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**Couurse: Data Structure & Algorithm**

**Lab Task 1 To  Task 4 Given with code and output**

Task1.py > ...

```python
# Task-01  Azlan shah (26112)

num = input("Enter a number separated by commas: ")

num_list = [int(x) for x in num.split(',')]
print("The list of numbers is:", num_list)

square_list = [x**2 for x in num_list]
print("The squares of the numbers are:", square_list)

print(",".join(map(str, square_list)))

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

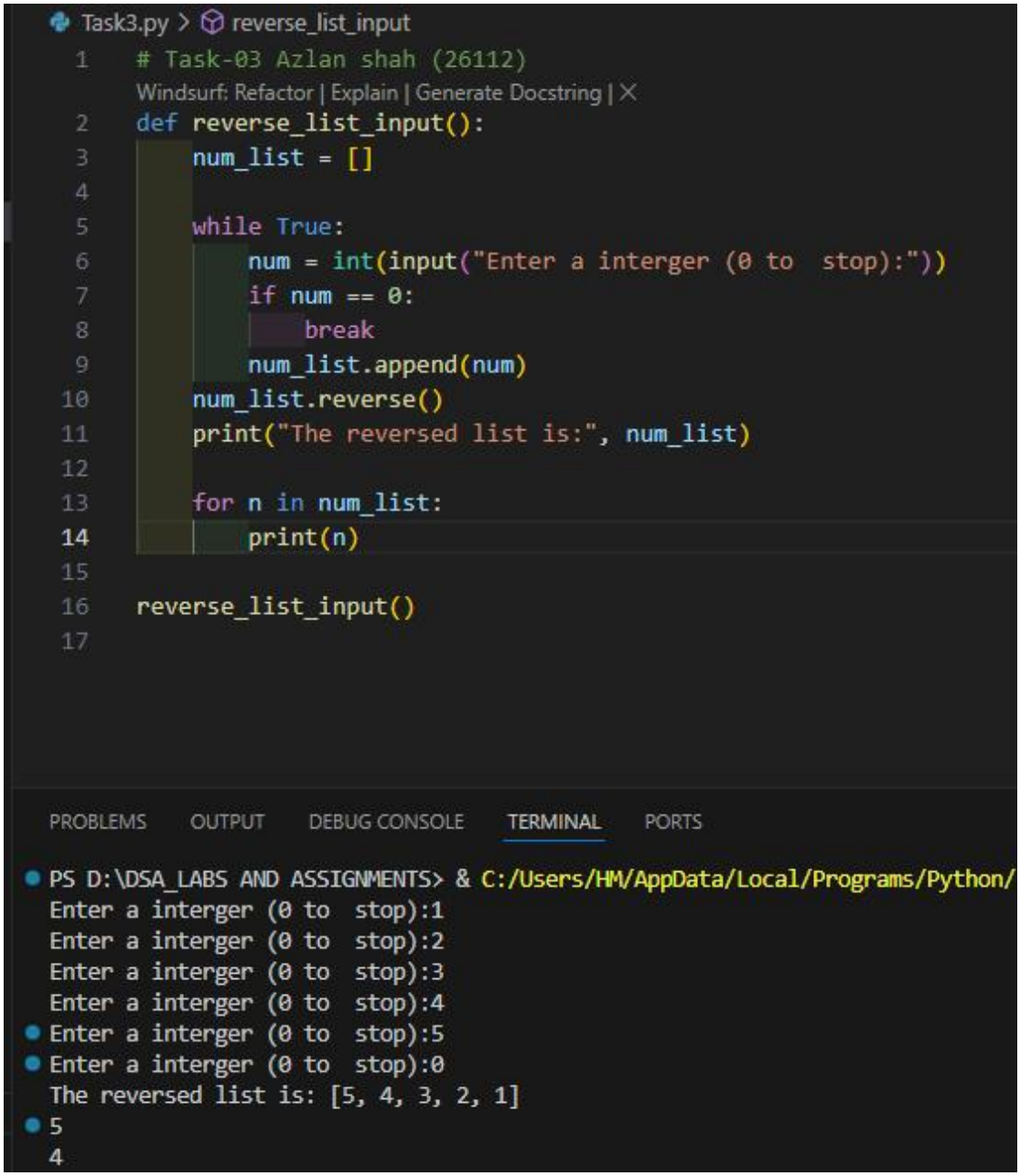
```
PS D:\DSA_LABS AND ASSIGNMENTS> & C:/Users/HM/AppData/Local/Programs/Python/
Enter a number separated by commas: 1,2,3,4,5
The list of numbers is: [1, 2, 3, 4, 5]
The squares of the numbers are: [1, 4, 9, 16, 25]
1,4,9,16,25
PS D:\DSA_LABS AND ASSIGNMENTS>
```

Task2.py > ...

