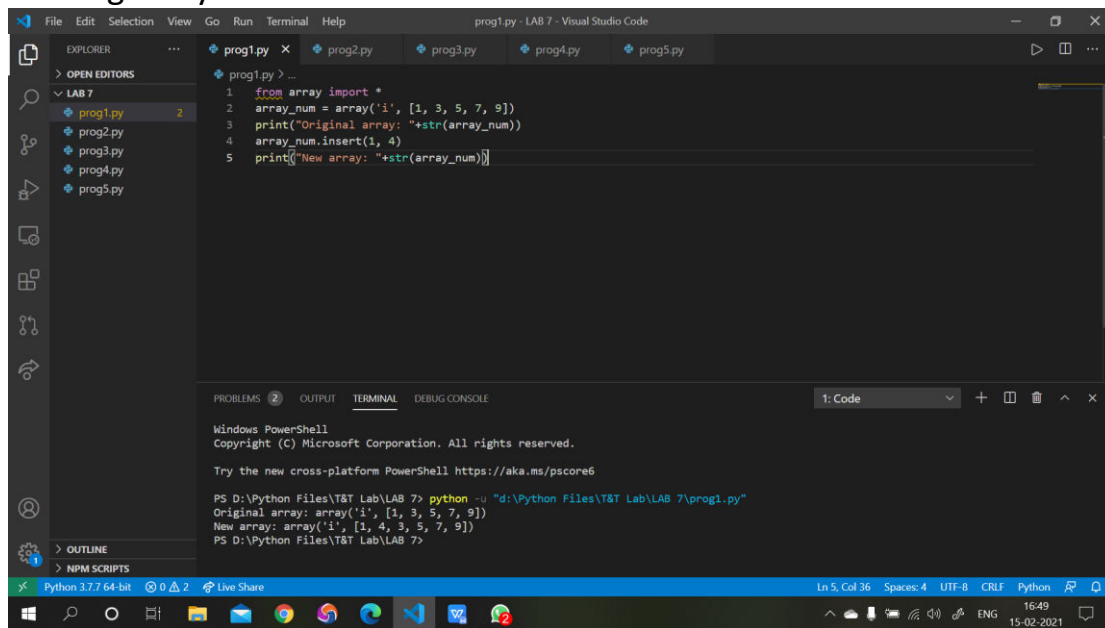


T&T LAB-7

BISWARUP MUKHERJEE

ROLL-1806468

1. WAP in python to insert a new item before the 3rd element in an existing array.



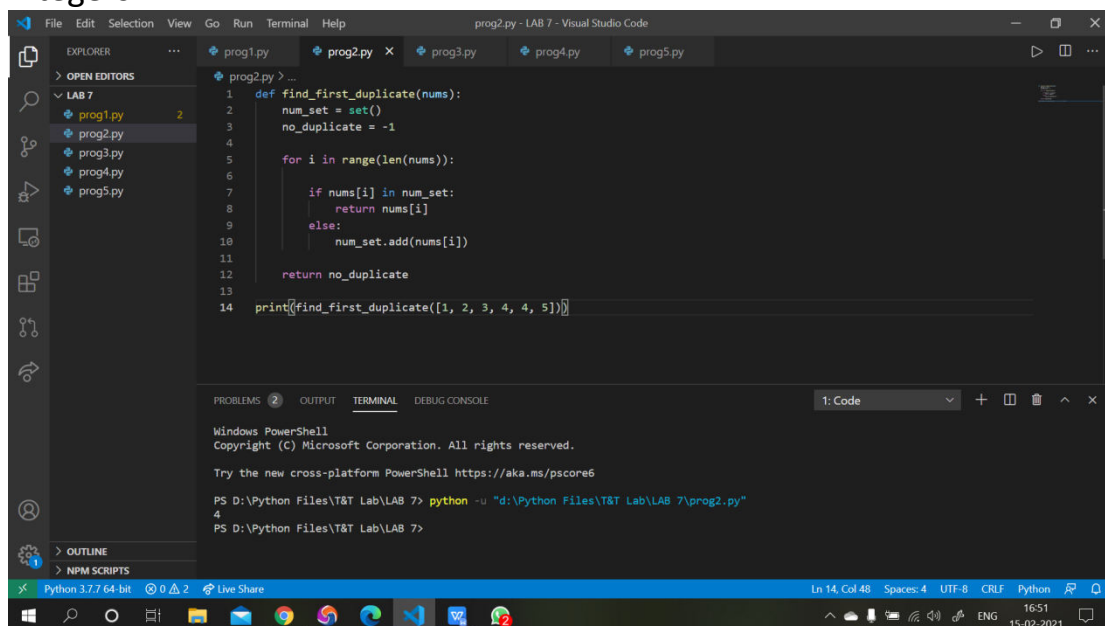
The screenshot shows the Visual Studio Code interface with a file explorer on the left containing files prog1.py through prog5.py. The main editor displays prog1.py with the following code:

```
1 from array import *
2 array_num = array('i', [1, 3, 5, 7, 9])
3 print("Original array: "+str(array_num))
4 array_num.insert(1, 4)
5 print("New array: "+str(array_num))
```

