

Loop in C

Short Notes



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For loop in C

- The for loop in C language is used to iterate the statements or a part of the program several times.
- It is frequently used to traverse the data structures like the array and linked list.
- When you know exactly how many times you want to loop through a block of code, use the for loop instead of a while loop:

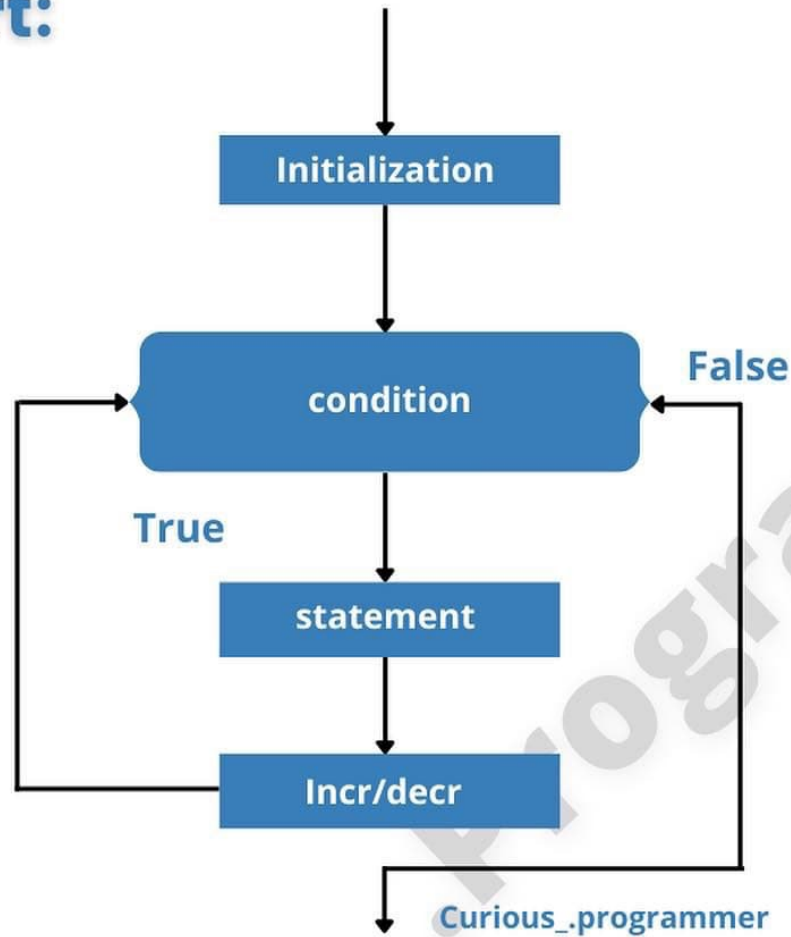
Syntax of "for loop" :

```
// Author : @Curious_.programmer

// for loop syntax
for(initialization; condition;
increment/decrement){
//statement or code to be executed
}
```



flow chart:



Example :

```
// Author : @Curious_.programmer
#include<stdio.h>
int main()
{
    int i;
    for(i=0;i<5;i++)
    {
        printf("%d\n",i);
    }
    return 0;
}
```



Output :

```
Output
/tmp/CfEAFLo5ro.o
0
1
2
3
4
```

- Statement 1 sets a variable before the loop starts (`int i = 0`).
- Statement 2 defines the condition for the loop to run (`i` must be less than 5). If the condition is true, the loop will start over again, if it is false, the loop will end.
- Statement 3 increases a value (`i++`) each time the code block in the loop has been executed.



While Loop :

