Flow control in C programming

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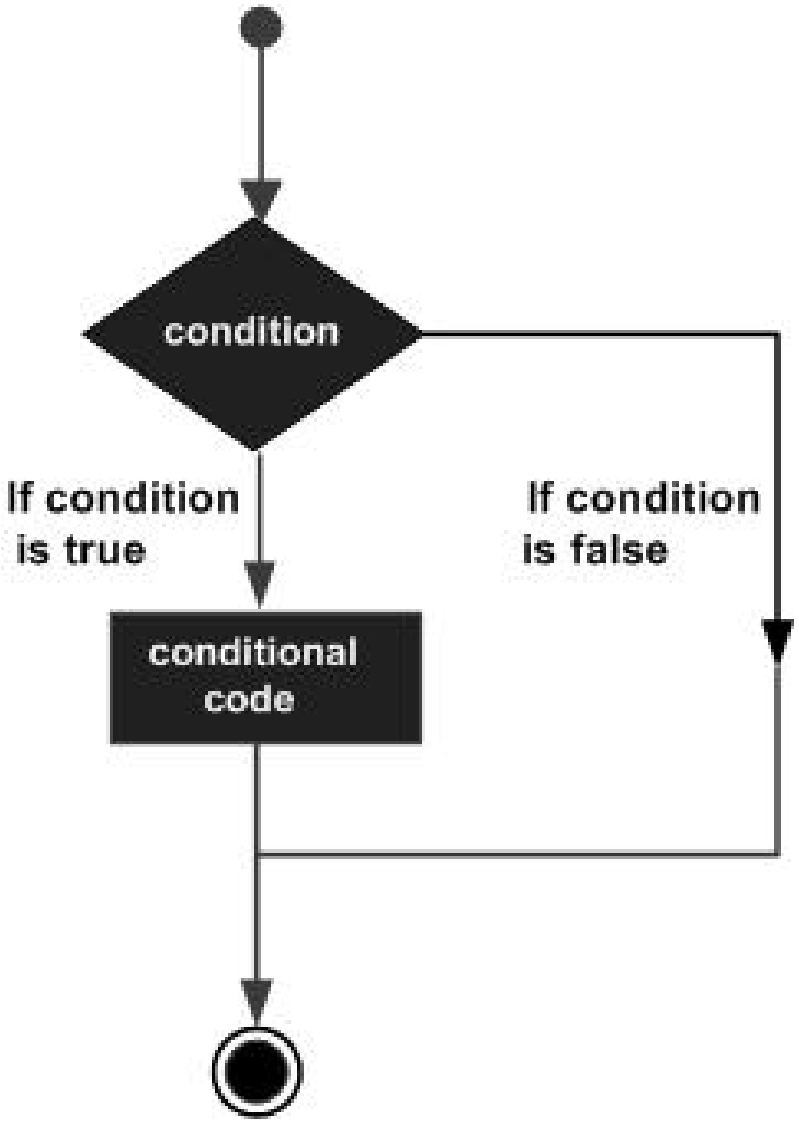
Below is a common pattern of a common flow control structure in a programming language.



The C programming language assumes that all values **other than zero** or **not null** are **true** , if there are **zero or null** values, it is **false** .

Language C provides the following types of flow control structures.

Command Description
If statement

An **if statement** consists of a logical expression followed by one or more other commands.

If . else statement

An **if statement** can be followed by an **else statement** (optional: yes or no), which can be executed when the logical expression is false.

If command

You can use **if** or **else if statements** inside **if** or **else if else statements** .

Switch command

A **switch** command allows checking the condition of a variable before executing commands.

Command switch

You can use a **switch** command inside another **switch** command.

Conditional operator? : in C

We discussed **conditional operators?** : in the previous chapter that can be used to change the position for the **if . else statement** . It has the following general pattern:

```
bieuthuc1  ?  bieuthuc2  :  bieuthuc3 ;
```

In which Exp1, Exp2 and Exp3 are expressions. Notice the use and setting of the colon.

