While Loop

It is an entry-controlled loop. The most basic loop in C is the while loop and it is used is to repeat a block of code. A while loop has one control expression (a specific condition) and executes as long as the given expression is true. Here is the **syntax** :

```
loop_control_variable=value;
while(expression_on_loop_control_variable)
{
    Statement(s);
    Increment/decrement_of_ loop_control_variable;
}
```

In while loop first the condition is tested; if it is false the loop is finished without executing the statement(s). If the condition is true, then the statements are executed and the loop executes again and again until the condition is false.

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.

Program :-

```
#include<stdio.h>
 int main()
{
    int num, count = 1;
    printf("Enter a number :");
    scanf("%d", &num);
    printf("\nMultiplication table for %d is:\n\n", num);
    while(count <= 10)
    {
        printf("%d x %d = %d\n", num, count, (num*count));
        count++;
    }
}
```

Output:-

Enter a number :4 Multiplication table for 4 is:
4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
4 x 9 = 36
4 x 10 = 40

Flowchart: