

Increment / decrement operators [++ / --]:

They are used to increment / decrement a variable value by 1.

Eg.

```
int a=2;
```

```
a++; i.e. a=a+1 → a=3;
```

```
int b=8;
```

```
b--; i.e. b=b-1 → b=7
```

TC

File Edit Run Compile Project Options Debug

Line 15 Col 1 Insert Indent Tab Fill Unindent

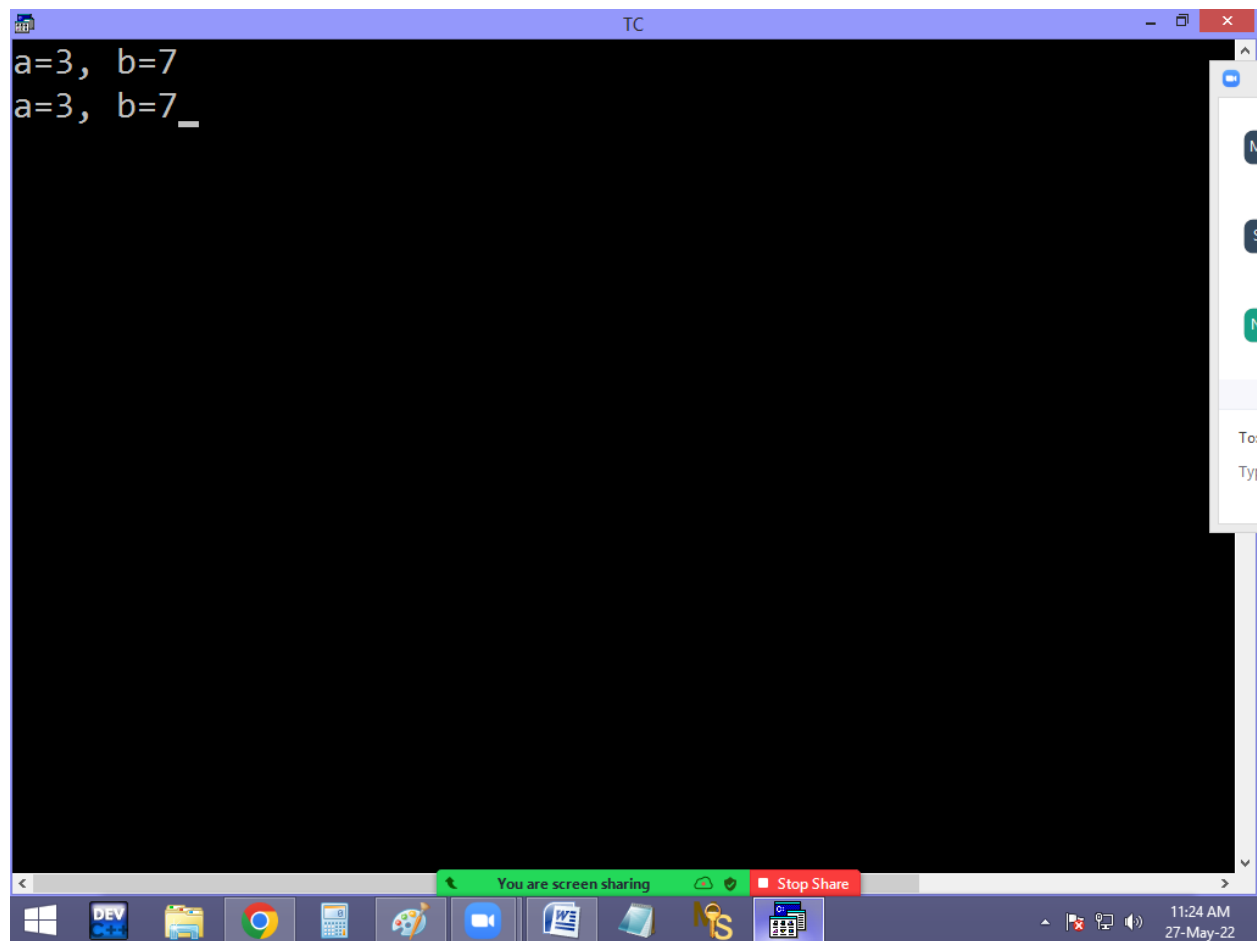
```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2, b=8;
clrscr();
a++; /* postfix incr */
b--; /* postfix decr */
printf("a=%d, b=%d\n",a,b);
a=2;
b=8;
++a; /* prefix incr */
--b; /* prefix decr */
printf("a=%d, b=%d",a,b);
getch();
}
```

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11:24 AM 27-May-22



```
TC
File Edit Run Compile Project Options Debug
Line 15 Col 14 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b;
clrscr();
b=a++; /* postfix incr */
printf("a=%d, b=%d\n",a,b);
a=2;
b=++a; /* prefix incr */
printf("a=%d, b=%d",a,b);
getch();
}
/* a=3, b=2
   a=3, b=3 */
```

int a=2;

b=a++;

priority: =, ++ (post)