The value of the expression Exp1 before the sign? with **true** value, Exp2 is executed, and its value is the value of the expression. If Exp1 is **false** , Exp3 is executed and its value is the value of the expression.

If statement in C

An **if statement** in Language C contains a logical expression followed by one or more commands.

Syntax:

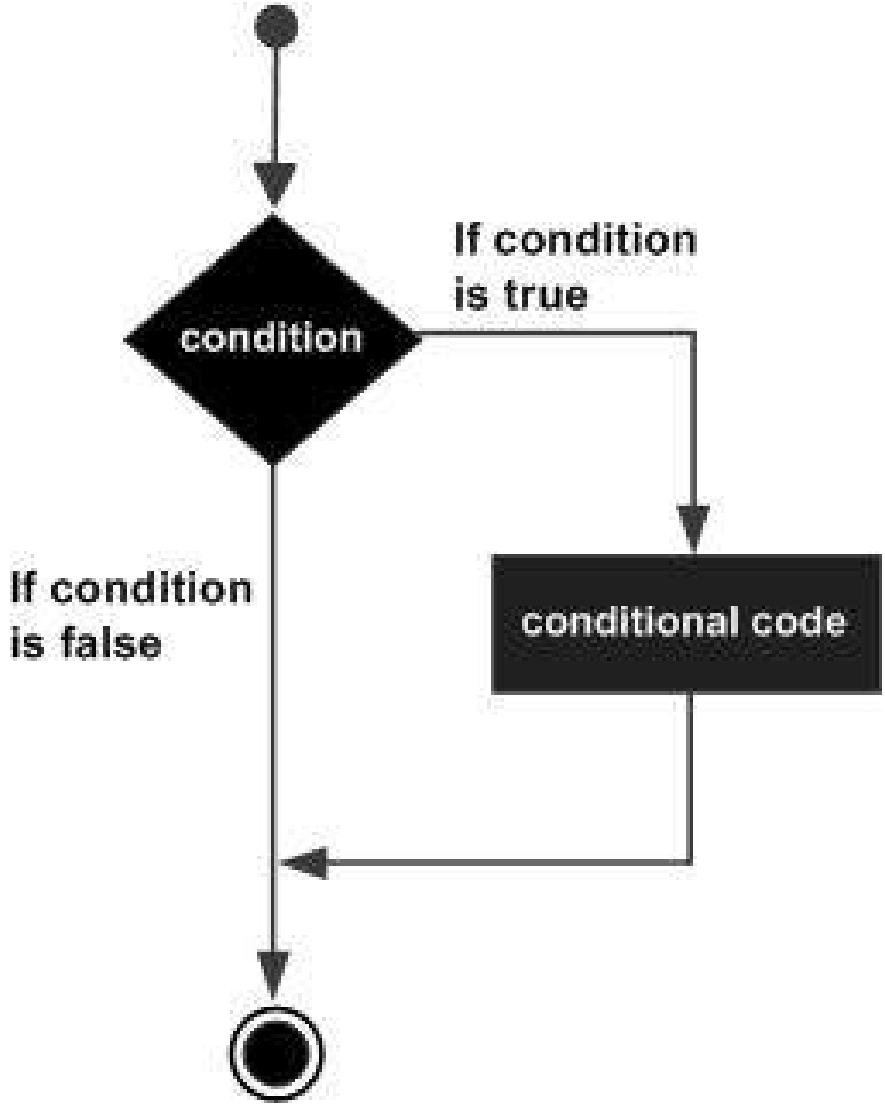
The following is the syntax of an if statement in Language C:

```
if ( bieu_thuc_boolean ) { /* cac lenh se duoc thuc thi neu bieu thuc boolean la
```

If the logical expression is evaluated as **true** , then the code block inside the if statement will be executed. If the logical expression is evaluated as **false** , then the command immediately after the if statement will be executed.

The C language assumes that any **non-zero** and **non-null values** are **true** , and if it is **zero** or **null** , then it is assumed to be false.

