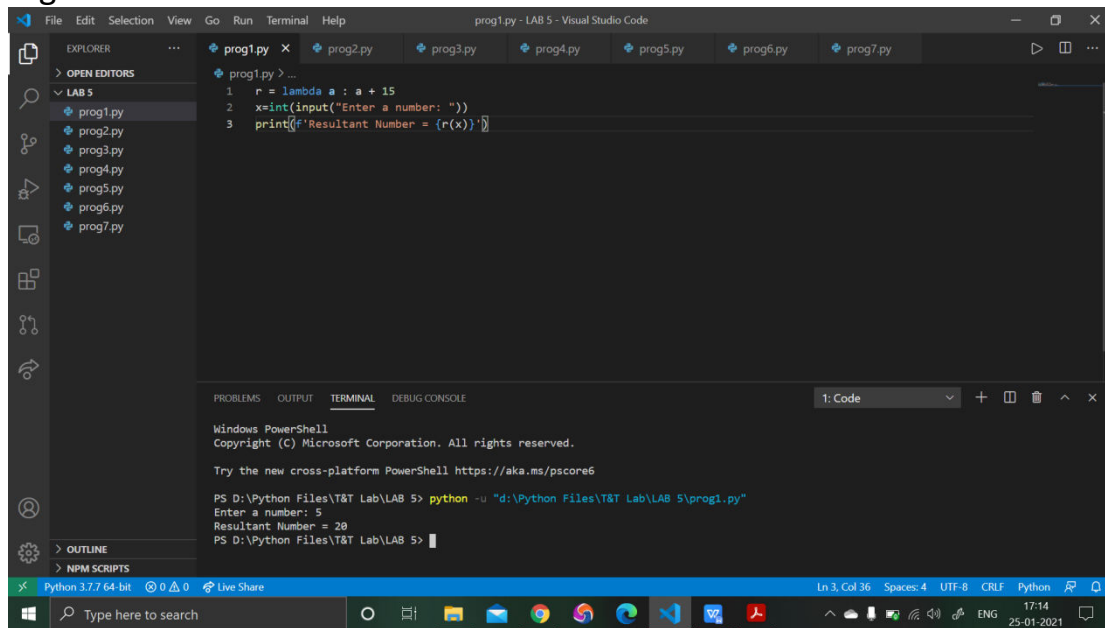


T&T LAB-5

BISWARUP MUKHERJEE

ROLL-1806468

1. Create a lambda function that adds 15 to a given number passed in an argument.



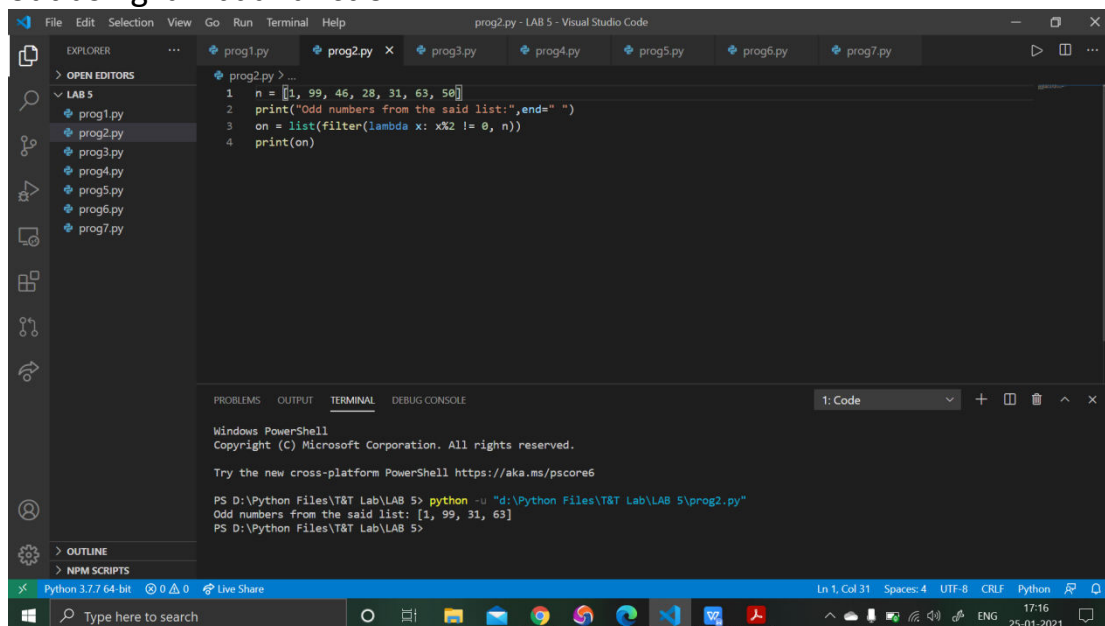
The screenshot shows the Visual Studio Code interface with a file explorer on the left containing a folder named 'LAB 5' with files 'prog1.py' through 'prog7.py'. The main editor displays 'prog1.py' with the following code:

```
1 r = lambda a : a + 15
2 x=int(input("Enter a number: "))
3 print(f'Resultant Number = {r(x)}')
```

The terminal at the bottom shows the execution of the program:

```
PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog1.py"
Enter a number: 5
Resultant Number = 20
PS D:\Python Files\T&T Lab\LAB 5>
```

2. Filter a list of integers such that all the odd numbers will be filtered out using lambda function.



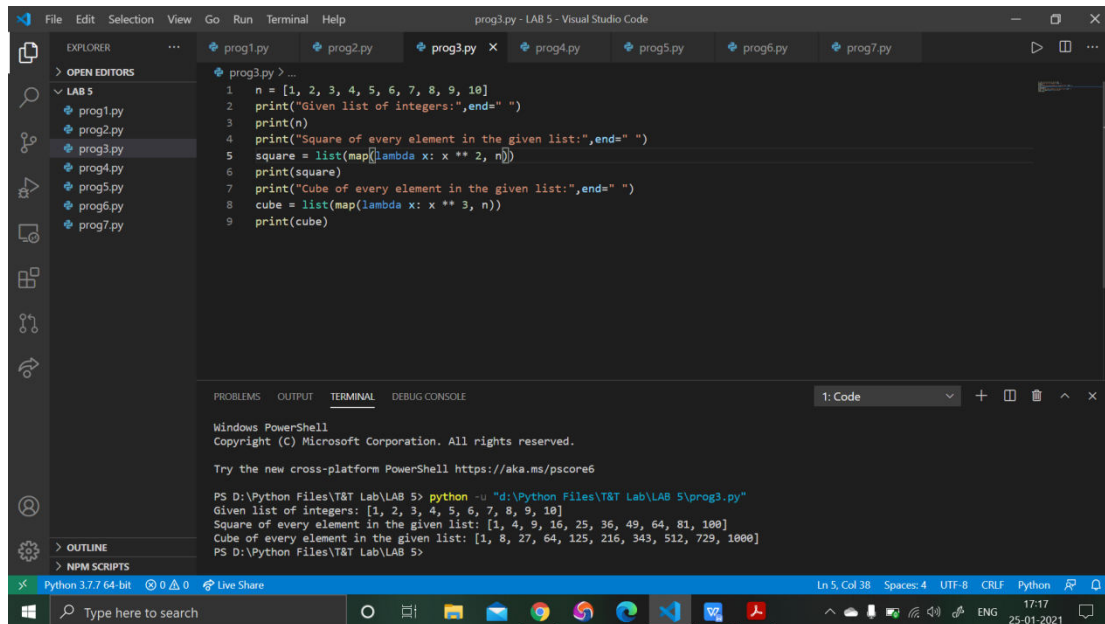
The screenshot shows the Visual Studio Code interface with the same file explorer. The main editor displays 'prog2.py' with the following code:

```
1 n = [1, 99, 46, 28, 31, 63, 50]
2 print("Odd numbers from the said list:",end=" ")
3 on = list(filter(lambda x: x%2 != 0, n))
4 print(on)
```

The terminal at the bottom shows the execution of the program:

```
PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog2.py"
Odd numbers from the said list: [1, 99, 31, 63]
PS D:\Python Files\T&T Lab\LAB 5>
```

3. Square and cube every no in a given list of integers using lambda function.



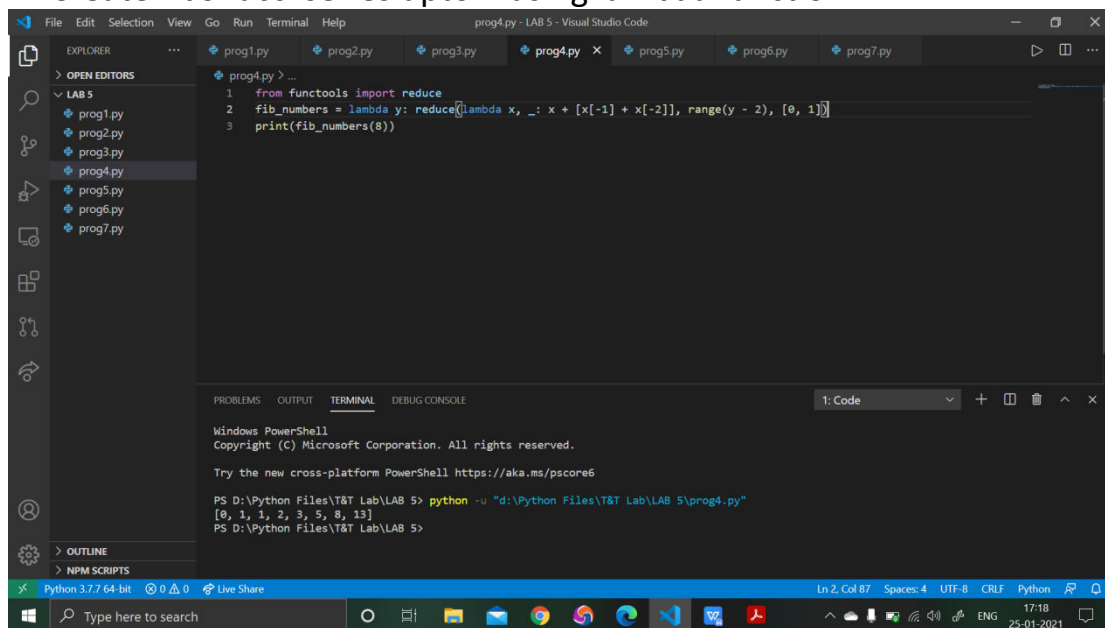
The screenshot shows the Visual Studio Code editor with a file named `prog3.py` open. The code defines a list `n` with values `[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]`. It prints the list, then uses `map` and `lambda` to calculate the squares and cubes of each element. The output is displayed in the terminal window.

```
1 n = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
2 print("Given list of integers:",end=" ")
3 print(n)
4 print("Square of every element in the given list:",end=" ")
5 square = list(map(lambda x: x ** 2, n))
6 print(square)
7 print("Cube of every element in the given list:",end=" ")
8 cube = list(map(lambda x: x ** 3, n))
9 print(cube)
```

Terminal Output:

```
PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog3.py"
Given list of integers: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Square of every element in the given list: [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
Cube of every element in the given list: [1, 8, 27, 64, 125, 216, 343, 512, 729, 1000]
PS D:\Python Files\T&T Lab\LAB 5>
```

4. Create fibonacci series upto n using lambda function.



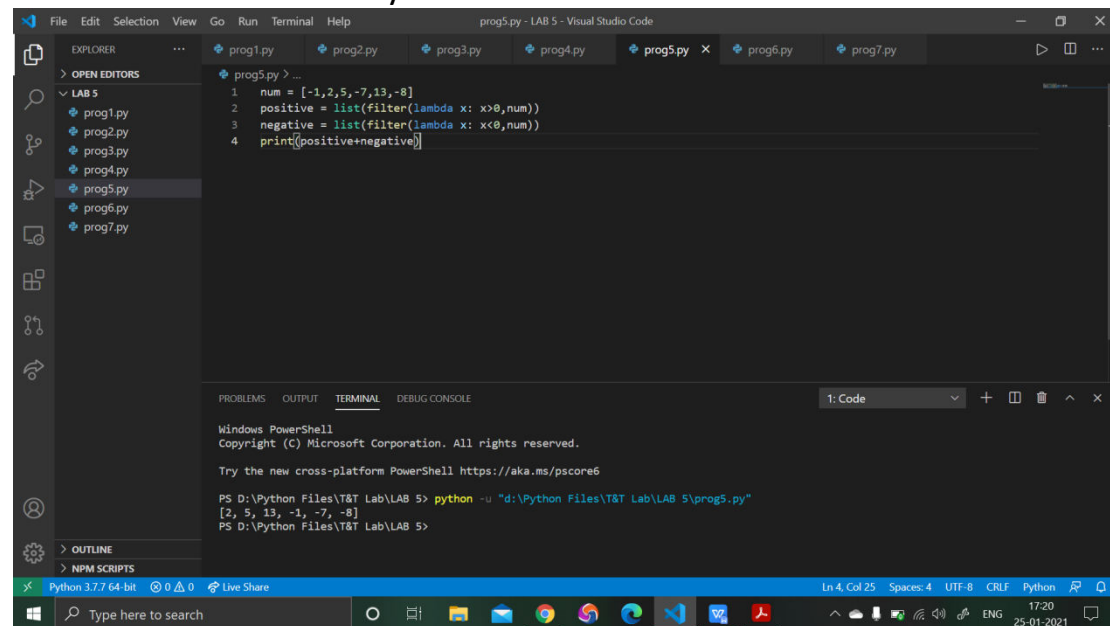
The screenshot shows the Visual Studio Code editor with a file named `prog4.py` open. The code imports `reduce` from `functools` and uses it with a `lambda` function to generate a Fibonacci series. The output is displayed in the terminal window.

```
1 from functools import reduce
2 fib_numbers = lambda y: reduce(lambda x, _: x + [x[-1] + x[-2]], range(y - 2), [0, 1])
3 print(fib_numbers(8))
```