1. b=a==> b=2

2. a++ ==> a=3

int a=2;

b= ++a;

priority: ++a (pre), =

1. ++a ==> a=3 ✓

2. b=a ==> b=3 ✓

The screenshot shows a Turbo C++ IDE window titled 'TC'. The menu bar includes File, Edit, Run, Compile, Project, Options, and Debug. The status bar at the top indicates 'Line 14 Col 12 Insert Indent Tab Fill Unindent *'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b;
clrscr();
b=a--; /* postfix decr */
printf("a=%d, b=%d\n",a,b);
a=2;
b--a; /* prefix decr */
printf("a=%d, b=%d",a,b);
getch();
}
/* a=1, b=2
   a=1, b=1*/
```

Below the code editor, there is a green status bar that says 'You are screen sharing' and a red 'Stop Share' button. At the bottom, there is a toolbar with icons for Mute, Start Video, Participants (20), Chat, New Share, Pause Share, Annotate, Remote Control, Apps, and More. The Windows taskbar at the very bottom shows various application icons and the system clock indicating 11:32 AM on 27-May-22.

a=2;

b=a--;

priority: =, a-- (post)

1. b=a==> b=2

2. a-- ==> a=1

a=2;

b= --a;

priority: --a (pre), =

1. --a ==> a=1

2. b=a ==> b=1

