

Assignment 1

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Download all latex-tikz and C codes from

<https://github.com/Alokking/EE4013/tree/main/Assignment1/codes>

<https://github.com/Alokking/EE4013/blob/main/Assignment1/Assignment.tex>

1 PROBLEM

(Q 37) Consider the following C program.

```
#include <stdio.h>
int main()
{
    int i, j, count;
    count = 0;
    i = 0;
    for(j=-3; j<=3; j++)
    {
        if((j>=0) && (i++))
            count = count + j;
    }
    count = count + i;
    printf("%d", count);
    return 0;
}
```

Which one of the following options are correct ?

- 1) The program will not compile successfully.
- 2) The program will compile successfully and output 10 when executed.
- 3) The program will compile successfully and output 8 when executed.
- 4) The program will compile successfully and output 13 when executed.

2 SOLUTION

Answer : Option 2

- Initially, $i=0$, $count=0$ and a for loop is running from $j= -3$ to $j=3$. If condition inside the for loop will execute when $j \geq 0$ and i is non zero.

So for $j=-3, -2, -1$, it will not go inside the if condition, as j is less than 0.

- When $j=0$, initial value of i is also 0, so if condition will not satisfy, but $i++$ will increment the value of i after checking the if condition. so now $i = 1$.
- When $j=1$, the value of i is 1, so it will enter the if condition and the value of count will be $0+1 = 1$, and $i++$ will increment the value of i after checking the if condition. so now $i = 2$.
- When $j=2$, the value of i is 2, so it will enter the if condition and the value of count will be $1+2 = 3$, and $i++$ will increment the value of i after checking the if condition. so now $i = 3$.
- When $j=3$, the value of i is 3, so it will enter the if condition and the value of count will be $3+3 = 6$, and $i++$ will increment the value of i after checking the if condition. so now $i = 4$.
- After running the for loop, the value of count variable is 6 and the value of i is 4.
So, $count=count+i$ will be $6+4=10$.

Explanation

Initially $i=0$, $j=-3$, $count=0$

As $j \geq 0$, i increases

int i	int j	count=count+j
0	-3	0
0	-2	0
0	-1	0
1	0	0
2	1	1
3	2	3
4	3	6

TABLE 4

After reaching $j=3$ the loop will break

We have $count = 6$ and $i = 4$

Here the answer is $count + i$ that is $6 + 4 = 10$