Institute of Computer Technology
B. Tech. Computer Science and Engineering

Sub: ESFP – I
Course Code: 2CSE102

Practical – 4

Name:Dwij vatsal desai
Roll No:BDA-08
Branch:BDA
Class: B
Batch:14

Q.1.Problem Definition:

Make a program in C to accept any random two numbers from user. Find out
bitwise (|) addition and (&) multiplication of two numbers.
Case-1:
[Hint: Bitwise addition: Assume a = 5, b=6
- 5 in binary bit : 00000101
- 6 in binary bit : 00000110
- Binary Addition (5 | 6) : 00000111
- Result : 7
]
Case-2:
- [Hint : Bitwise multiplication: Assume a = 5, b=6
- 5 in binary bit : 00000101
- 6 in binary bit : 00000110
- Binary multiplication (5 & 6) : 00000100
- Result : 4]

Input Format:
- Input two numbers in the first line followed by one space.
- For example.

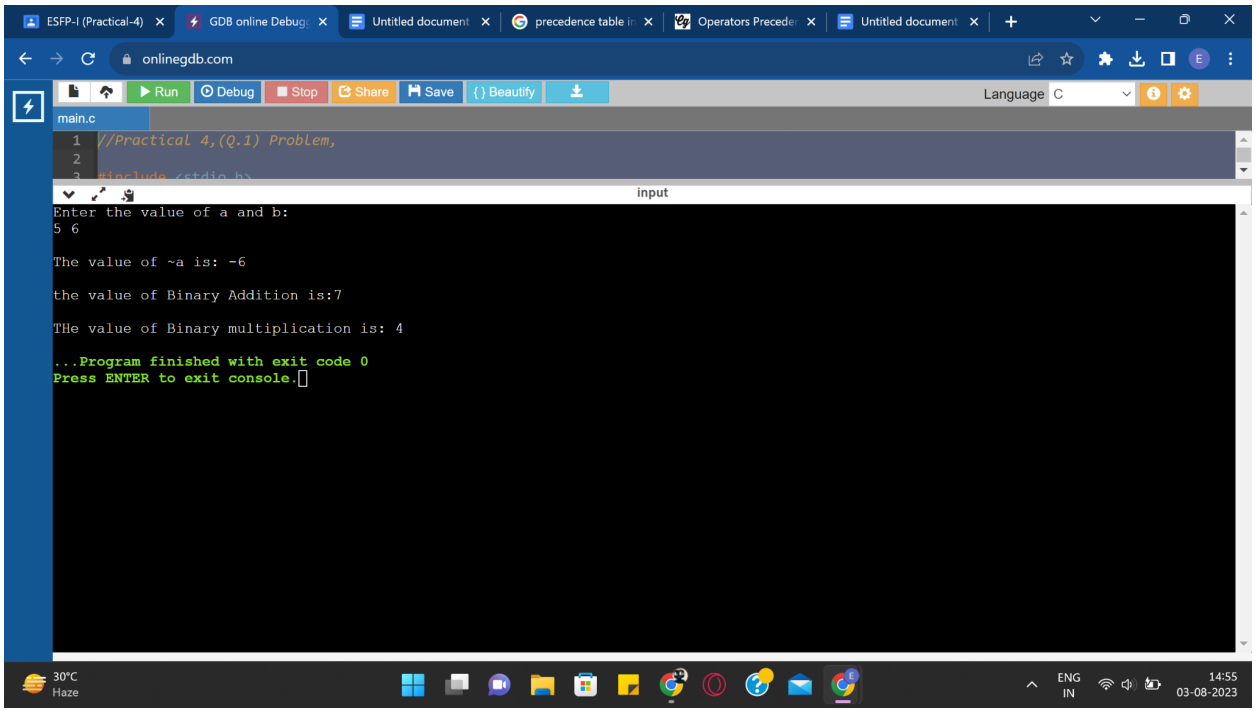
- 5 6
Output Format:
- Two number binary addition output should be in first line.
- For example.
- 7
- Two number binary multiplication output should be second line.
- 4
Sample Input:
5 6
Sample Output:
7
4

Solution:

Code:-

```
//Practical 4,(Q.1) Problem,

#include <stdio.h>

void main()
{
    int a;
    int b;

    printf("Enter the value of a and b: \n");
    scanf("%d%d",&a,&b);
    int c = ~a;
    printf("\n");
    printf("The value of ~a is: %d\n\n",c);

    int z=a|b;
```

```
    printf("the value of Binary Addition is:%d\n\n",z);

    int y=a&b;
    printf("THe value of Binary multiplication is: %d",y);

}
```