Terminal Output:

```
PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog4.py"
[0, 1, 1, 2, 3, 5, 8, 13]
PS D:\Python Files\T&T Lab\LAB 5>
```

5. Rearrange positive & negative nos using lambda such that all the +ve values will be followed by all the -ve values.



The screenshot shows the Visual Studio Code interface with a Python file named `prog5.py` open. The code defines a list `num` with values `[-1, 2, 5, -7, 13, -8]`. It uses `filter` and `lambda` to separate positive and negative numbers into `positive` and `negative` lists, then prints their concatenation. The terminal shows the execution output: `[2, 5, 13, -1, -7, -8]`.

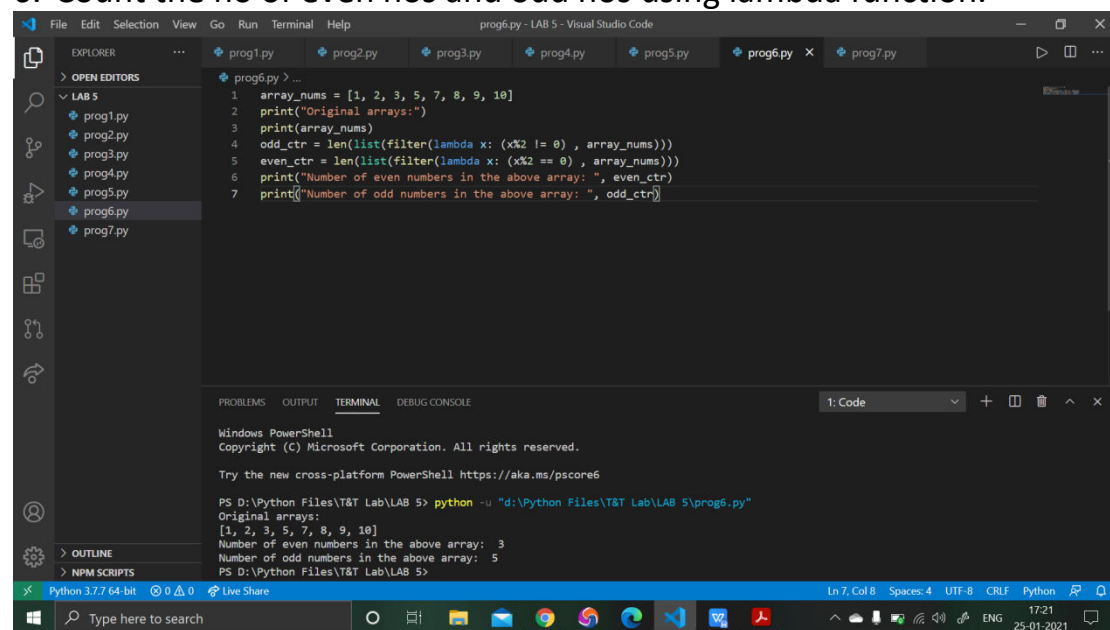
```
1 num = [-1, 2, 5, -7, 13, -8]
2 positive = list(filter(lambda x: x > 0, num))
3 negative = list(filter(lambda x: x < 0, num))
4 print(positive + negative)
```