Diagram:



For example:

```
#include int  main  () { /* phan dinh nghia bien cuc bo */ int  a  = 15 ; /* ki
```

Compiling and executing the above C program will produce the following results:

```
a la nho hon 20
Gia tri cua a la: 15
```

If . else command in C

An **if statement** can be followed by an optional **else** command, which executes when the logical expression is false.

Syntax:

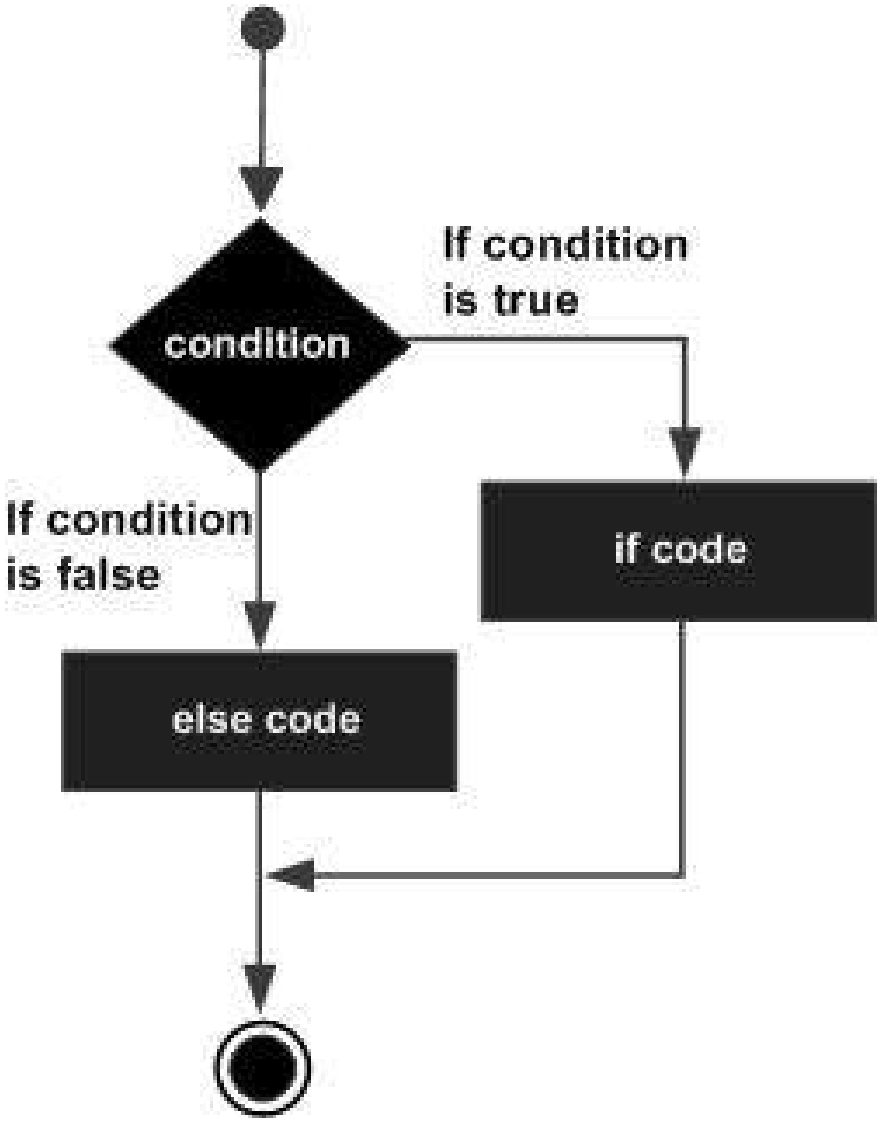
Syntax of an **if . else** command in Language C is:

```
if ( bieu_thuc_boolean ) { /* cac lenh se duoc thuc thi neu bieu thuc boolean la
```

If the logical expression is evaluated to be true, then the if block will be executed, otherwise the else block will be executed.

The C language assumes that any non-zero and non-null values ??are true, and if it is zero or null, then it is assumed to be false.

