

## Lab 7 Summary

The screenshot displays a VS Code editor interface with two tabs open: `lab7_1.py` and `lab7_2.py`. The left pane shows the code for both files, and the right pane shows the terminal output for each.

**lab7\_1.py** (Jhonatan Parada):

```
1 # lab7_1.py - Jhonatan Parada
2 err_msg = "Invalid Input."
3 int_mult = 10 # integer multiple
4 str_mult = "multiple of ten" # string multiple title
5 is_input_mult = False
6
7 prmt = (
8     f"Enter an integer number,"
9     f" and I'll tell you if it's a {str_mult}:"
10 )
11
12 int_input = input(prmt)
13 while not isinstance(int_input, int):
14     try:
15         int_input = int(int_input)
16     except:
17         print(err_msg)
18         int_input = input(prmt)
19
20 is_input_mult = int_input % int_mult == 0
21 a_not = 'a' if is_input_mult else 'not'
22
23 print(f'{int_input} is {a_not} {str_mult}.')
```

**Terminal Output for lab7\_1.py:**

```
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_1.py
Enter an integer number, and I'll tell you if it's a multiple of ten: 15
15 is not multiple of ten.
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_1.py
Enter an integer number, and I'll tell you if it's a multiple of ten: 50
50 is a multiple of ten.
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_1.py
Enter an integer number, and I'll tell you if it's a multiple of ten: five
Invalid Input.
Enter an integer number, and I'll tell you if it's a multiple of ten: 5
5 is not multiple of ten.
@jhonatanparada499 →/workspaces/ET574 (main) $
```

**lab7\_2.py** (Jhonatan Parada):

```
1 # lab7_2.py - Jhonatan Parada
2 start, end, step = 1, 1000, 1
3
4 for n in range(start, end + step, step):
5     is_even = n % 2 == 0
6     is_mult_of_3 = n % 3 == 0
7
8     if is_even and is_mult_of_3: print(n, end=' ')
9 else: print()
10
11 while start != (end + step):
12     is_even = start % 2 == 0
13     is_mult_of_3 = start % 3 == 0
14
15     if is_even and is_mult_of_3: print(start, end=' ')
16     start += 1
17 else: print()
```

**Terminal Output for lab7\_2.py:**

```
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_2.py
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 102 108 114 120 126 132 138 144 150 156 162 168
174 180 186 192 198 204 210 216 222 228 234 240 246 252 258 264 270 276 282 288 294 300 306 3
12 318 324 330 336 342 348 354 360 366 372 378 384 390 396 402 408 414 420 426 432 438 444 450
456 462 468 474 480 486 492 498 504 510 516 522 528 534 540 546 552 558 564 570 576 582 588 5
94 600 606 612 618 624 630 636 642 648 654 660 666 672 678 684 690 696 702 708 714 720 726 732
738 744 750 756 762 768 774 780 786 792 798 804 810 816 822 828 834 840 846 852 858 864 870 8
76 882 888 894 900 906 912 918 924 930 936 942 948 954 960 966 972 978 984 990 996
6 12 18 24 30 36 42 48 54 60 66 72 78 84 90 96 102 108 114 120 126 132 138 144 150 156 162 168
174 180 186 192 198 204 210 216 222 228 234 240 246 252 258 264 270 276 282 288 294 300 306 3
12 318 324 330 336 342 348 354 360 366 372 378 384 390 396 402 408 414 420 426 432 438 444 450
456 462 468 474 480 486 492 498 504 510 516 522 528 534 540 546 552 558 564 570 576 582 588 5
94 600 606 612 618 624 630 636 642 648 654 660 666 672 678 684 690 696 702 708 714 720 726 732
738 744 750 756 762 768 774 780 786 792 798 804 810 816 822 828 834 840 846 852 858 864 870 8
76 882 888 894 900 906 912 918 924 930 936 942 948 954 960 966 972 978 984 990 996
@jhonatanparada499 →/workspaces/ET574 (main) $
```

At the bottom of the editor, the status bar shows: `Ln 1, Col 30 Spaces: 4 UTF-8 LF () Python 3.12.1 64-bit Layout: US`.

lab7\_1.py Mlab7\_2.pyxlab7\_3.pyxlab7\_4.py

labs > Jhonatan\_LAB7 > lab7\_3.py > ...  
1 # lab7\_3.py - Jhonatan Parada  
2 start, stop, step = 1, 100, 1  
3 for\_sum = 0  
4 while\_sum = 0  
5  
6 for n in range(start, stop + step, step):  
7 for\_sum += n  
8 else:  
9 print(f'Sum = {for\_sum}')  
10  
11 while start != (stop + step):  
12 if start % 2 == 0: while\_sum += start  
13 start += step  
14 else:  
15 print(f'Sum = {while\_sum}')

PROBLEMSOUTPUTDEBUG CONSOLETERMINALPORTSCOMMENTSPython + ▾  
● @jhonatanparada499 → /workspaces/ET574 (main) \$ python labs/Jhonatan\_LAB7/lab7\_3.py  
Sum = 5050  
Sum = 2550  
○ @jhonatanparada499 → /workspaces/ET574 (main) \$

lab7\_1.py Mlab7\_2.pyxlab7\_3.pyxlab7\_4.py

labs > Jhonatan\_LAB7 > lab7\_4.py > ...  
1 # lab7\_4.py - Jhonatan Parada  
2 start, stop, step = 9, 1, -1  
3 msg = 'happy new year!'  
4  
5 for n in range(start, stop + step, step): print(n)  
6 else: print(msg.title())  
7  
8 while start != (stop + step):  
9 print(start)  
10 start += step  
11 else:  
12 print(msg.title())

PROBLEMSOUTPUTDEBUG CONSOLETERMINALPORTSCOMMENTSPython + ▾  
● @jhonatanparada499 → /workspaces/ET574 (main) \$ python labs/Jhonatan\_LAB7/lab7\_4.py  
9  
8  
7  
6  
5  
4  
3  
2  
1  
Happy New Year!  
9  
8  
7  
6  
5  
4  
3  
2  
1  
Happy New Year!  
○ @jhonatanparada499 → /workspaces/ET574 (main) \$

```
lab7_2.py lab7_3.py lab7_4.py lab7_5.py M X
labs > Jhonatan_LAB7 > lab7_5.py > ...
1 # lab7_5.py - Jhonatan Parada
2 import random
3
4 prompt_1 = 'Enter the number of grades in the list: '
5 prompt_2 = 'Enter the passing grades: '
6 err_msg = 'Invalid Input.'
7 min_grade = 1
8 max_grade = 100
9
10 lst_len = 0
11 pass_grade = 0
12 all_grades = []
13 pass_grades = []
14
15 lst_len = input(prompt_1)
16 while not isinstance(lst_len, int):
17     try:
18         lst_len = int(lst_len)
19         pass_grade = input(prompt_2)
20
21         while not isinstance(pass_grade, int):
22             try:
23                 pass_grade = int(pass_grade)
24             except:
25                 print(err_msg)
26                 pass_grade = input(prompt_2)
27         except:
28             print(err_msg)
29             lst_len = input(prompt_1)
30
31 for i in range(lst_len):
32     new_grade = random.randint(min_grade, max_grade)
33     all_grades.append(new_grade)
34
35     if new_grade >= pass_grade:
36         pass_grades.append(new_grade)
37
38 print(f'Updated List: {pass_grades}')
39 print(f'Original List: {all_grades}')
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_5.py
Enter the number of grades in the list: 10
Enter the passing grades: 65
Updated List: [76, 80, 73]
Original List: [76, 36, 5, 40, 25, 8, 9, 53, 80, 73]
@jhonatanparada499 → /workspaces/ET574 (main) $ []
```