```python
# Task-02  Azlan shah
Windsurf: Refactor | Explain | Generate Docstring | X
def generate_suqare_list():
    square_list = []
    for i in range(1, 21):
        square_list.append(i**2)

    print("first 5 squares are:", square_list[:5])
    print("last 5 squares are:", square_list[-5:])
    print("All except first 5 squares are:", square_list[5:])

    even_numbers = list(filter(lambda x: x % 2 == 0, square_list))
    print("Even numbers are:", even_numbers)

generate_suqare_list()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS D:\DSA_LABS AND ASSIGNMENTS> & C:/Users/HM/AppData/Local/Programs/Python/Python313/python.exe "d:/DSA_
first 5 squares are: [1, 4, 9, 16, 25]
last 5 squares are: [256, 289, 324, 361, 400]
All except first 5 squares are: [36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400]
Even numbers are: [4, 16, 36, 64, 100, 144, 196, 256, 324, 400]
PS D:\DSA_LABS AND ASSIGNMENTS>
```


Task3.py > reverse_list_input
# Task-03 Azlan shah (26112)
Windsurf: Refactor | Explain | Generate Docstring |
def reverse_list_input():
num_list = []
while True:
num = int(input("Enter a interger (0 to stop):"))
if num == 0:
break
num_list.append(num)
num_list.reverse()
print("The reversed list is:", num_list)
for n in num_list:
print(n)
reverse_list_input()
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
PS D:\DSA_LABS AND ASSIGNMENTS> & C:/Users/HM/AppData/Local/Programs/Python/
Enter a interger (0 to stop):1
Enter a interger (0 to stop):2
Enter a interger (0 to stop):3
Enter a interger (0 to stop):4
Enter a interger (0 to stop):5
Enter a interger (0 to stop):0
The reversed list is: [5, 4, 3, 2, 1]
5
4

Task4.py > ...

```python
# Task-04 Azlan shah (26112)
negatives = []
zeros = []
positives = []

while True:
    user_input = input("Enter an integer (blank line to finish): ")
    if user_input == "":
        break
    try:
        num = int(user_input)
        if num < 0:
            negatives.append(num)
        elif num == 0:
            zeros.append(num)
        else:
            positives.append(num)
    except ValueError:
        print("Please enter a valid integer or blank line to finish.")

for n in negatives:
    print("Negative numbers are:",n)
for z in zeros:
    print("Zero numbers are:",z)
for p in positives:
    print("Positive numbers are:",p)

```

```
Enter an integer (blank line to finish): 10
Enter an integer (blank line to finish): -20
Enter an integer (blank line to finish): 0
Enter an integer (blank line to finish): -20
Enter an integer (blank line to finish): 0
Enter an integer (blank line to finish): 0
Enter an integer (blank line to finish):
Enter an integer (blank line to finish):
Negative numbers are: -20
Zero numbers are: 0
Zero numbers are: 0
Positive numbers are: 10
PS D:\DSA_LABS AND ASSIGNMENTS>
```