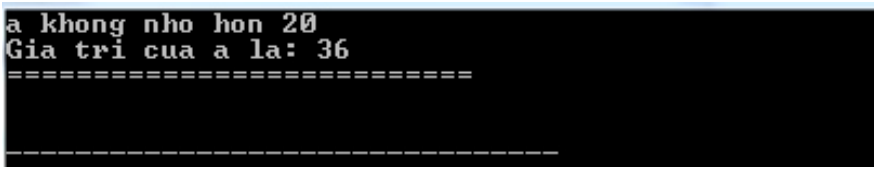
Diagram:



For example:

```
#include int  main  () { /* phan dinh nghia bien cuc bo */ int  a  = 36 ; /* kic
```

Compiling and executing the above C program will produce the following results:



If nested statement in C

It is valid to **nest** if-else statements in Language C, which means you can use an if or else statement inside another if or else statement.

Syntax:

Syntax to **nest if statements** :

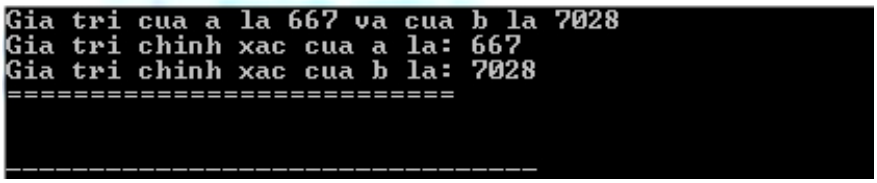
```
if (  bieu_thuc_boolean  1 ) { /* Thuc thi khi bieu thuc boolean 1 la true */ i
```

You can nested **else if . else** in the same way as if you had inserted the **if statement** .

For example:

```
#include int  main  () { /* phan dinh nghia bien cuc bo */ int  a  = 667 ; int
```

Compiling and executing the above C program will produce the following results:



Switch command in C

A **switch** command for a variable is checked equally in the list of values. Each value is called a case - the case and the variable passed are checked for each **switch case** .

Syntax:

The syntax of **switch** command in Language C is as follows:

```
 switch ( bieu_thuc ){ case  bieu_thuc_hang  :  cac_lenh ; break ; /* tuy y */ ca
case  tuy y */ default : /* tuy y */  cac_lenh ; }
```

The following rules apply to a switch command:

The expression is used in a switch command that must be of type integer or enumeration, or one of the class types in which the class has a single function that converts to an integer or enumeration type.

You can have any number of case commands in a switch. Each case is followed by the value to be compared and a colon.

bieu_thuc_hang for a case must be the same data type as the variable in the switch, and it must be constant.

