

Data Structures using C

28th Jan 2022

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Aim: - To study Operators in C language.

Objective: - To learn Arithmetic, logical, relational, unary, bitwise operators in C language

Code: -

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Code:-

```
#include <stdio.h>
int main()
{
    int a,b,sum,diff,mul,div,mod;
    a=9;
    b=5;

    // Arithmetic Operators
    sum = a+b;
    printf ("The sum of a and b is %i \n",sum);

    diff = a-b;
    printf ("The diff of a and b is %i \n",diff);

    mul = a * b;
    printf ("The mul of a and b is %i \n",mul);

    div = a / b;
    printf ("The div of a and b is %i \n",div);

    mod = a % b;
    printf ("The mod of a and b is %i \n",mod);

    // Logical operators
    int LA, LO, LN;

    LA = (a>b) && (sum > diff);
    printf ("The value of LA is %i \n",LA);
```

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LO = (a>b) || (sum > diff);
printf ("The value of LO is %i \n", LO);

LN = !(a < b);
printf ("The value of LN is %i \n", LN);

// Relational Operators
int RG, RL;

RG = a > b;
printf ("The value of RG is %i \n", RG);

RL = a < b;
printf ("The value of RL is %i \n", RL);

// Unary Operators
int au, ap, am;

au = -b;
printf ("The value of au %i \n", au);

ap = ++a;
printf ("The value of ap is %i \n", ap);

am = --a;
printf ("The value of am is %i \n", am);

// Bitwise operators

unsigned int aa, bb, anb, aob;

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aa = 7;
printf("The value of aa is %i \n", aa);

5 bb = 6;
printf("The value of bb is %i \n", bb);

anb = aa & bb;
printf("The value of anb is %i \n", anb);

10 aob = aa | bb;
printf("The value of aob is %i \n", aob);

15 return 0;
}

Output:

The sum of a & b is 13

20 The diff of a & b is 5

The mul of a & b is 36

The div of a & b is 2

The mod of a & b is 1

The value of LA is 1

25 The value of LO is 1

The value of LN is 1

The value of RG is 1

The value of RL is 0

The value of au is -4

30 The value of ap is 10

The value of am is 9

The value of aa is 7

The value of bb is 6

The value of anb is 6

The value of aob is 7

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Screenshot: -

The screenshot shows the Xcode IDE interface with a dark theme. The project navigation bar at the top displays 'Operator' and 'main'. Below it, the file 'main.c' is selected. The code editor contains the following C program:

```
1 //Parth Nikam PRN:- 20070123120 Date - 28st Jan 2022
2 #include <stdio.h>
3 int main()
4 {
5     int a, b, sum, diff, mul, div, mod;
6
7     a = 9;
8     b = 4;
9     //Arithmatic Operators
10    sum = a+b;
11    printf("The sum of a and b is %i \n",sum);
12
13    diff = a-b;
14    printf("The difference of a and b is %i \n",diff);
15
16    mul = a*b;
17    printf("The multiplication of a and b is %i \n",mul);
18
19    div = a/b;
20    printf("The division of a and b is %i \n",div);
21
22    mod = a%b;
23    printf("The modulus of a and b is %i \n",mod);
24
25    //Logical Operators
26    int LA, LO, LN;
27
28    LA = (a>b)&&(sum>diff);
29    printf("The value of LA is %i \n",LA);
30
31    LO = (a>b)||((sum>diff));
32    printf("The value of LO is %i \n",LO);
33
34    LN = !(a<b);
35    printf("The value of LN is %i \n",LN);
36
37    //Relational Operators
38    int RG, RL;
39
40    RG = a>b;
41    printf("The value of RG is %i \n",RG);
42
43    RL = a;
44    printf("The value of RL is %i \n",RL);
45
46    //Unary Operators
47    int au, ap, am;
48
49    au = -b;
50    printf("The value of au is %i \n",au);
51
52    ap = ++a;
53    printf("The value of ap is %i \n",ap);
54
55    am = --a;
56    printf("The value of am is %i \n",am);
57
58    //Bitwise operators
59
60    unsigned int aa, bb, anb, aob;
61
62    aa = 7;
63    printf("The value of aa is %i \n",aa);
64
65    bb = 6;
66    printf("The value of bb is %i \n",bb);
67
68    anb = aa & bb;
69    printf("The value of anb is %i \n",anb);
70
71    aob = aa | bb;
72    printf("The value of aob is %i \n",aob);
73
74
75 }
```

The status bar at the bottom right indicates 'Line: 68 Col: 19'.

The screenshot shows the Xcode IDE interface with a dark theme. The project navigation bar at the top displays 'Operator' and 'main'. Below it, the file 'main.c' is selected. The code editor contains the following C program:

```
37 //Relational Operators
38 int RG, RL;
39
40 RG = a>b;
41 printf("The value of RG is %i \n",RG);
42
43 RL = a;
44 printf("The value of RL is %i \n",RL);
45
46 //Unary Operators
47 int au, ap, am;
48
49 au = -b;
50 printf("The value of au is %i \n",au);
51
52 ap = ++a;
53 printf("The value of ap is %i \n",ap);
54
55 am = --a;
56 printf("The value of am is %i \n",am);
57
58 //Bitwise operators
59
60 unsigned int aa, bb, anb, aob;
61
62 aa = 7;
63 printf("The value of aa is %i \n",aa);
64
65 bb = 6;
66 printf("The value of bb is %i \n",bb);
67
68 anb = aa & bb;
69 printf("The value of anb is %i \n",anb);
70
71 aob = aa | bb;
72 printf("The value of aob is %i \n",aob);
73
74
75 }
```

The status bar at the bottom right indicates 'Line: 68 Col: 19'.

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The screenshot shows the Xcode IDE interface. The top menu bar displays "Operator" and "main.c". The left sidebar shows a project structure with "Operator" and "main.c". The main editor window contains the following C code:

```
37 //Relational Operators
38 int RG, RL;
39
40 RG = a>b;
41 printf("The value of RG is %i \n",RG);
42
43 RL = a<b;
44 printf("The value of RL is %i \n",RL);
45
46 //Unary Operators
47 int au, ap, am;
48
49 au = -b;
50 printf("The value of au is %i \n",au);
51
52 ap = ++a;
53 printf("The value of ap is %i \n",ap);
54
55 am = --a;
56 printf("The value of am is %i \n",am);
57
58 //Bitwise operators
59
```

The bottom pane shows the terminal output of the program:

```
The sum of a and b is 13
The difference of a and b is 5
The multiplication of a and b is 36
The division of a and b is 2
The modulus of a and b is 1
The value of LA is 1
The value of LN is 1
The value of RG is 1
The value of RL is 0
The value of au is -4
The value of ap is 10
The value of am is 9
The value of ba is 7
The value of bb is 6
The value of anb is 6
The value of aob is 7
Program ended with exit code: 0
```

Result: - Operators in C language is studied successfully.