```
TC
File Edit Run Compile Project Options Debug
Line 15 Col 13 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=5,b;
clrscr();
b=a++ + a++ + a++;
printf("a=%d, b=%d\n",a,b);
a=5;
b=++a + ++a + ++a;
printf("a=%d, b=%d",a,b);
getch();
}
/* a=8, b=15
   a=8, b=24*/
```

a=5;

b= a++ + a++ + a++;

priority: +, =, a++

1. b = a + a + a ==> 5 + 5 + 5

2. b = 15

3.

a++ ==> a=6

a++ ==> a=7

a++ ==> a=8

a=5

b= ++a + ++a + ++a;

priority: ++a, +, =

1.

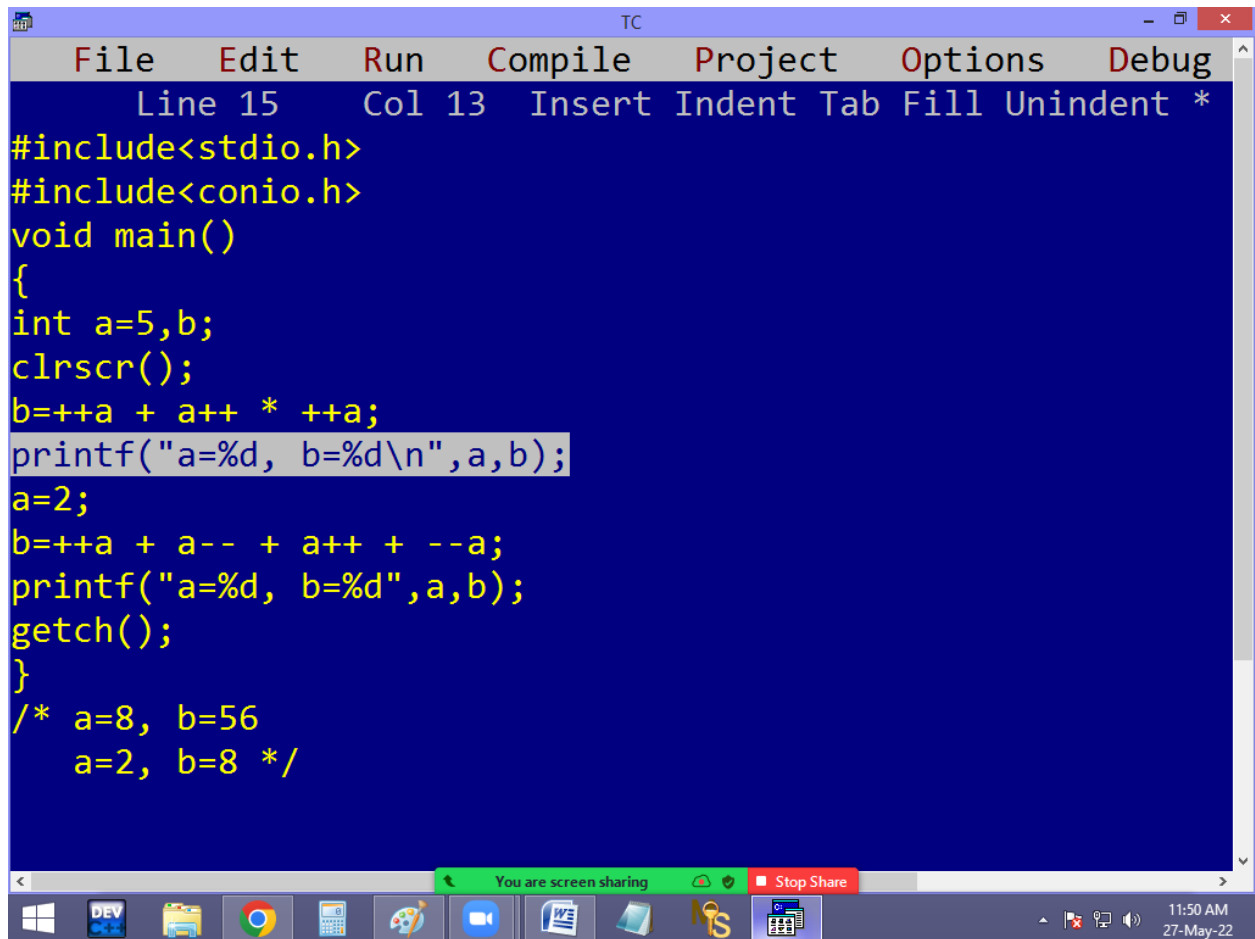
++a==>a=6

++a==>a=7

++a==>a=8

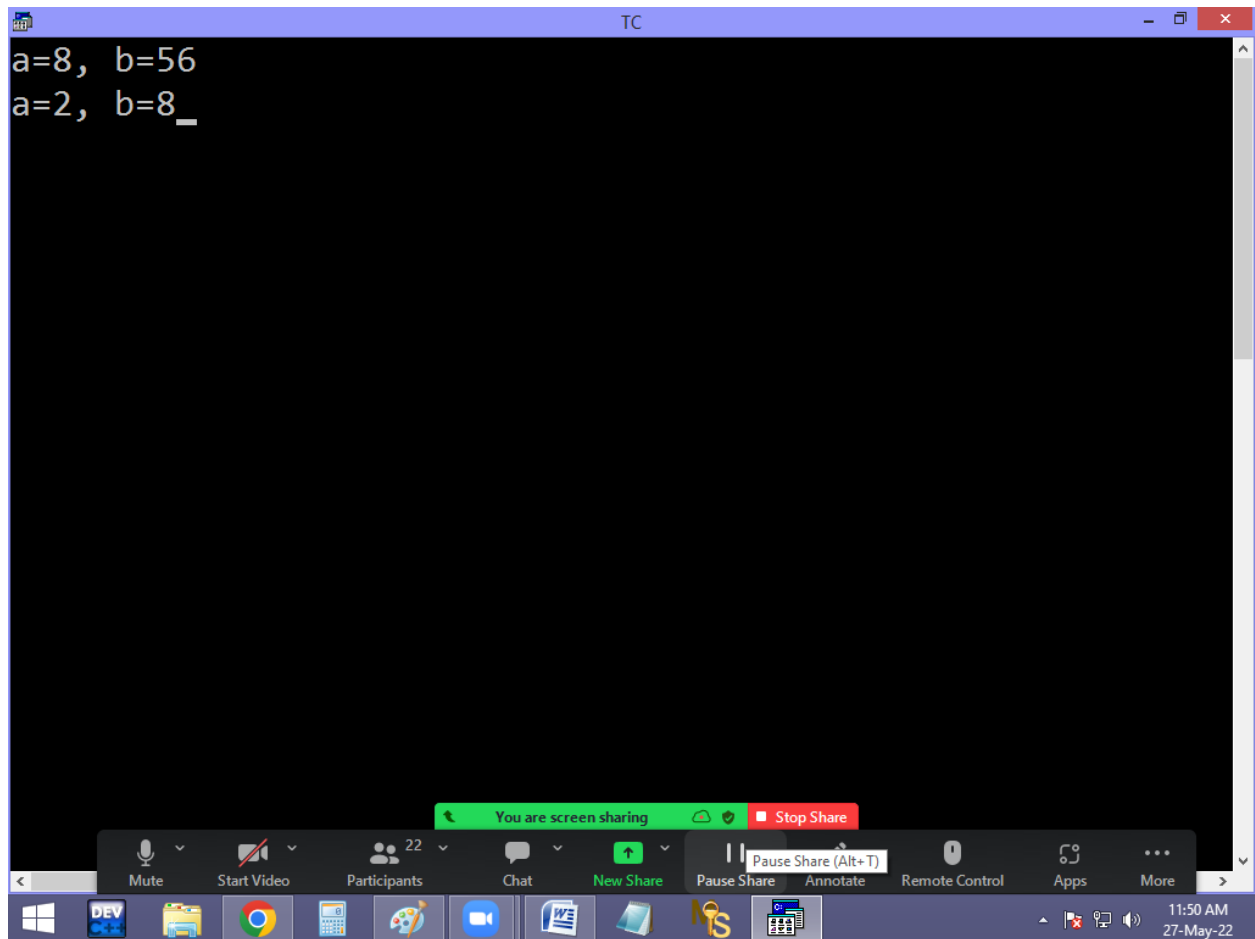
2. b = a + a + a ==> 8 + 8 + 8

3. b = 24



```
TC
File Edit Run Compile Project Options Debug
Line 15 Col 13 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=5,b;
clrscr();
b=++a + a++ * ++a;
printf("a=%d, b=%d\n",a,b);
a=2;
b=++a + a-- + a++ + --a;
printf("a=%d, b=%d",a,b);
getch();
}
/* a=8, b=56
a=2, b=8 */

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11:50 AM
27-May-22
```



```
a=5;  
b = ++a + a++ * ++a;  
priority: ++a, *, +, =, a++  
1. ++a ==> a=6  
   ++a ==> a=7  
2. b = a + a * a ==> 7 + 7 * 7  
3. b = 7 + 49  
4. b = 56  
5. a++ ==> a=8
```