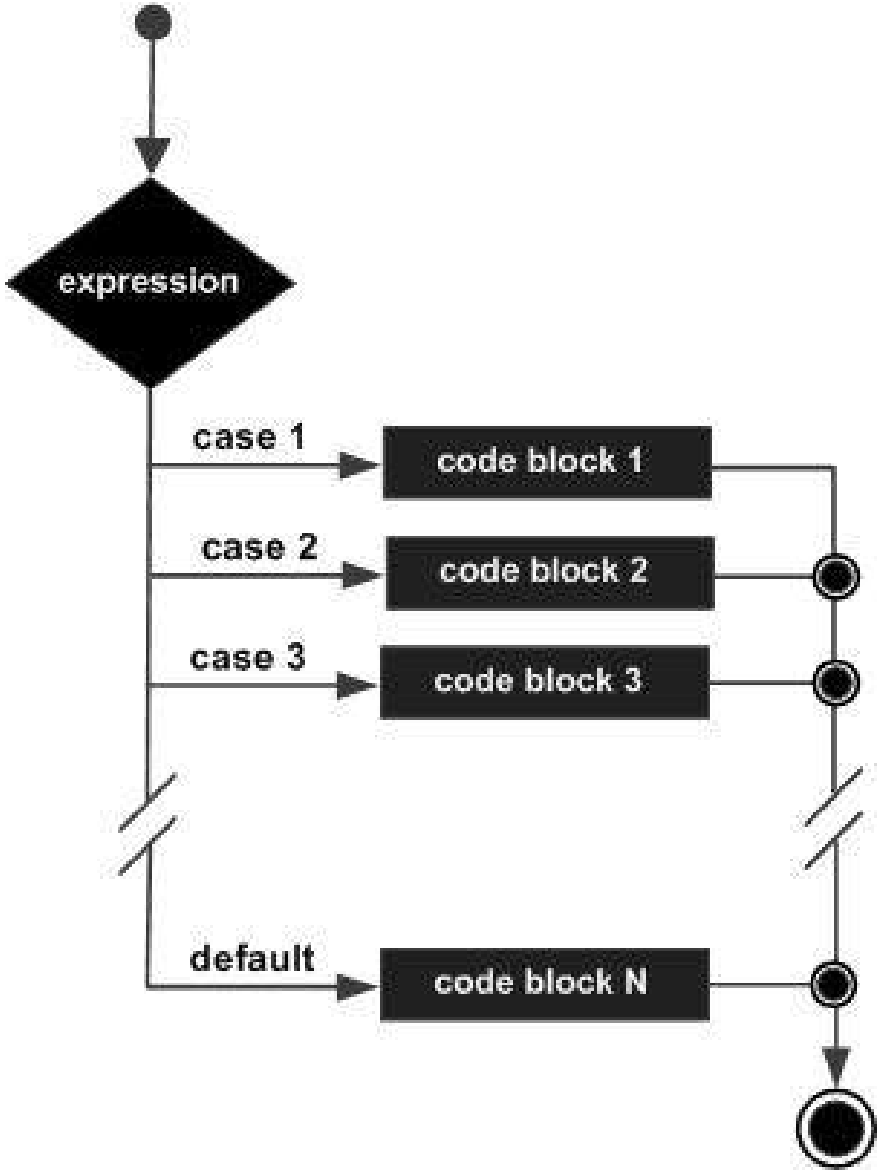
When the variable passed is balanced with a case, the following case statement will execute until a **break** statement is encountered.

When the **break** command is encountered, the switch ends, and the control line jumps to the next command line of the switch.

Not every case should contain a **break** statement. If no break statement appears, the control line will **not reach the** next case until a break statement is encountered.

A **switch** command may have an optional default (default) case, which must appear at the end of the switch. This default case can be used to perform a task when there is no true case. In this default case, there is no break command required.

Diagram:



For example:

```
#include int  main  () { /* phan dinh nghia bien cuc bo */ char  hocluc  = 'B'
```

Compiling and executing the above C program will produce the following results:

```
Gioi
Hoc luc cua sinh vien la  B
============================


--------------------------------
```

Insert switch commands in C

It is possible to have a switch command as part of the command sequence in a switch command on the outer ring. Even if the case constant inside and outside the switch command contains normal values, no conflict will occur here.

Syntax:

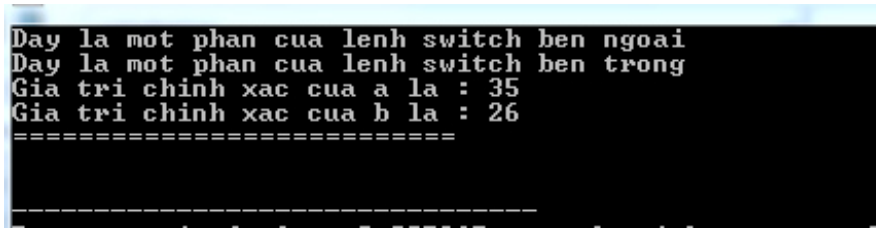
The syntax to **insert** switch commands is as follows:

```
switch ( ch1 ) { case 'A' :  printf ( "A la mot phan cua lenh switch ben ngoai"
```

For example:

```
#include int  main  () { /* phan dinh nghia bien cuc bo */ int  a  = 35 ; int  b
```

Compiling and executing the above C program will produce the following results:



According to Tutorialspoint

Previous article: Operator in programming C

Next lesson: Loop in programming C