

ALA-1

## Code With Mistake Comments

```
print("Countdown Simulator")
start = int(input("Enter start number: "))
total = 0
while start >= 0:
    print("Count:", start)
    total = total + start
    if start % 5 == 0:
        print("Multiple of 5")
    start = start - 1
print("Total sum:", total)
average = total / start # ERROR: start becomes -1 after loop
print("Average:", average # ERROR: Missing closing bracket )
if total < 0: # Logical error (never negative)
    print("Unexpected negative total")
```

## Mistakes Explanation

### 1. Division After Loop (Wrong Variable Used)

- After the while loop ends, start becomes -1.
- Program calculates:  
average = total / start
- This gives incorrect result.
- Average should be calculated using **count of numbers**, not modified loop variable.

## **2. Missing Closing Bracket**

```
print("Average:", average
```

- Closing ) is missing.
- This causes **Syntax Error**.
- Python cannot run program if syntax is wrong.

## **3. Incorrect Average Formula**

- Correct formula:  
**Average = Total / Count**
- Program divides by start.
- start is not total count of numbers.
- So average calculation is logically wrong.

## **4. Unnecessary Negative Total Check**

```
if total < 0:
```

- Countdown starts from positive number to 0.
- All added numbers are positive.
- So total can never be negative.
- This condition is logically unnecessary.

## **5. No Division Safety Check**

- If count becomes 0, division may cause error.
- Always check before division.

## **Correct Code**

```
print("Countdown Simulator")
start = int(input("Enter start number: "))
total = 0
count = 0
current = start
while current >= 0:
    print("Count:", current)
    total = total + current
    count = count + 1
    if current % 5 == 0:
        print("Multiple of 5")
    current = current - 1
print("Total sum:", total)
if count > 0:
    average = total / count
    print("Average:", average)
else:
    print("Cannot calculate average")
print("Finished")
```

**OUTPUT:**

```
Count: 10  
Multiple of 5  
Count: 9  
Count: 8  
Count: 7  
Count: 6  
Count: 5  
Multiple of 5  
Count: 4  
Count: 3  
Count: 2  
Count: 1  
Count: 0  
Multiple of 5  
Total sum: 210  
Average: 10.0  
Finished  
PS D:\AMAN> |
```