The bottom terminal window shows the execution output:

```
PS D:\Python Files\T&T Lab\LAB 7> python -u "d:\Python Files\T&T Lab\LAB 7\prog1.py"
Original array: array('i', [1, 3, 5, 7, 9])
New array: array('i', [1, 4, 3, 5, 7, 9])
PS D:\Python Files\T&T Lab\LAB 7>
```

2. WAP in python to find the first duplicate element in a given array of integers.



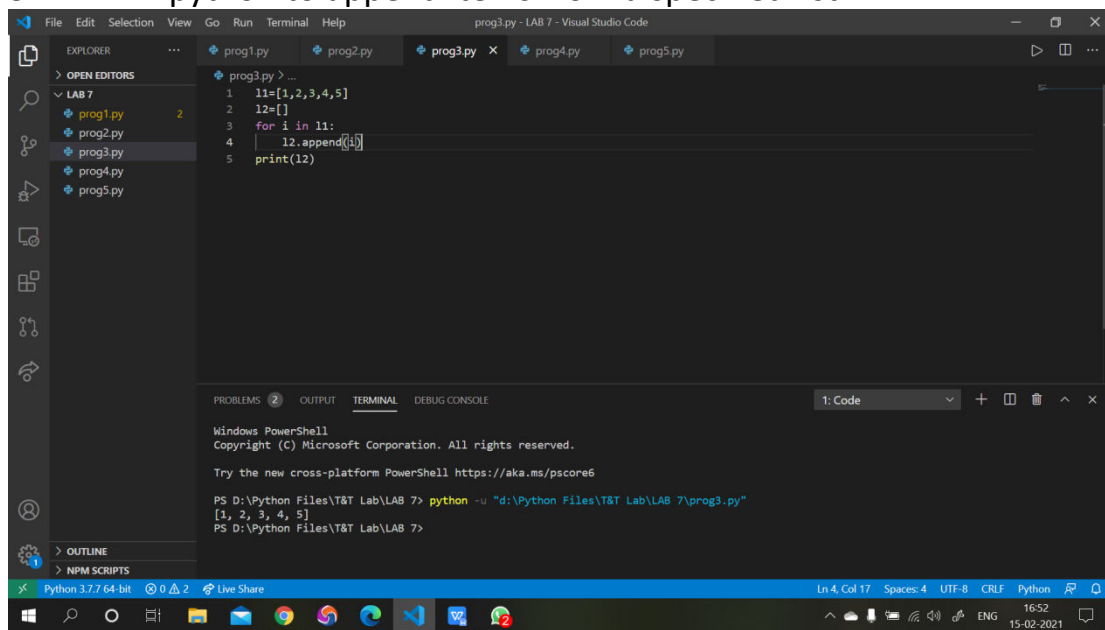
The screenshot shows the Visual Studio Code interface with a file explorer on the left containing files prog1.py through prog5.py. The main editor displays prog2.py with the following code:

```
1 def find_first_duplicate(nums):
2     num_set = set()
3     no_duplicate = -1
4
5     for i in range(len(nums)):
6
7         if nums[i] in num_set:
8             return nums[i]
9         else:
10            num_set.add(nums[i])
11
12    return no_duplicate
13
14 print(find_first_duplicate([1, 2, 3, 4, 4, 5]))
```