```
a=2  
b = ++a + a-- + a++ + --a;  
priority: ++a, --a, +, =, a++, a--  
1. ++a ==> a=3  
2. --a ==> a=2  
3. b = a + a + a + a ==> 2+2+2+2  
4. b=8  
5. a++ ==> a=3  
6. a-- ==> a=2
```



```
TC
File Edit Run Compile Project Options Debug
Line 12 Col 17 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=1,b=9;
clrscr();
a= a++ + ++b;
b= ++a + b++;
printf("a=%d, b=%d\n",a,b);
getch();
}
/* a=13, b=24 */
```

a=1 b=9

a = a++ + ++b;

priority: ++b, +, =, a++

1. ++b==> b=10

2. a = a + b ==> 1 + 10

3. a = 11

4. a++ ==> a=12

a=12 b=10

b = ++a + b++;

priority: ++a, +, =, b++

1. ++a ==> a=13

2. b = a + b ==> 13 + 10

3. b = 23

4. b++ ==> b = 24

```
TC
File Edit Run Compile Project Options Debug
Line 13 Col 11 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
clrscr();
a++/2;
printf("a=%d\n",a);
++a/2;
printf("a=%d",a);
getch();
}
/* a=11, a=12 */
```

a=10

a++/2;

priority: /, a++

a/2==>10/2=5 [5 not stored in a because of=not used i.e. a=10]

a++ ==> a=11 ✓

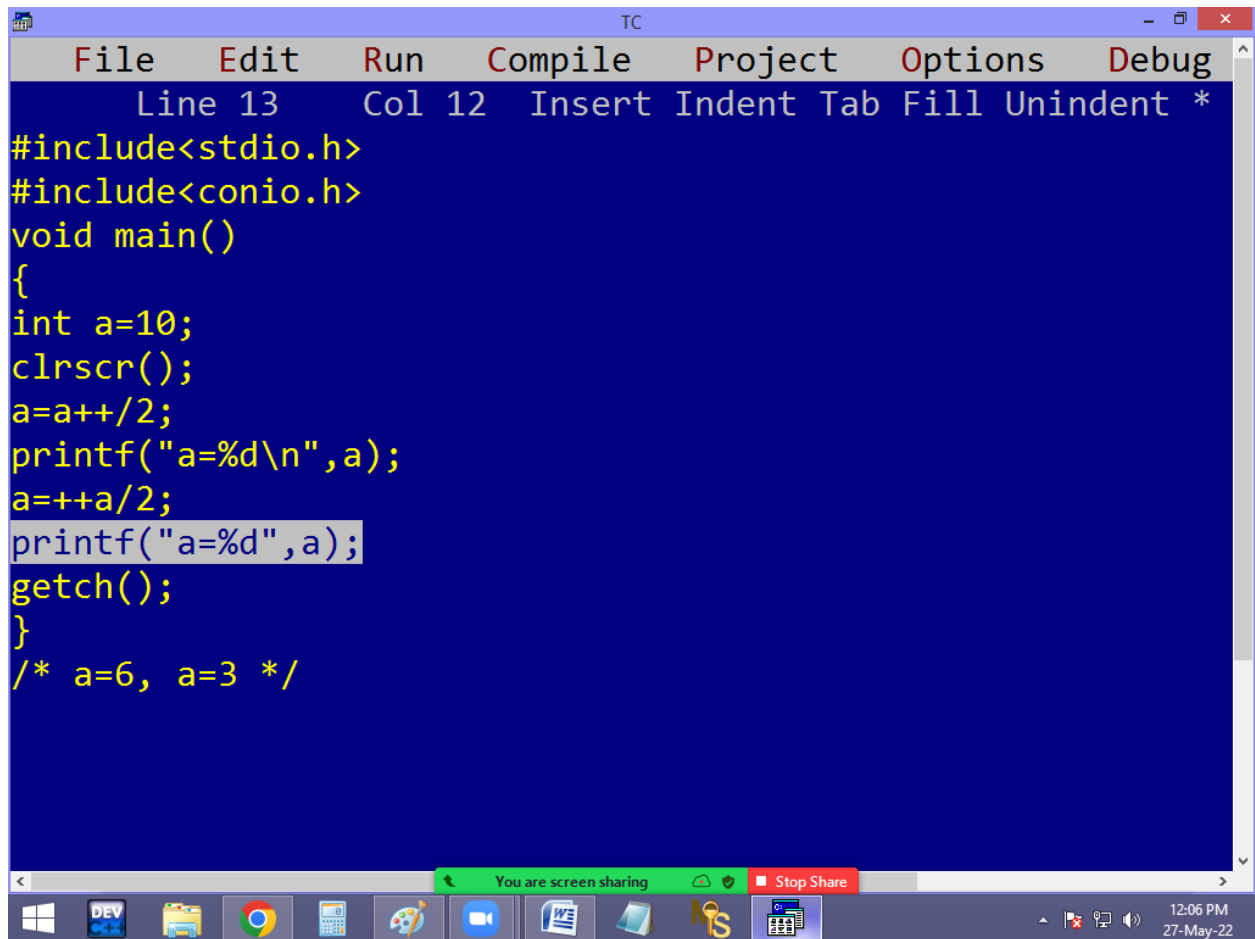
++a/2;

priority:

++a, /

++a==>a=12 ✓

a/2==>12/2=6 [6 not stored because of = not used i.e. a=12]