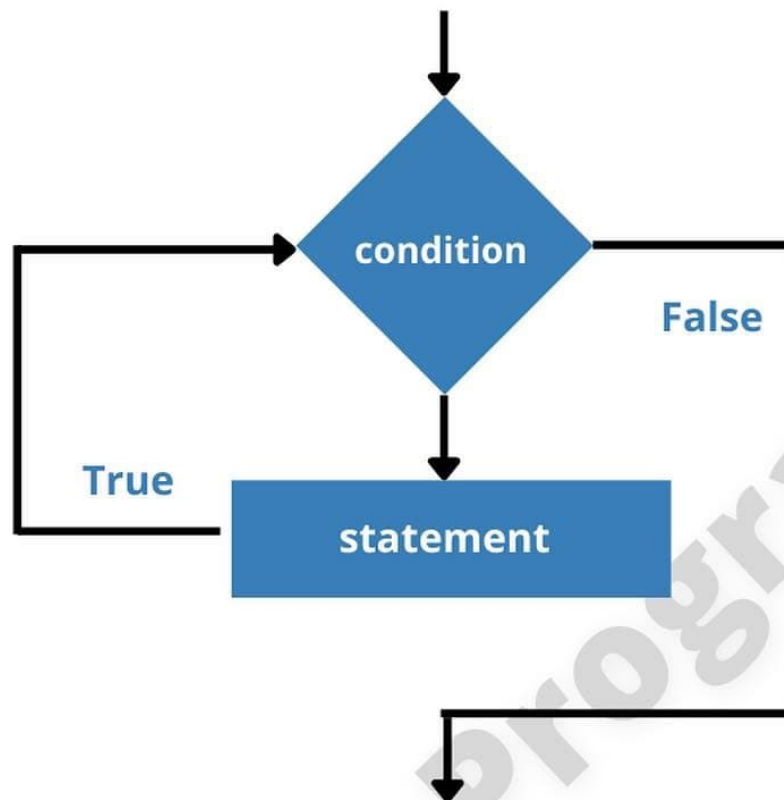
- A while loop in C programming repeatedly executes a target statement as long as a given condition is true.
- In general, a while loop allows a part of the code to be executed multiple times depending upon a given boolean condition.
- While loop is also known as a pre-tested loop.
- The while loop is mostly used in the case where the number of iterations is not known in advance.

Syntax:

```
// Author : @Curious_.programmer
while(condition){
//code to be executed
}
```



FlowChart:



Example :

```
// Author @Curious_.programmer
#include<stdio.h>
int main()
{
    int i=1;
    while(i<=10)
    {
        printf("%d \n",i);
        i++;}
    return 0;
}
```



Do-While Loop:

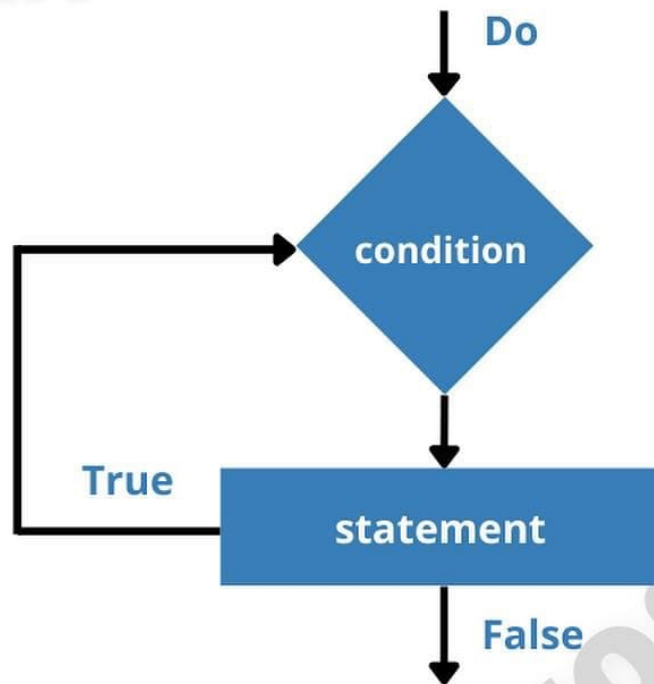
- Unlike for and while loops, which test the loop condition at the top of the loop,
- the do...while loop in C programming checks its condition at the bottom of the loop.
- A do...while loop is similar to a while loop, except the fact that it is guaranteed to execute at least one time.
- The do while loop is a post tested loop.

Syntax:

```
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// Author @Curious_.programmer  
do{  
  //code to be executed  
}while(condition);
```



Flowchart



Example :

```
// Author @Curious_.programmer
#include<stdio.h>
int main()
{
    int i=1;
    do{
        printf("%d \n",i);
        i++;
    }while(i<=10);
    return 0;
}
```



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