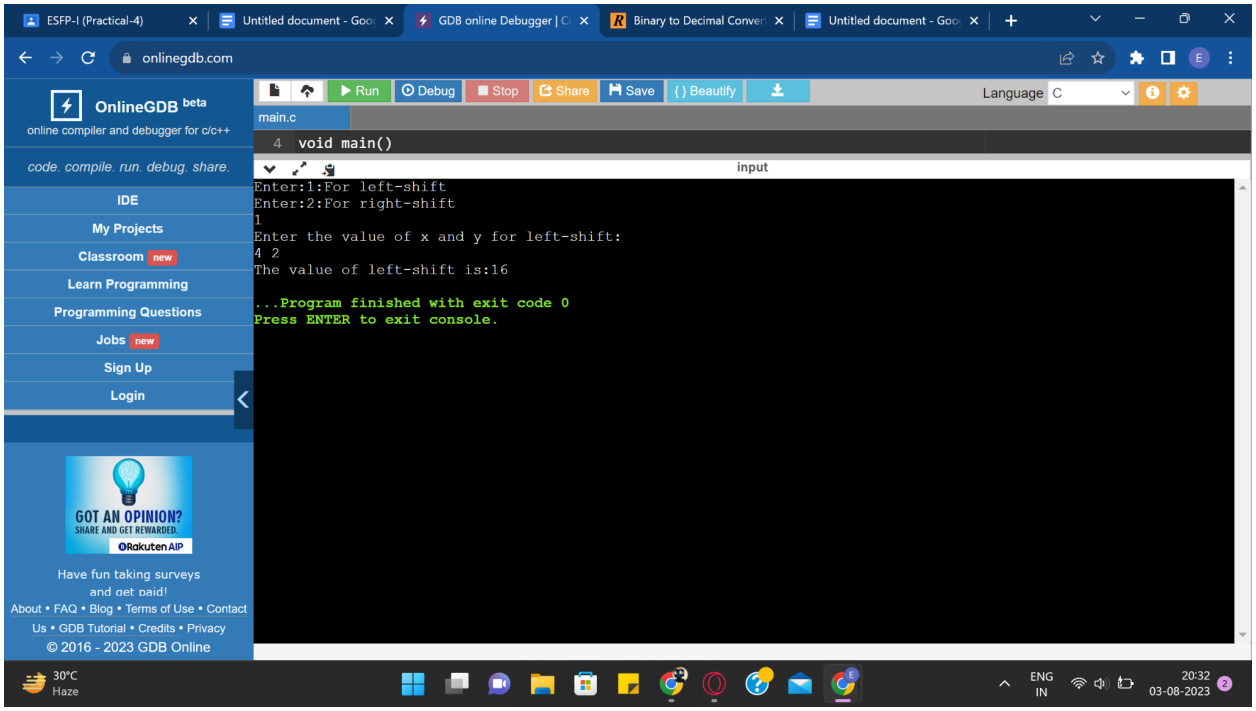
Q.2. Problem Definition : Write program and find out the result with the help of given first and second operand value using left-shift and right-shift bitwise operators. Explain solution with the help of binary numbers as well as with the help of formulas.Assume, x and y value are pre-initialized in program, or if you want to read x and y value at run time, you can read it, but you have to read same value which I have mentioned in the table. Following is the value of first and second operand.

Solution:

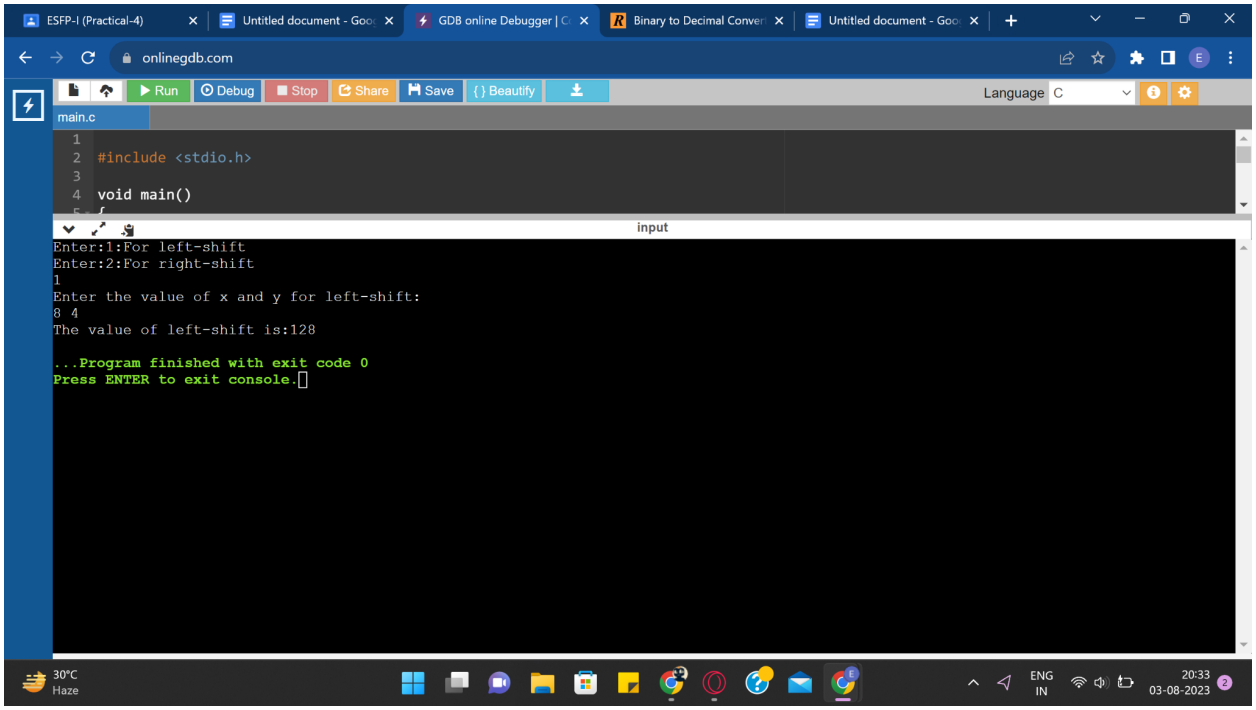
Code:-

```
#include <stdio.h>

void main()
{
    int x;
    int y;
    int Option;

    printf("Enter:1:For left-shift\n""Enter:2:For right-shift\n");
    scanf("%d",&Option);

    if(Option==1)
    {
     printf("Enter the value of x and y for left-shift: \n");
     scanf("%d%d",&x,&y);

     printf("The value of left-shift is:%d ",x<<y);
    }

    else if(Option==2)
    {
     printf("Enter the value of x and y for right-shift: \n");
     scanf("%d%d",&x,&y);

     printf("The value of left-shift is:%d ",x>>y);

    }

}
```