The bottom terminal window shows the execution output:

```
PS D:\Python Files\T&T Lab\LAB 7> python -u "d:\Python Files\T&T Lab\LAB 7\prog2.py"
4
PS D:\Python Files\T&T Lab\LAB 7>
```

3. WAP in python to append items from a specified list.



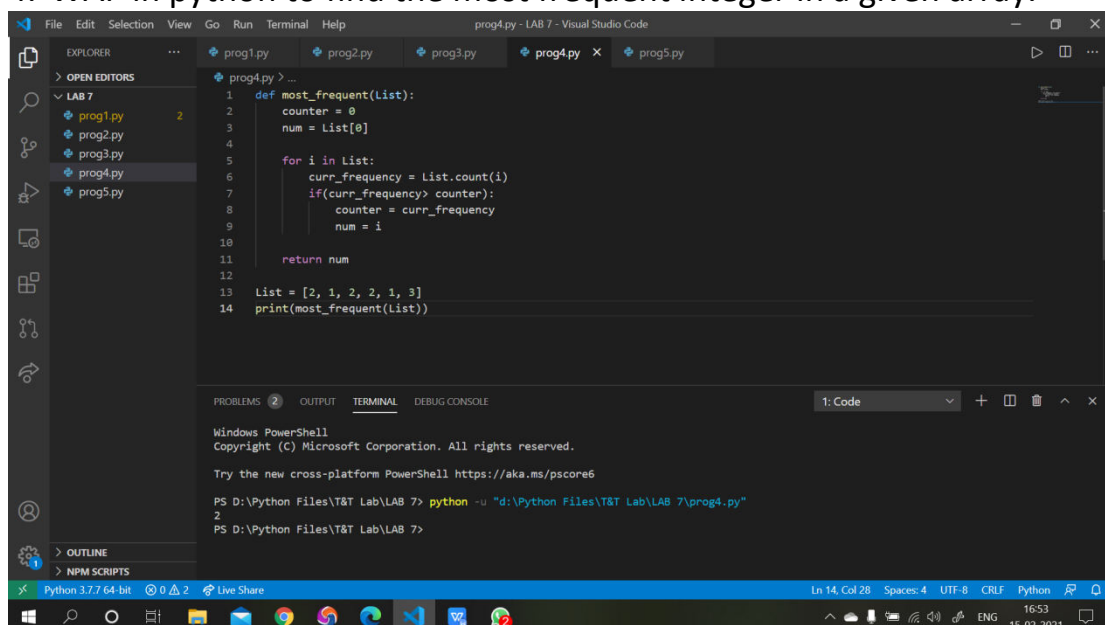
The screenshot shows the Visual Studio Code interface with a file explorer on the left containing files prog1.py through prog5.py. The main editor displays prog3.py with the following code:

```
1 l1=[1,2,3,4,5]
2 l2=[]
3 for i in l1:
4     l2.append(i)
5 print(l2)
```

The bottom terminal window shows the execution of the program:

```
PS D:\Python Files\T&T Lab\LAB 7> python -u "d:\Python Files\T&T Lab\LAB 7\prog3.py"
[1, 2, 3, 4, 5]
PS D:\Python Files\T&T Lab\LAB 7>
```