```
TC
File Edit Run Compile Project Options Debug
Line 13 Col 12 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
clrscr();
a=a++/2;
printf("a=%d\n",a);
a=++a/2;
printf("a=%d",a);
getch();
}
/* a=6, a=3 */

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12:06 PM 27-May-22
```

$a=10$

$a=a++/2$

priority: $/$, $=$, $a++$

1. $a=a/2 \implies a=10/2=5$

2. $a=5$

3. $a++ \implies a=6$

2. $a=++a/2;$

priority: $++a$, $/$, $=$

1. $++a \implies a=7$

2. $a=a/2 \implies 7/2=3$

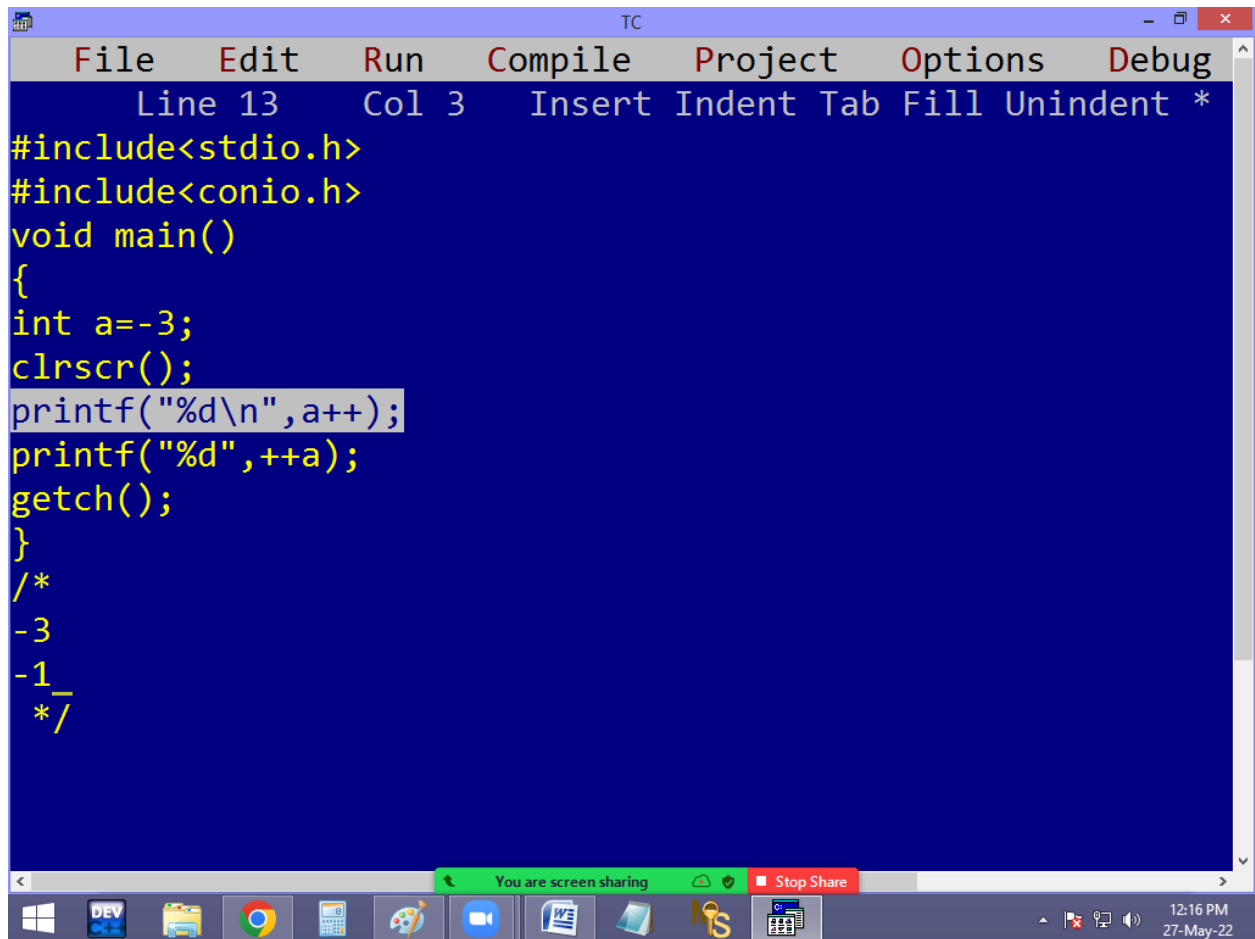
3. $a=3$

```
TC
File Edit Run Compile Project Options Debug
Line 16 Col 1 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
clrscr();
printf("%d\n",a++/2);
printf("%d\n",++a/2);
printf("a=%d",a);
getch();
}
/*
5
6
a=12
*/
```

a=10

5
p("%d",a++/2); priority: /, a++
a/2=10/2=5 [5 printed not stored i.e. a=10]
a++==>a=11

6
p("%d",++a/2); priority: ++a, /
++a=12
12/2=6 [6 printed not stored i.e. a=12]



