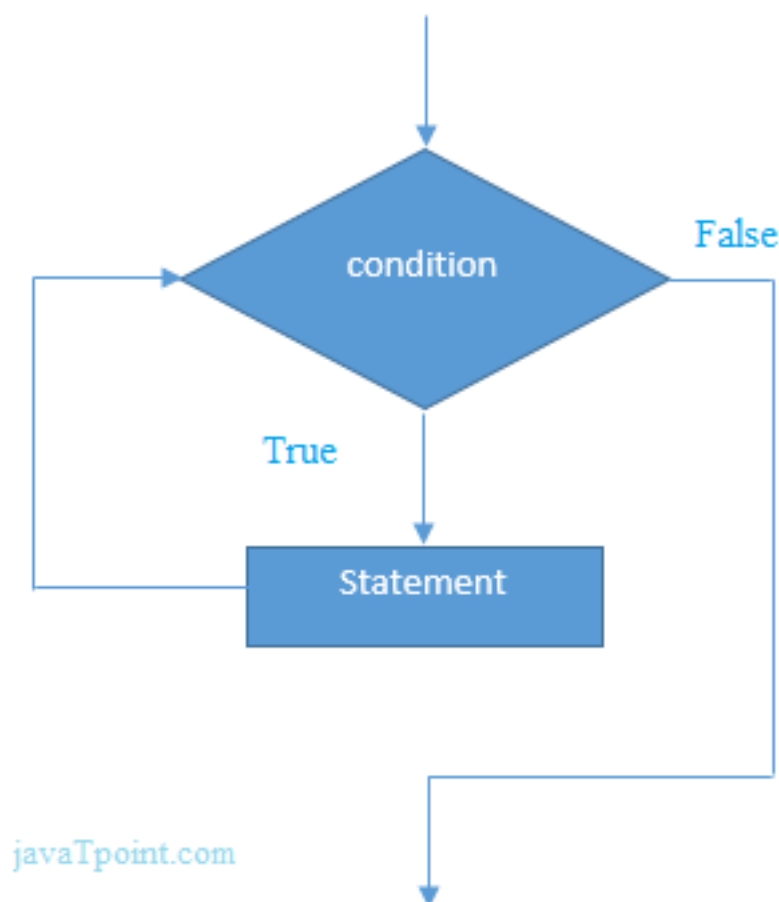# while loop in C

While loop is also known as a pre-tested loop. In general, a while loop allows a part of the code to be executed multiple times depending upon a given boolean condition. It can be viewed as a repeating if statement. The while loop is mostly used in the case where the number of iterations is not known in advance.

Syntax of while loop in C language

The syntax of while loop in c language is given below:

1. **while**(condition){
2. //code to be executed
3. }

Flowchart of while loop in C

Example of the while loop in C language

Let's see the simple program of while loop that prints table of 1.

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

Output

```
1
2
3
4
5
6
7
8
9
10
```

Program to print table for the given number using while loop in C

```c
1.  #include<stdio.h>
2.  int main(){
3.  int i=1,number=0,b=9;
4.  printf("Enter a number: ");
5.  scanf("%d",&number);
6.  while(i<=10){
7.  printf("%d \n",(number*i));
8.  i++;
9.  }
10. return 0;
11. }
```

```
Enter a number: 50
50
100
150
200
250
300
350
400
450
500
Enter a number: 100
100
200
300
400
500
600
700
800
900
1000
```

Properties of while loop

- A conditional expression is used to check the condition. The statements defined inside the while loop will repeatedly execute until the given condition fails.
- The condition will be true if it returns 0. The condition will be false if it returns any non-zero number.
- In while loop, the condition expression is compulsory.
- Running a while loop without a body is possible.
- We can have more than one conditional expression in while loop.
- If the loop body contains only one statement, then the braces are optional.

Example 1

```c
#include<stdio.h>
void main ()
{
    int j = 1;
    while(j+=2,j<=10)
    {
        printf("%d ",j);    }
    printf("%d",j); }
```

Output
```
3 5 7 9 11
```

Example 2

```c
#include<stdio.h>
void main ()
{
    while()
    {
        printf("hello Javatpoint");  }}
```

Output
```
compile time error: while loop can't be empty
```

Example 3

```c
#include<stdio.h>
void main ()
{
    int x = 10, y = 2;
    while(x+y-1)
    {
        printf("%d %d",x--,y--);  } }
```

Output
```
infinite loop
```

Infinitive while loop in C

If the expression passed in while loop results in any non-zero value then the loop will run the infinite number of times.

1. **while**(1){
2. //statement
3. }