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

PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog5.py"
[2, 5, 13, -1, -7, -8]
PS D:\Python Files\T&T Lab\LAB 5>
```

6. Count the no of even nos and odd nos using lambda function.



The screenshot shows the Visual Studio Code interface with a Python file named `prog6.py` open. The code defines a list `array_nums` with values `[1, 2, 3, 5, 7, 8, 9, 10]`. It uses `filter` and `lambda` to count even and odd numbers, storing the counts in `even_ctr` and `odd_ctr`, and prints the results. The terminal shows the execution output: `Original arrays: [1, 2, 3, 5, 7, 8, 9, 10]`, `Number of even numbers in the above array: 3`, and `Number of odd numbers in the above array: 5`.

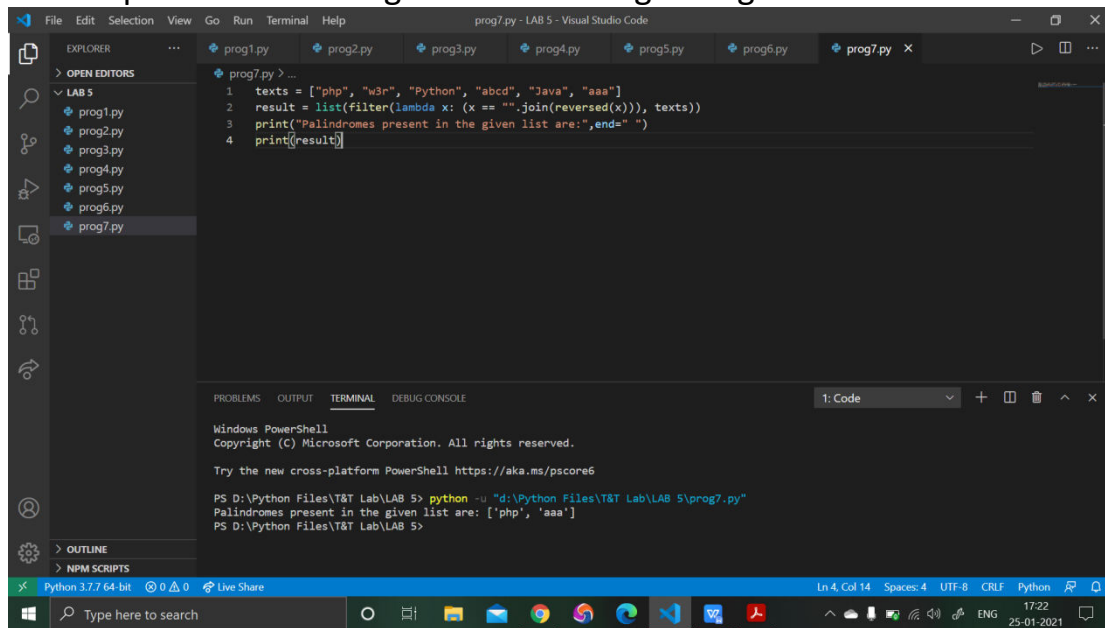
```
1 array_nums = [1, 2, 3, 5, 7, 8, 9, 10]
2 print("Original arrays:")
3 print(array_nums)
4 odd_ctr = len(list(filter(lambda x: (x%2 != 0), array_nums)))
5 even_ctr = len(list(filter(lambda x: (x%2 == 0), array_nums)))
6 print("Number of even numbers in the above array: ", even_ctr)
7 print("Number of odd numbers in the above array: ", odd_ctr)
```

```
Windows PowerShell
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PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog6.py"
Original arrays:
[1, 2, 3, 5, 7, 8, 9, 10]
Number of even numbers in the above array: 3
Number of odd numbers in the above array: 5
PS D:\Python Files\T&T Lab\LAB 5>
```

7. Find palindromes in a given list of strings using lambda function.



The screenshot shows the Visual Studio Code interface with a Python file named `prog7.py` open. The code defines a list of strings and uses a lambda function within the `filter` method to identify palindromes. The terminal output shows the execution of the script, displaying the palindromes found in the list.

```
File Edit Selection View Go Run Terminal Help
prog7.py - LAB 5 - Visual Studio Code

EXPLORER
> OPEN EDITORS
LAB 5
  prog1.py
  prog2.py
  prog3.py
  prog4.py
  prog5.py
  prog6.py
  prog7.py

prog7.py > -
1 texts = ["php", "w3n", "Python", "abcd", "Java", "aaa"]
2 result = list(filter(lambda x: (x == "".join(reversed(x))), texts))
3 print("Palindromes present in the given list are:",end=" ")
4 print(result)
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE 1: Code

```
Windows PowerShell
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PS D:\Python Files\T&T Lab\LAB 5> python -u "d:\Python Files\T&T Lab\LAB 5\prog7.py"
Palindromes present in the given list are: ['php', 'aaa']
PS D:\Python Files\T&T Lab\LAB 5>
```

Python 3.7.7 64-bit 0 0 0 Live Share Ln 4, Col 14 Spaces: 4 UTF-8 CRLF Python 17:22 25-01-2021