```
TC
File Edit Run Compile Project Options Debug
Line 13 Col 3 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=-3;
clrscr();
printf("%d\n",a++);
printf("%d",++a);
getch();
}
/*
-3
-1
*/
```

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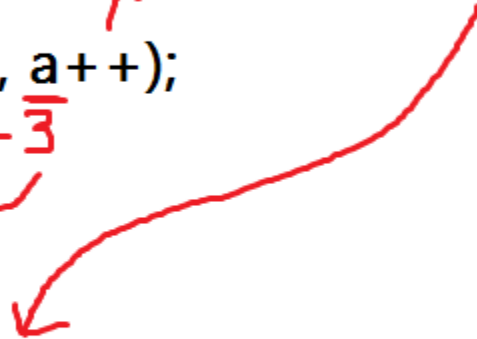
a = -3

-3 ✓

$$-3 + 1 = -2$$

p("%d\n", a++);

-3



p("%d", ++a);

$$-2 + 1 = -1$$



a=2, b=3, c=100

c = a++ + ++b + c++;

priority: ++b, +, =, a++ , c++

++b=4

c = a + b + c ==> 2 + 4 + 100

c = 106

a++ ==> a=3

c++ ==> c=107

TC

File Edit Run Compile Project Options Debug

Error: Lvalue required in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
clrscr();
printf("%d\n",9++);
printf("%d",++9);
getch();
}
/*
Error

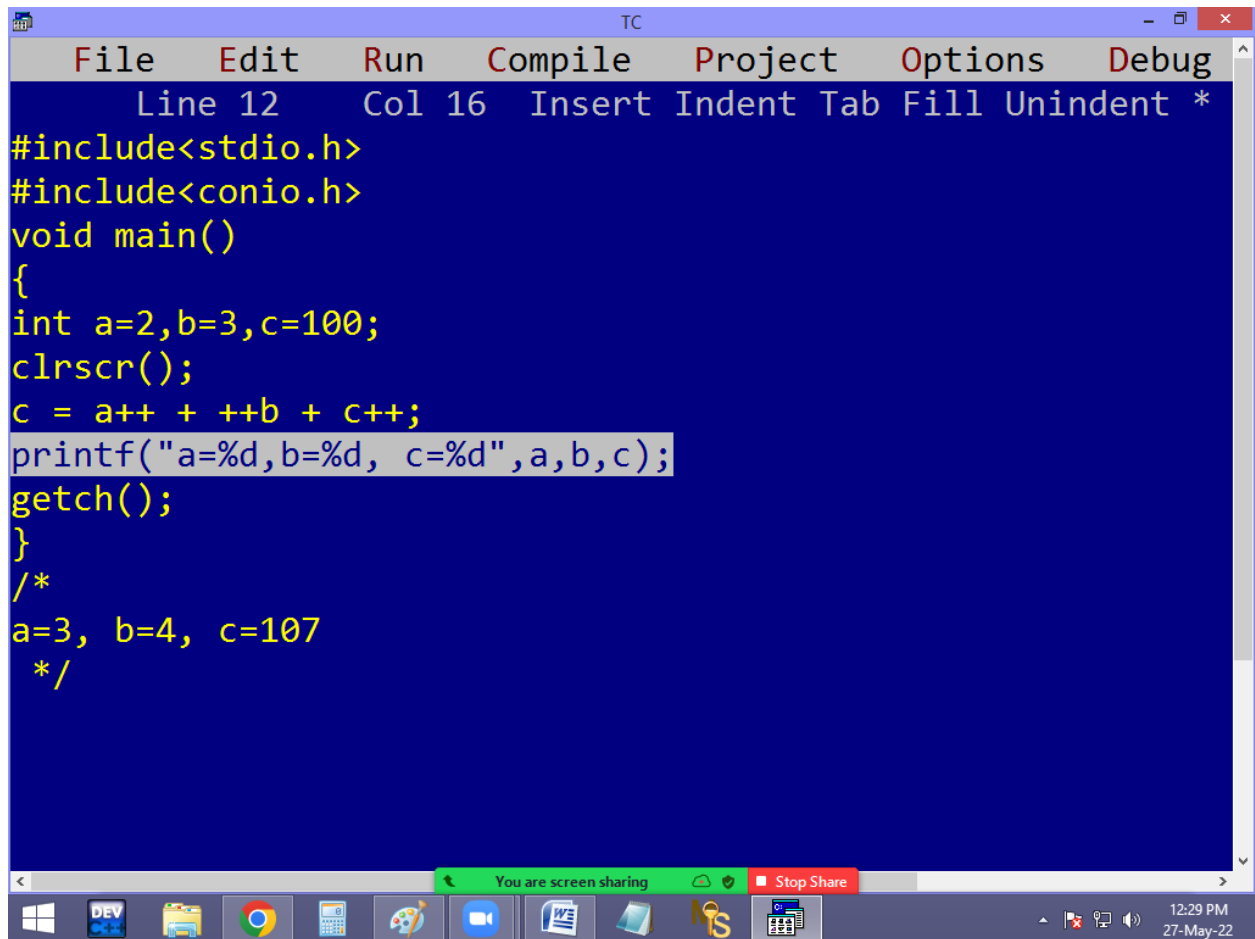
*/
```