4. WAP in python to find the most frequent integer in a given array.



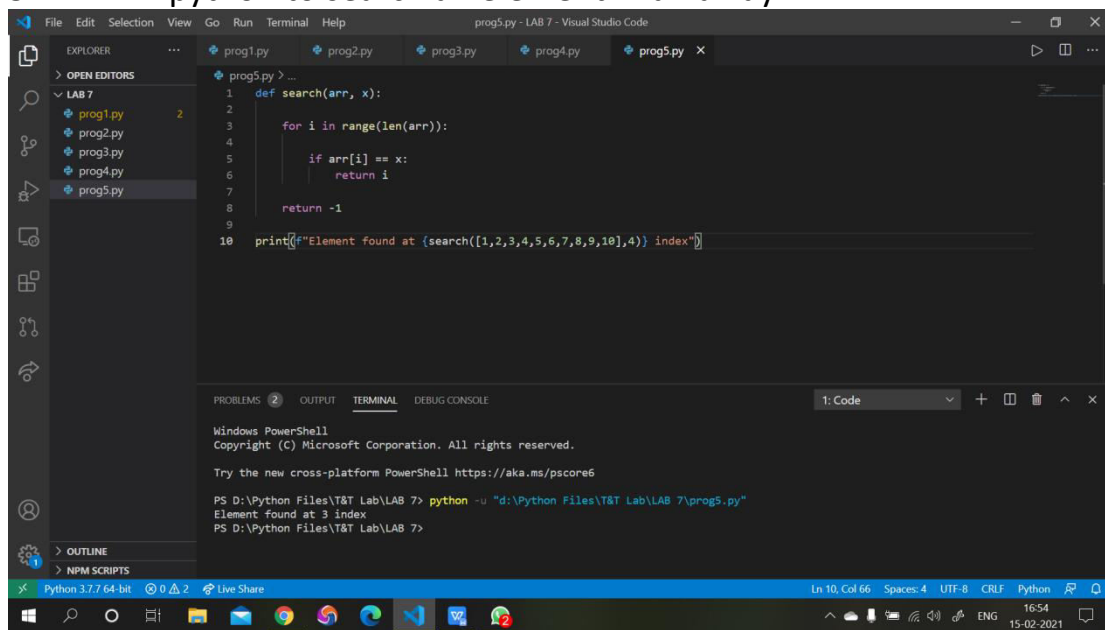
The screenshot shows the Visual Studio Code interface with a file explorer on the left containing files prog1.py through prog5.py. The main editor displays prog4.py with the following code:

```
1 def most_frequent(List):
2     counter = 0
3     num = List[0]
4
5     for i in List:
6         curr_frequency = List.count(i)
7         if(curr_frequency> counter):
8             counter = curr_frequency
9             num = i
10
11     return num
12
13 List = [2, 1, 2, 2, 1, 3]
14 print(most_frequent(List))
```

The bottom terminal window shows the execution of the program:

```
PS D:\Python Files\T&T Lab\LAB 7> python -u "d:\Python Files\T&T Lab\LAB 7\prog4.py"
2
PS D:\Python Files\T&T Lab\LAB 7>
```

5. WAP in python to search an element in an array.



The screenshot displays the Visual Studio Code interface with a Python file named `prog5.py` open. The code defines a function `search(arr, x)` that iterates through the array `arr` to find the index of element `x`. If found, it returns the index; otherwise, it returns `-1`. The main program calls `search([1,2,3,4,5,6,7,8,9,10],4)` and prints the result.

```
1 def search(arr, x):
2     for i in range(len(arr)):
3         if arr[i] == x:
4             return i
5     return -1
6
7
8
9
10 print(f"Element found at {search([1,2,3,4,5,6,7,8,9,10],4)} index")
```

The terminal output shows the execution of the program, confirming that the element 4 is found at index 3.

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS D:\Python Files\T&T Lab\LAB 7> python -u "d:\Python Files\T&T Lab\LAB 7\prog5.py"
Element found at 3 index
PS D:\Python Files\T&T Lab\LAB 7>
```