1. x=4
y=2
Find:
x<<y



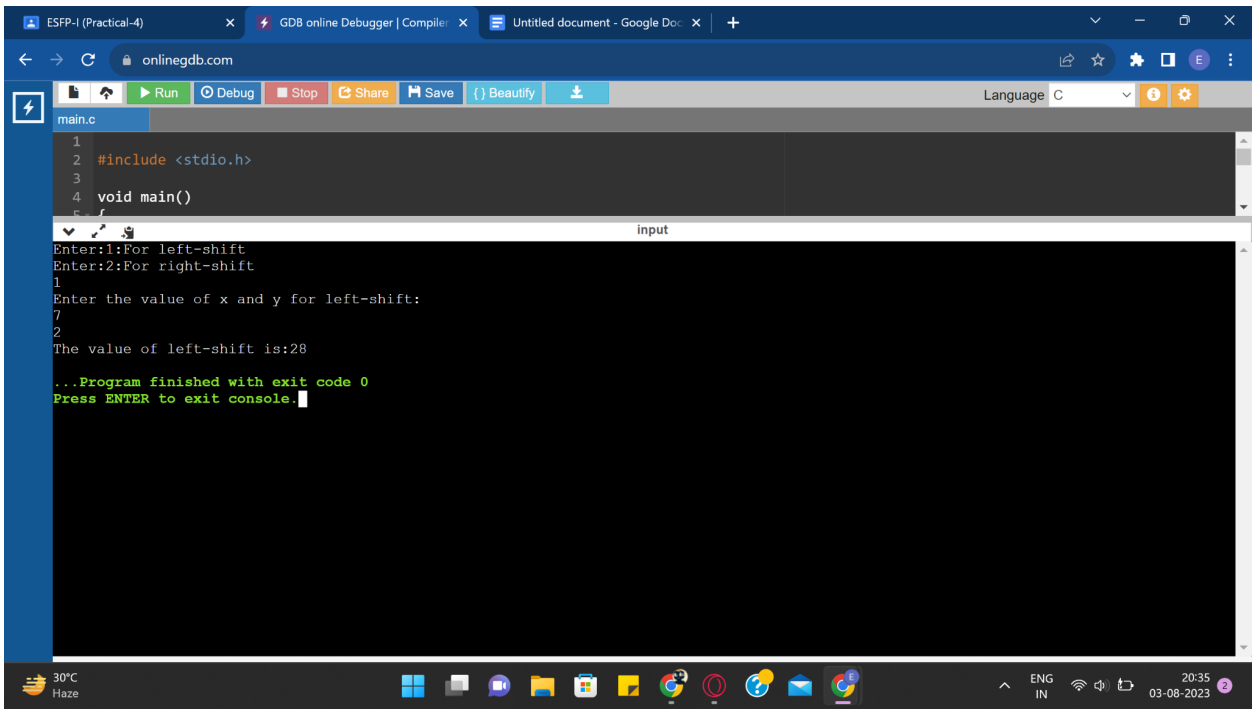
2. x=8
y=4
Find:
x<<y



3. x=7

Find:

x<<2

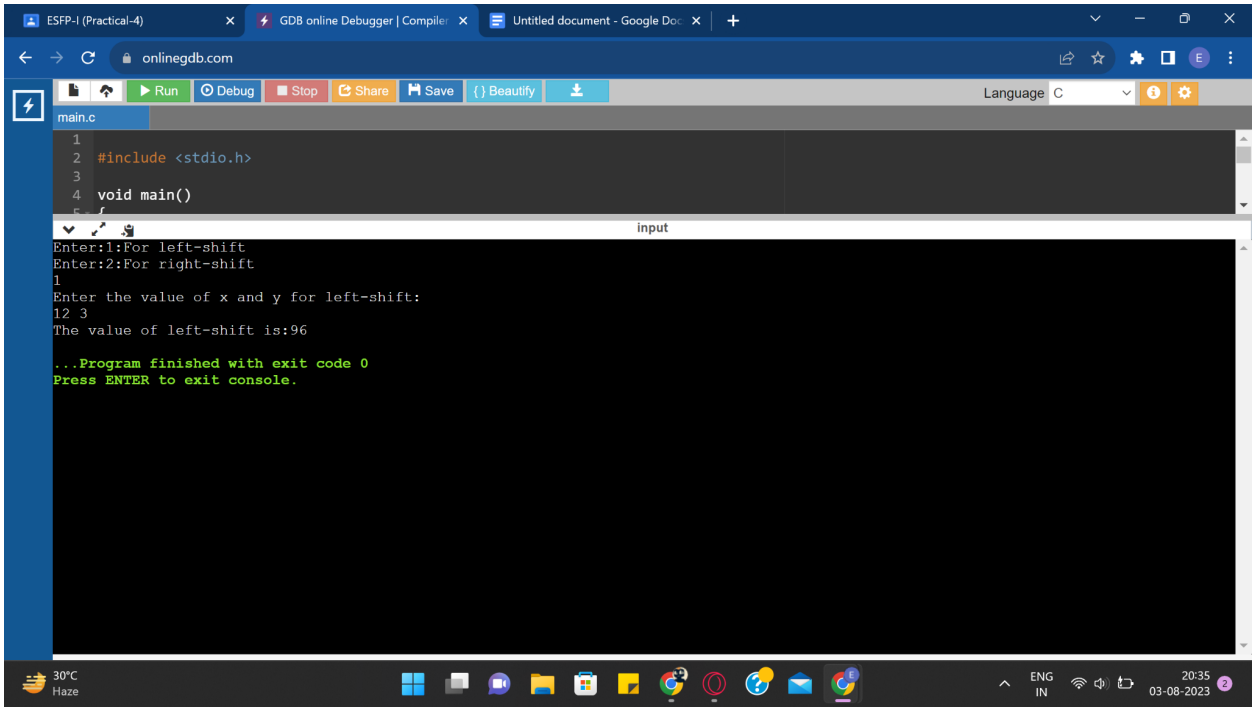


4. x=12

y=3

Find:

x<<y

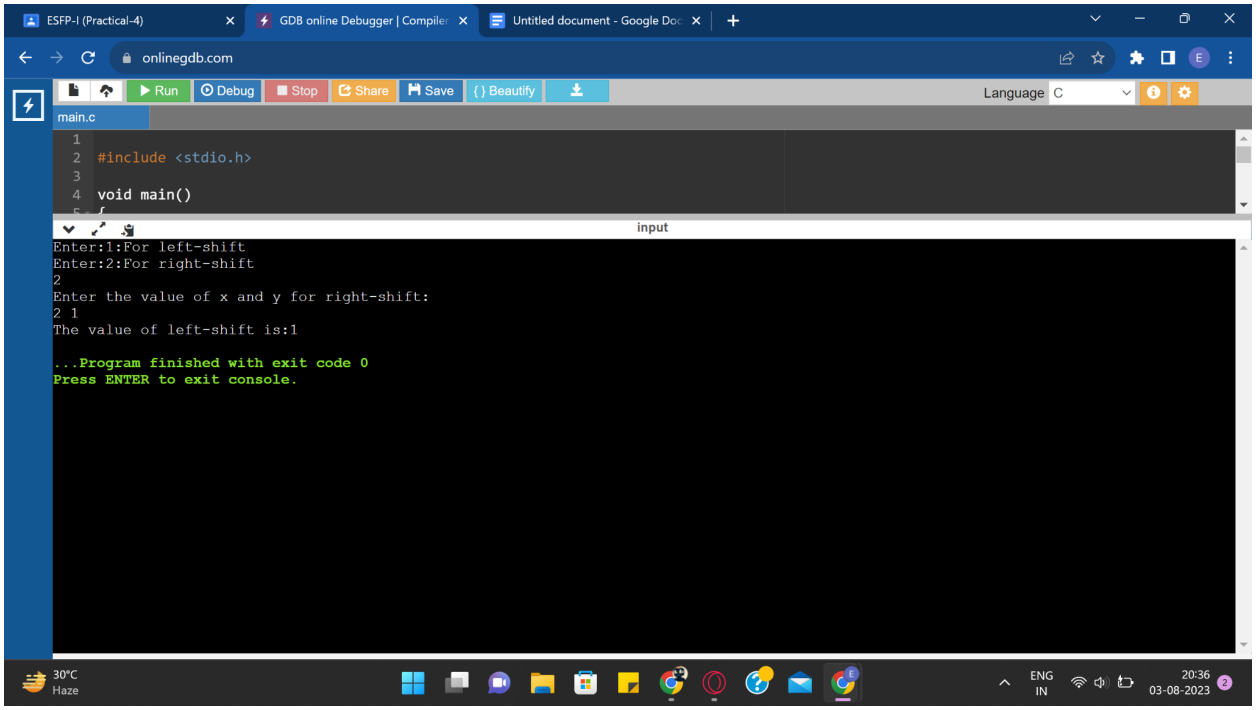


5. x=2

y=1

Find:

x>>y

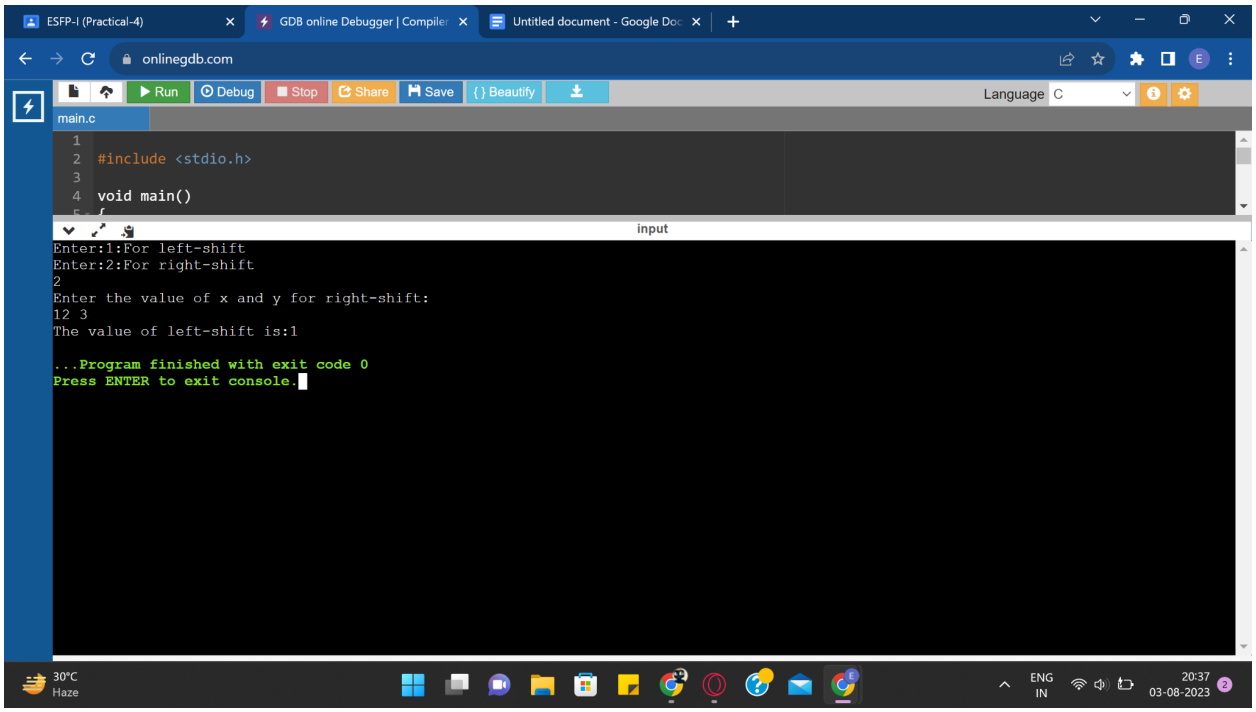


6. x=12

Y=3

Find:

x>>y

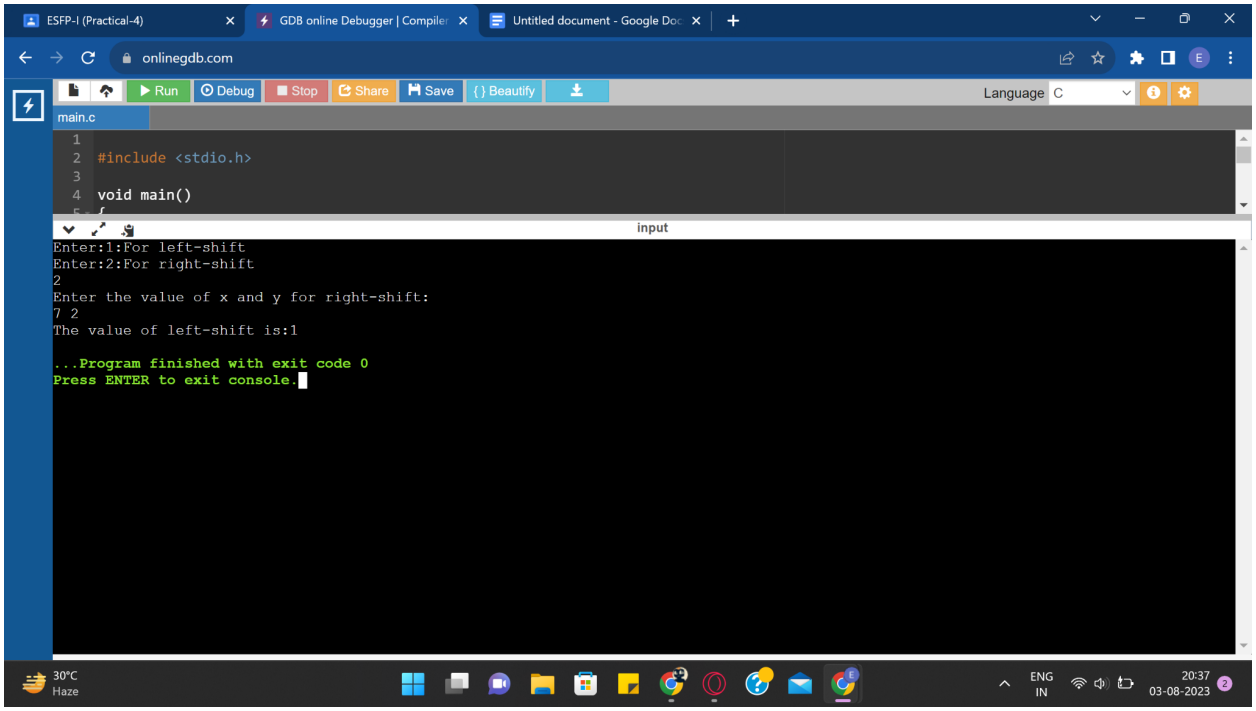


7. x=7

Y=2

Find:

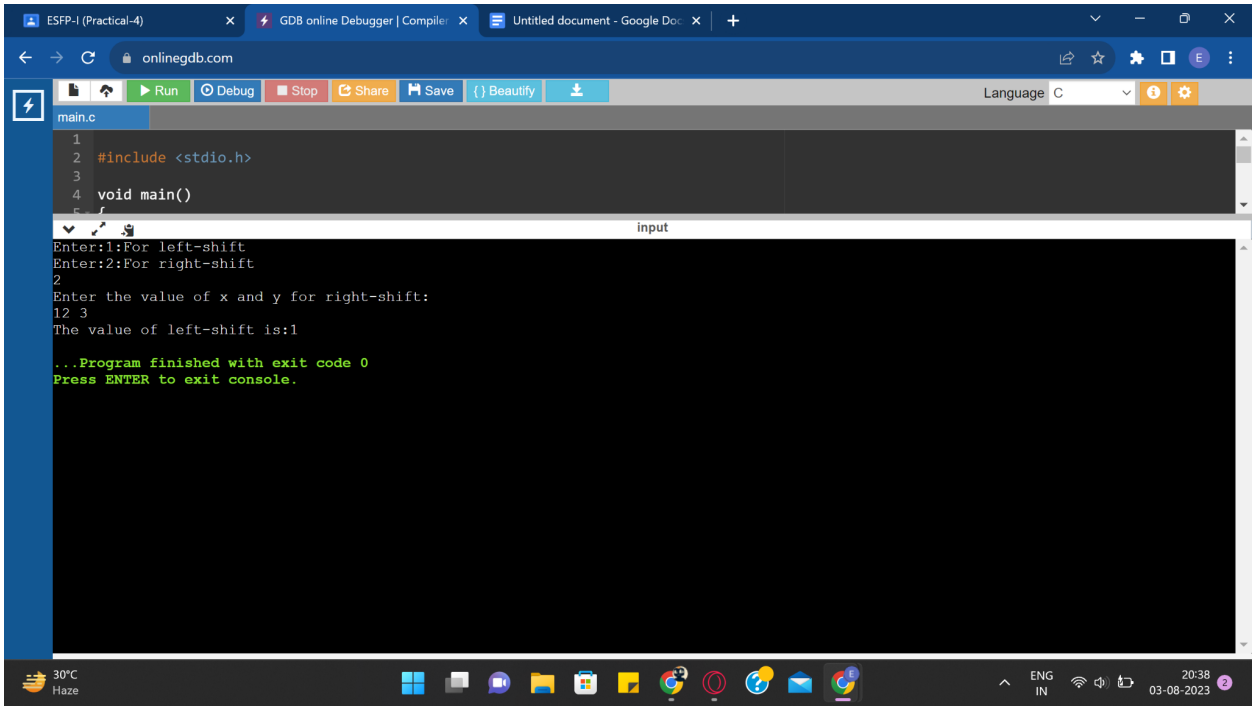
x>>y



8. x=12

Find:

x>>3



Q.3. Find out the result of the following with the help of increment and decrement operator, if you have any error, correct it, and then write a proper code with output.