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```
TC
File Edit Run Compile Project Options Debug
Line 12 Col 16 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b=3,c=100;
clrscr();
c = a++ + ++b + c++;
printf("a=%d,b=%d, c=%d",a,b,c);
getch();
}
/*
a=3, b=4, c=107
*/
```

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a=2, b=3, c=100

c = a++ + ++b + c++;

priority: ++b, +, =, a++ , c++

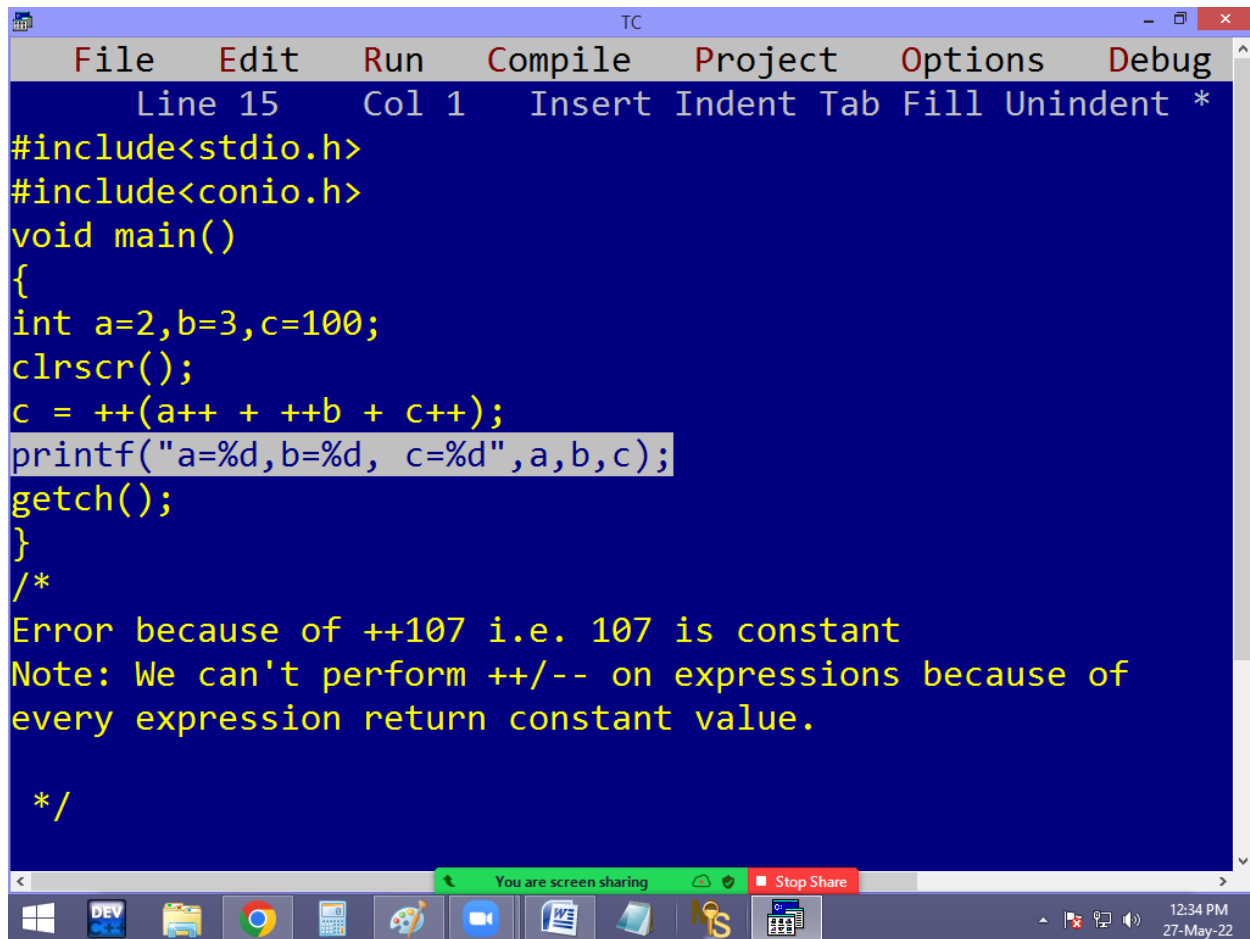
++b=4

c = a + b + c ==> 2 + 4 + 100

c = 106

a++ ==> a=3

c++ ==> c=107

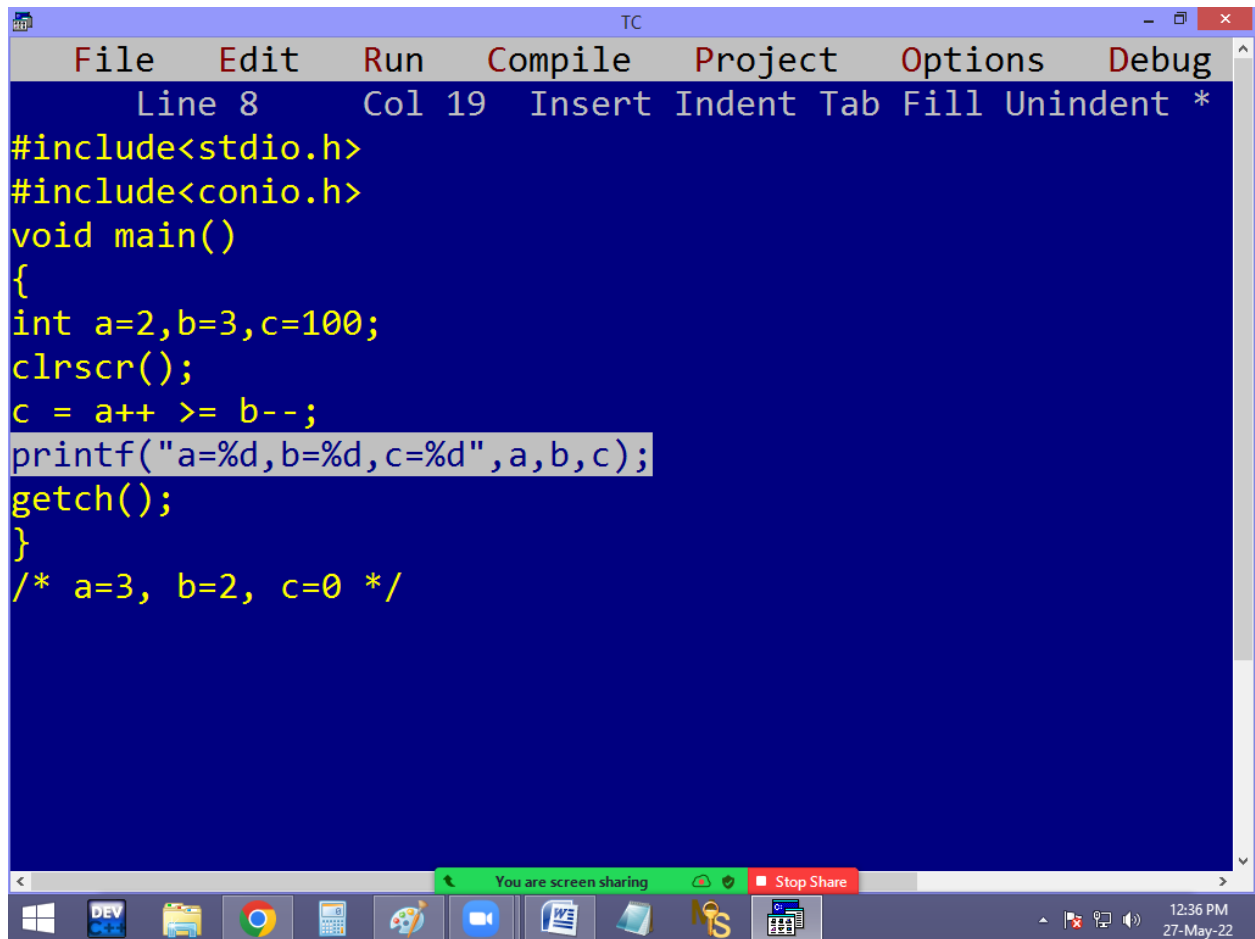


The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", and "Debug". Below the menu bar, the status bar shows "Line 15", "Col 1", and "Insert Indent Tab Fill Unindent *". The main editing area has a dark blue background with yellow text. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b=3,c=100;
clrscr();
c = ++(a++ + ++b + c++);
printf("a=%d,b=%d, c=%d",a,b,c);
getch();
}
/*
Error because of ++107 i.e. 107 is constant
Note: We can't perform ++/-- on expressions because of
every expression return constant value.

*/
```

