

Midterm Lab Task 2.
Using Loops and Selection statements

Problem 1.

Create a countdown timer, where the user is prompted to enter time in seconds and will countdown to zero (set timer delay to 1) using `timer.sleep(time_lapse)`. The program should prompt the user to test the timer if the answer is 'y' it will ask the user to enter time in second. If the answer is 'n' it will terminate the timer. Your response to y or n should be case insensitive.

Sample Output:

Start the timer[y|n]:? y

```
Enter the time in seconds: 10
00:00:10
00:00:09
00:00:08
00:00:07
00:00:06
00:00:05
00:00:04
00:00:03
00:00:02
00:00:01
TIME'S UP!
```

Try again?[y|n]: y

```
Enter the time in seconds: 10
00:00:10
00:00:09
00:00:08
00:00:07
00:00:06
00:00:05
00:00:04
00:00:03
00:00:02
00:00:01
TIME'S UP!
```

Try again?[y|n]: n

Bye!!! Thanks for using the program

Problem 2.

Create an $n \times n$ Multiplication table using **Nested FOR Loop**. The user must enter the number of rows and columns that will be displayed in the Table.

Sample Output 1

```
How many rows:10
How many cols:10
      Multiplication Table

  1   2   3   4   5   6   7   8   9  10
  2   4   6   8  10  12  14  16  18  20
  3   6   9  12  15  18  21  24  27  30
  4   8  12  16  20  24  28  32  36  40
  5  10  15  20  25  30  35  40  45  50
  6  12  18  24  30  36  42  48  54  60
  7  14  21  28  35  42  49  56  63  70
  8  16  24  32  40  48  56  64  72  80
  9  18  27  36  45  54  63  72  81  90
 10  20  30  40  50  60  70  80  90 100
```

Sample Output 2.

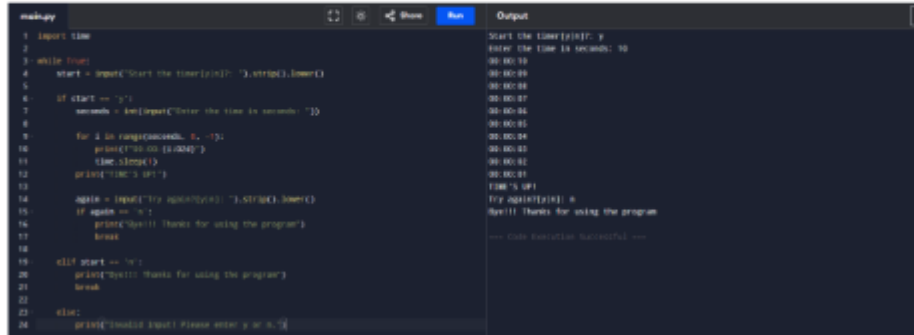
```
How many rows:3
How many cols:5
      Multiplication Table

  1   2   3   4   5
  2   4   6   8  10
  3   6   9  12  15
```

Source Code

Screen Shot of Test Cases or Sample Outputs

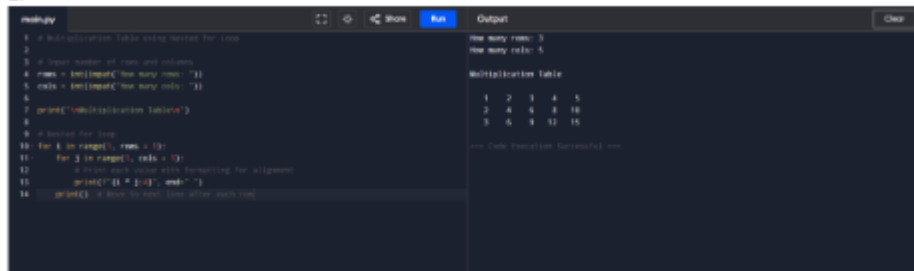
1.



```
1 import time
2
3 while True:
4     start = input("Start the timer (y/n): ").strip().lower()
5
6     if start == "y":
7         seconds = int(input("Enter the time in seconds: "))
8
9         for i in range(seconds, 0, -1):
10             print(f"Time is {i:02d} s", end=" ")
11             time.sleep(1)
12             print("\nTime's up!")
13
14         again = input("Try again? (y/n): ").strip().lower()
15         if again == "y":
16             print("Restarting timer...")
17             break
18
19     elif start == "n":
20         print("Thanks for using the program!")
21         break
22
23 else:
24     print("Invalid input! Please enter y or n.")
```

Start the timer (y/n): y
Enter the time in seconds: 10
00:00:10
00:00:09
00:00:08
00:00:07
00:00:06
00:00:05
00:00:04
00:00:03
00:00:02
00:00:01
Time's up!
Try again? (y/n): n
Restarting timer...
Thanks for using the program!
--- Run Execution Successful ---

2.



```
1 # Multiplication Table using nested for loop
2
3 # Input number of rows and columns
4 rows = int(input("How many rows: "))
5 cols = int(input("How many cols: "))
6
7 print("Multiplication Table")
8
9 # Nested for loop
10 for i in range(1, rows + 1):
11     for j in range(1, cols + 1):
12         # Print each value with formatting for alignment
13         print(f"{i * j:4d}", end=" ")
14     print() # Print a new line after each row
```

How many rows: 3
How many cols: 5
Multiplication Table
1 2 3 4 5
2 4 6 8 10
3 6 9 12 15
--- Run Execution Successful ---