Solution:

Code:-

1.

```
#include<stdio.h>
#include<math.h>
int main()
{
  int a=2,b;
  b=a++ + a-- + ++a + --a;
  printf("%d %d",a,b);

  return 0;
}
```

main.c

```c
    //Practical-3(Q-3);
#include<stdio.h>
#include<math.h>
int main()
{
  int a=2,b;
  b=a++ + a-- + ++a + --a;
  printf("The value of the a and b is given as respectively:\n");
  printf("%d %d",a,b);
  //for int 'return 0;' was not writen.
  return 0;
}

```

input

```
The value of the a and b is given as respectively:
2 10

...Program finished with exit code 0
Press ENTER to exit console.
```

2.

```c
#include<stdio.h>
#include<math.h>
int main()
{
int a = 5, b = 7;
int c = --a + b--;
printf("%d",c);
}
```

```
1     //Practical-3(Q-3);
2  #include<stdio.h>
3  #include<math.h>
4  int main()
5  {
6   int a = 5, b = 7;
7   int c = --a+b--;
8   printf("%d",c);
9   //for int 'return 0;' was not written.
10  return 0;
11 }
```

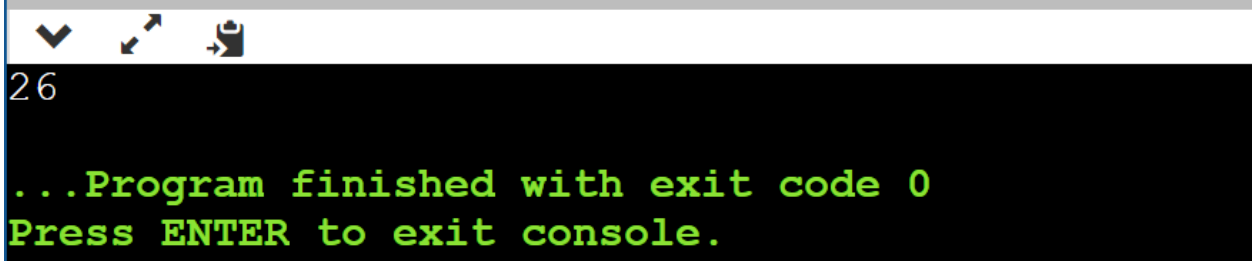
```
11

...Program finished with exit code 0
Press ENTER to exit console.
```

3.

```
#include<stdio.h>
#include<math.h>
int main()
{
int a = 4, b = 9;
int c = (a + b++) + (--a + b--);
printf("%d",c);
```

}

```c
    //Practical-3(Q-3);
//3.
#include<stdio.h>
#include<math.h>
int main()
{
int a = 4, b = 9;
int c = (a + b++) + (--a + b--);
printf("%d",c);
//for int 'return 0;' was not written.
return 0;
}

```



```
26

...Program finished with exit code 0
Press ENTER to exit console.
```

4.

```c
#include<stdio.h>
#include<math.h>
int main()
{
```

bool a = false;
a++;
printf("%d",a);
}

```
    //Practical-3(Q-3);
//4.
#include<stdio.h>
#include<math.h>
//'#include<stdbool.h>' was not written.
#include<stdbool.h>
int main()
{
bool a = false;
a++;
printf("%d",a);
//for int 'return 0;' was not written.
return 0;
}
```

```
1

...Program finished with exit code 0
Press ENTER to exit console.
```

5.

```
#include<stdio.h>
#include<math.h>
int main()
{
```

int a = 5;
int c = ++(++a);
return 0;
}

```
    //Practical-3(Q-3);
//5.
#include<stdio.h>
#include<math.h>
int main()
{
int a = 5;
//to add '++' two times you nned to and it step by step.
int c =(++a,++a);
//there wass no printf used to display the ending value.
printf("THe value of c is: %d",c);
return 0;
}
```

```
THe value of c is: 7

...Program finished with exit code 0
Press ENTER to exit console.
```

6.

```
#include<stdio.h>
int main()
{
int a=5;
printf("%d", ++a++);
return 0;
}
```