despaces: opulent space telegram

```
lab7_4.py lab7_5.py M lab7_6.py M X lab7_7.py M X
labs > Jhonatan_LAB7 > lab7_6.py > ...
1 # lab7_6.py - Jhonatan Parada
2 prompt_1 = 'Enter a number n1: '
3 prompt_2 = 'Enter a number n2: '
4 err_msg = 'Invalid Input'
5 equality = 'n1 = n2'
6
7 n1 = 0
8 n2 = 0
9 n_step = 1
10 sprtr = '|'
11
12 n1 = input(prompt_1)
13 while not isinstance(n1, int):
14     try:
15         n1 = int(n1)
16         n2 = input(prompt_2)
17         while not isinstance(n2, int):
18             try:
19                 n2 = int(n2)
20             except:
21                 print(err_msg)
22                 n2 = input(prompt_2)
23         except:
24             print(err_msg)
25             n1 = input(prompt_1)
26
27 if n1 == n2: print(equality)
28 else:
29     if n1 > n2: n_step = -n_step
30
31     for n in range(n1, n2 + n_step, n_step):
32         print(n, end=sprtr)
33     else:
34         print()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS

```
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: 1
Enter a number n2: 11
1|2|3|4|5|6|7|8|9|10|11|
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: 11
Enter a number n2: 1
11|10|9|8|7|6|5|4|3|2|1|
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: 10
Enter a number n2: 10
n1 = n2
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: -1
Enter a number n2: -11
-1|-2|-3|-4|-5|-6|-7|-8|-9|-10|-11|
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: -3
Enter a number n2: 9
-3|-2|-1|0|1|2|3|4|5|6|7|8|9|
@jhonatanparada499 → /workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_6.py
Enter a number n1: f
Invalid Input
Enter a number n1: 1
Enter a number n2: c
Invalid Input
Enter a number n2: 5
1|2|3|4|5|
@jhonatanparada499 → /workspaces/ET574 (main) $ []
```

The screenshot shows a VS Code editor with a Python file named `lab7_7.py` open. The code is a script that takes user input, processes it, and calculates the sum and average of a list of numbers. The code is as follows:

```
1 labs > Jhonatan_LAB7 > lab7_7.py > ...
2 err_msg = 'Invalid Input'
3 stop_char = '0'
4 prompt = f'Enter a number or {stop_char} to stop: '
5 nums_lst = []
6
7 input_val = input(prompt)
8
9 while input_val != stop_char:
10     try:
11         input_val = int(input_val)
12         nums_lst.append(input_val)
13         input_val = input(prompt)
14     except:
15         try:
16             input_val = float(input_val)
17             nums_lst.append(input_val)
18             input_val = input(prompt)
19         except:
20             print(err_msg)
21             input_val = input(prompt)
22     else:
23         if not nums_lst:
24             pass
25         else:
26             lst_sum = sum(nums_lst)
27             lst_avg = lst_sum / len(nums_lst)
28
29             # minimum float value is 0.1 (1 decimal) (3 characters)
30             if len(str(lst_avg)) <= 3:
31                 lst_avg = int(lst_avg)
32             else:
33                 lst_avg = round(lst_avg, 2)
34
35             print()
36             print(f'Sum = {lst_sum}')
37             print(f'Average = {lst_avg}')
38             print('Number(s) entered:')
39             for n in nums_lst: print(n, end=' ')
40             print()
```

The terminal output on the right shows the execution of the script:

```
@jhonatanparada499 →/workspaces/ET574 (main) $ python labs/Jhonatan_LAB7/lab7_7.py
Enter a number or 0 to stop: 1
Enter a number or 0 to stop: -10
Enter a number or 0 to stop: 2.34
Enter a number or 0 to stop: 56.78
Enter a number or 0 to stop: 123
Enter a number or 0 to stop: 0

Sum = 173.12
Average = 34.62
Number(s) entered:
1 -10 2.34 56.78 123
@jhonatanparada499 →/workspaces/ET574 (main) $
```

2. a. One of my main problems was choosing the type of code structure I was going to use for each lab, since almost all of them required me to use try-except statements. Instead of writing everything inside the try statement, I decided to leave inside of it only the error-risk code that converted the input variables to the data types I wanted to improve readability.

b. Secondly, regarding the code structure as well, I was unsure whether to declare all the variables of the code at the beginning of it or along the body of the code as needed. This time I sacrificed some memory by declaring all variables with their values (even 'empty' to some of them) at the beginning to improve readability by giving the readers a hint about the type of data the variable will carry along the code.