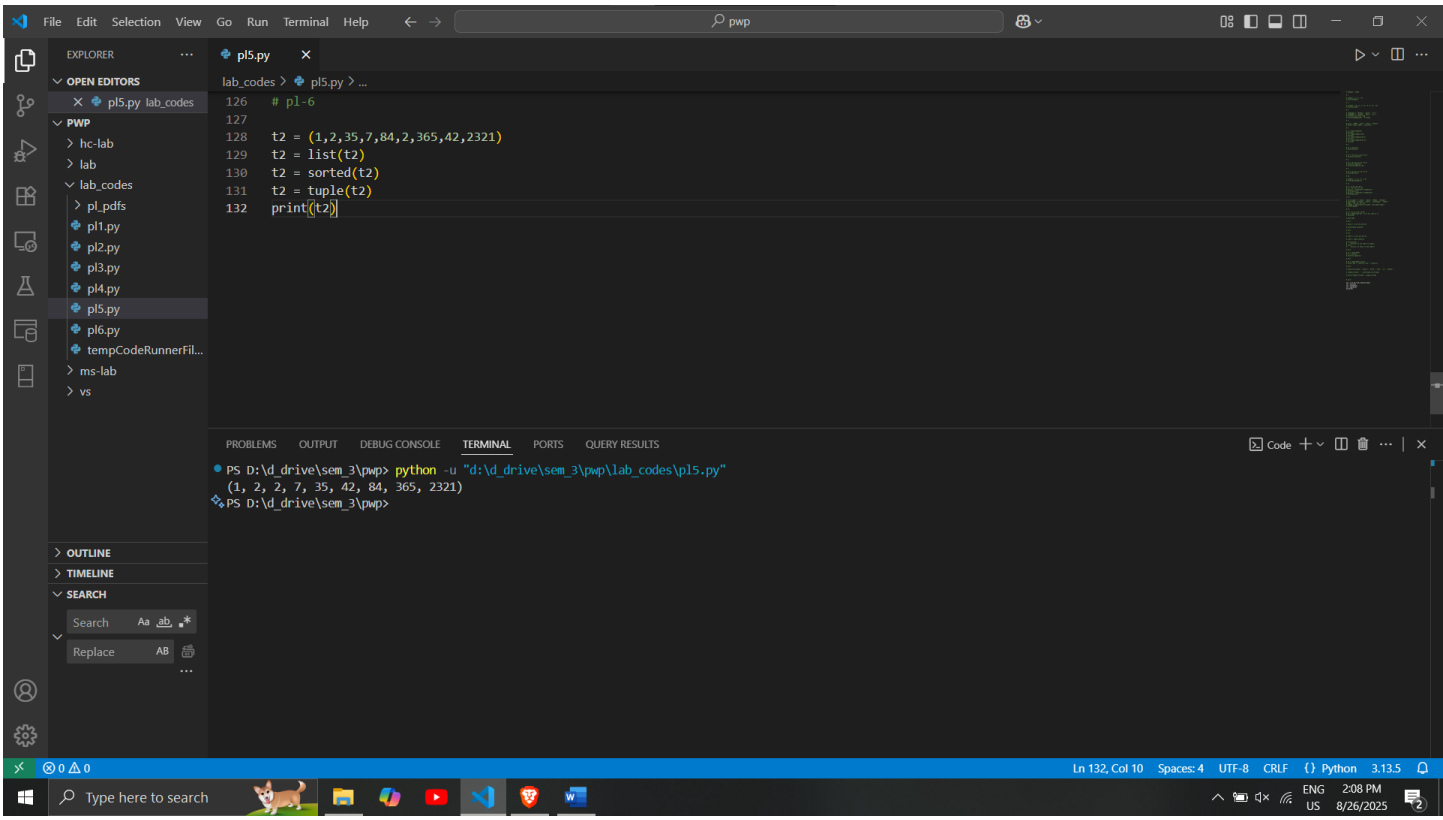
f. Write a Python program to sort a tuple of integers.



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g. Write a python program to find the first and last elements of a tuple.