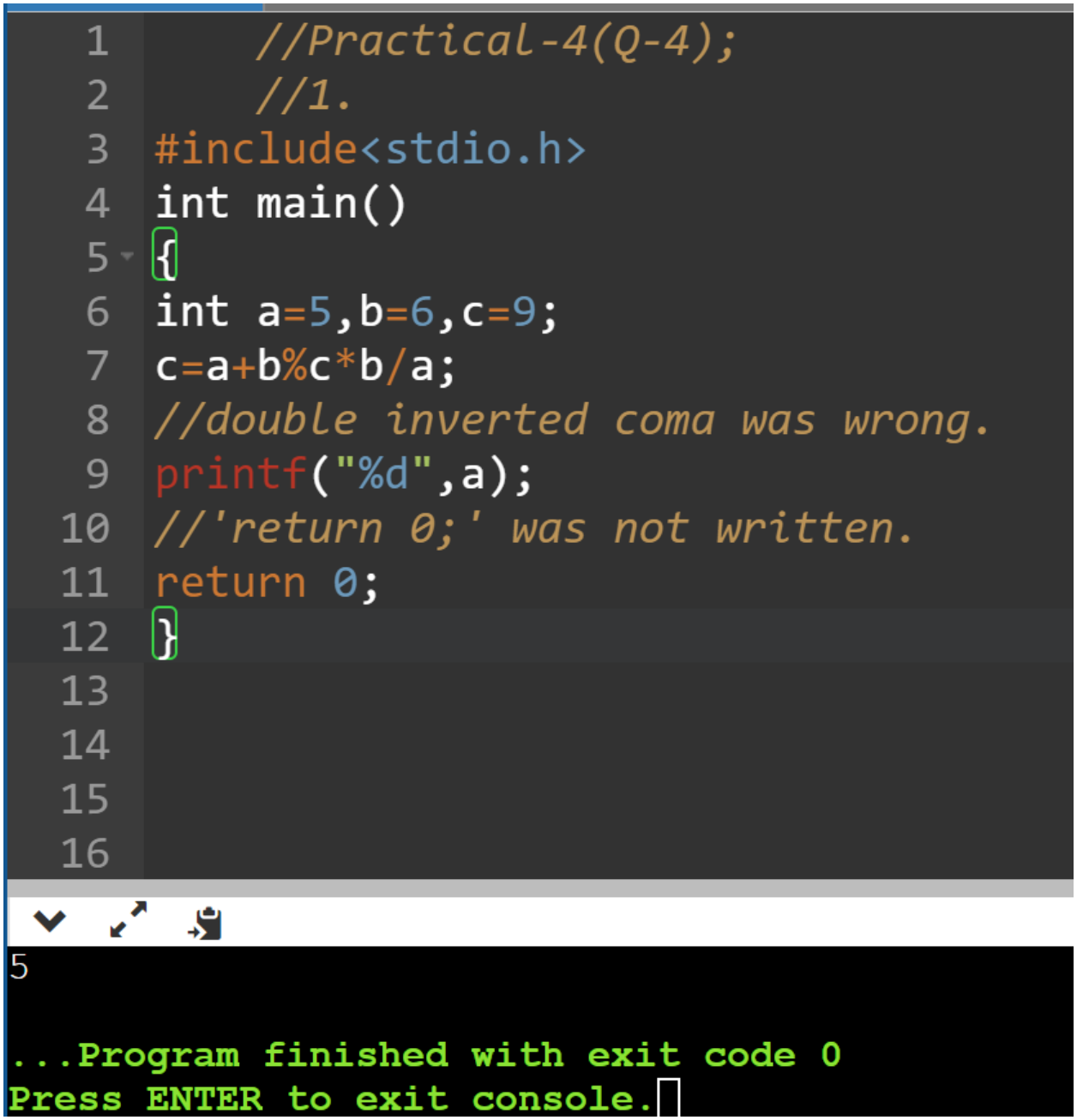
```c
    //Practical-3(Q-3);
//6.
#include<stdio.h>
int main()
{
int a=5;
//to add '++' two times you nned to and it step by step.
//and use '%d' two times.
printf("%d %d", ++a,a++);
return 0;
}
```

input

```
7 5

...Program finished with exit code 0
Press ENTER to exit console.
```

Q.4: Implement the code to find the result of various expressions, if you found any error, correct it, and then print output.

1.



```
1     //Practical-4(Q-4);
2     //1.
3  #include<stdio.h>
4  int main()
5  {
6  int a=5,b=6,c=9;
7  c=a+b%c*b/a;
8  //double inverted coma was wrong.
9  printf("%d",a);
10 //'return 0;' was not written.
11 return 0;
12 }
13
14
15
16
```

```
5

...Program finished with exit code 0
Press ENTER to exit console.
```

2.

```c
    //Practical-4(Q-4);
    //1.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5, b=6; b=++a
* ++a * ++a ;
printf("%d", b);
//'return 0;' was not written.
return 0;

}
```

```
392

...Program finished with exit code 0
Press ENTER to exit console.
```

3.

```c
    //Practical-4(Q-4);
    //1.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=a<<2; //or c=a>>2;
printf("%d",c);
//'return 0;' was not written.
return 0;
}
```

```
20

...Program finished with exit code 0
Press ENTER to exit console.
```

4.

```c
    //Practical-4(Q-4);
    //4.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=a&b+c|b/a&c;
printf("%d",c);
//'return 0;' was not written.
return 0;
}
```

```
5

...Program finished with exit code 0
Press ENTER to exit console.
```

5.

```c
    //Practical-4(Q-4);
    //5.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=a+b<<2+c&b;
printf("%d",c);
//'return 0;' was not written.
return 0;
}
```

```
0

...Program finished with exit code 0
Press ENTER to exit console.
```

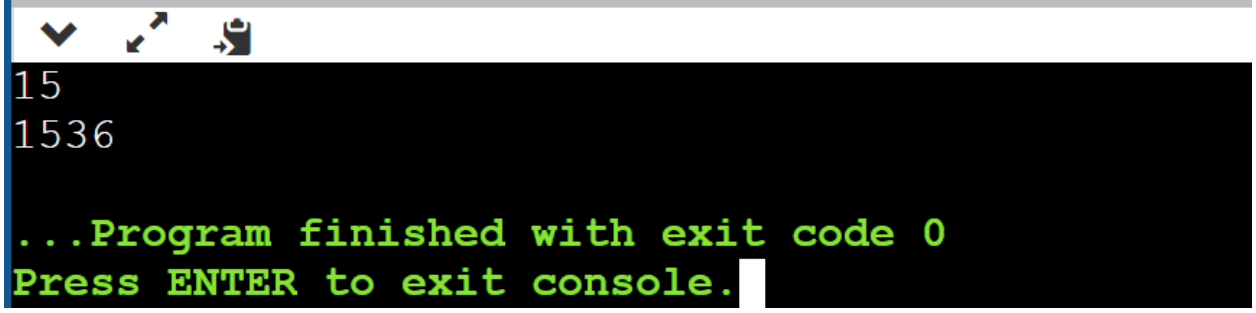
6.

```c
    //Practical-4(Q-4);
    //5.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=++a + a++ + ++a;
printf("%d",c);
printf("\n");
c=++c+b<<4+b&a;
printf("%d",a);
//'return 0;' was not written.
return 0;
}

```

```
21
8

...Program finished with exit code 0
Press ENTER to exit console.
```

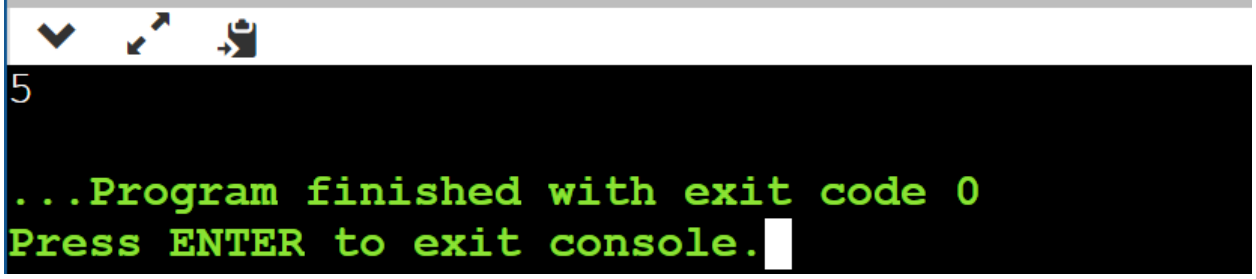
7.

```c
    //Practical-4(Q-4);
    //7.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9; c+=b;
printf("%d",c);
printf("\n");
c=a^b<<2+b^a;
printf("%d",c);
//'return 0;' was not written.
return 0;
}
```



8.

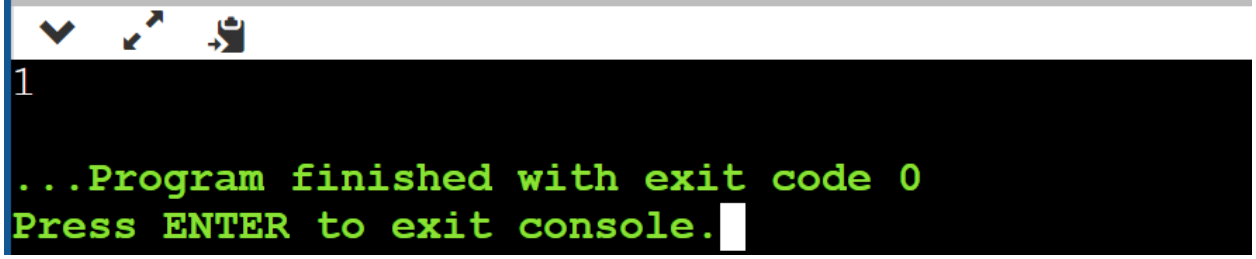
```c
    //Practical-4(Q-4);
    //7.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=a^c<<2+b&c;
printf("%d",a);
//'return 0;' was not written.
return 0;
}
```



```
5

...Program finished with exit code 0
Press ENTER to exit console.
```

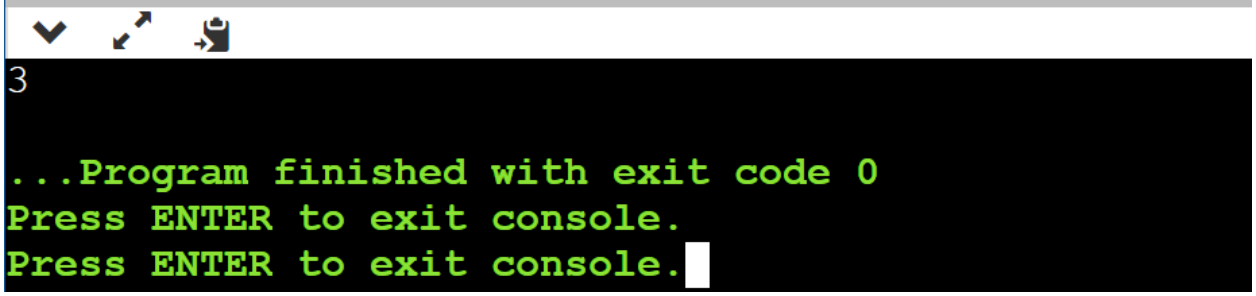
9.

```c
    //Practical-4(Q-4);
    //7.
//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a=5,b=6,c=9;
c=a>=b+c&b^a<<2+a&&b;
printf("%d",c);
//'return 0;' was not written.
return 0;
}
```



10.

```c
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a = 5; a = 1,a=2,a=3;
printf("%d", a);
return 0;
}
```



11.

```c
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int x[10] = {0, 1, 2, 3,
4, 5, 6, 7, 8, 9};
//it needs the size of the variable.
printf("%li",sizeof(x));
return 0;
}
```

```
40

...Program finished with exit code 0
Press ENTER to exit console.
```

12.

```
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
unsigned int num = -4;
printf("%d", ~num);
return 0;
}
```

```
3

...Program finished with exit code 0
Press ENTER to exit console.
```

13.

```c
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int x = 2;
(x & 1) ?
printf("true") :
printf("false");
return 0;
}
```

```
false

...Program finished with exit code 0
Press ENTER to exit console.
```

14.

```c
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a = 4, b = 2;
printf("a^b = %d",a^b);
return 0;
}
```

```
a^b = 6

...Program finished with exit code 0
Press ENTER to exit console.
```

15.

```c
    //Practical-4(Q-4);

//#include<stdio.h> was not written.
#include<stdio.h>
int main()
{
int a = 4, b = 2;
printf("~a= %d\n",~a);
printf("~b= %d",~b);
return 0;
}
```

```
~a= -5
~b= -3

...Program finished with exit code 0
Press ENTER to exit console.
```