At the bottom of the IDE window, there is a green status bar that says "You are screen sharing" and a red button labeled "Stop Share". Below the IDE window is the Windows taskbar, which includes icons for Windows, DEV, File Explorer, Google Chrome, Calculator, Paint, Zoom, Word, and a folder icon. The system tray on the right shows the time "12:34 PM" and the date "27-May-22".



```
TC
File Edit Run Compile Project Options Debug
Line 8 Col 19 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b=3,c=100;
clrscr();
c = a++ >= b--;
printf("a=%d,b=%d,c=%d",a,b,c);
getch();
}
/* a=3, b=2, c=0 */

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12:36 PM
27-May-22
```

```
TC
File Edit Run Compile Project Options Debug
Line 8 Col 19 Insert Indent Tab Fill Unindent *
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b=3,c=100;
clrscr();
c = a++ >= b--;
printf("a=%d,b=%d,c=%d",a,b,c);
getch();
}
/* a=3, b=2, c=0 */

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12:38 PM 27-May-22
```

a=2, b=3, c=100

c = a++ >= b-- ;

priority: >=, =, a++, b--

1. c = a >= b ==> 2 >= 3 ==> False ==> 0

2. c = 0

3. a++ ==> a=3

4. b-- ==> b=2

Home work:

Eg.

```
Int a=4;
```

```
Printf(++a, a++, a--, --a, ++a);
```