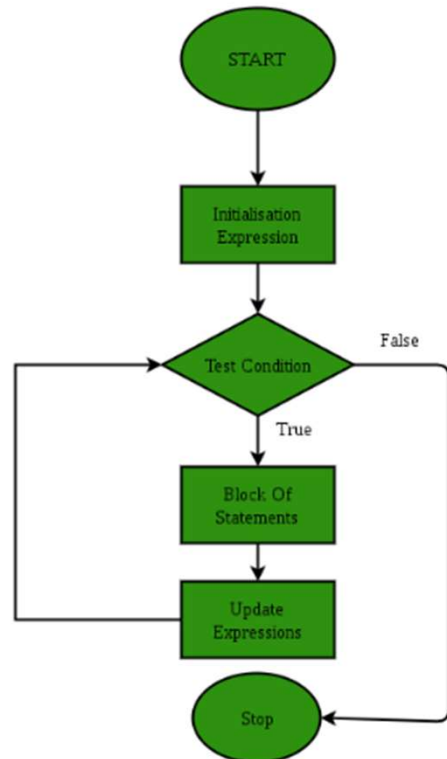


# Iteration

- ▶ Each single pass through the loop to complete all steps is called iteration of the loop
- ▶ Loops are also called iterative statements



# Flowchart of for Loop

```
for (int i = 0; i < 5; i++) {  
    cout << "Loop #" << i << endl;  
}
```

# Example:01

```
#include <iostream>
using namespace std;

int main()
{
    for (int i = 0, j = 10, k = 20; (i + j + k) < 100;
        j++, k--, i += k) {
        cout << i << " " << j << " " << k << "\n";
    }
    return 0;
}
```

## For loop example:02

```
int main()
{
    int i = 99;
    for (int i = 0; i < 5; i++) {
        cout << i << "\t";
    }
    cout << "\n" << i;
    return 0;
}
```

Example of  
hiding declared  
variables before  
a loop is:  
C++

```
for(;;)
```

THIS LOOP WILL RUN FOR INFINITE NUMBER OF TIMES.

A thick, dark rope is shown against a dark, textured background. The rope is knotted in the center, and a metal connector or carabiner is attached to it. The lighting is soft, highlighting the texture of the rope and the metallic sheen of the connector.

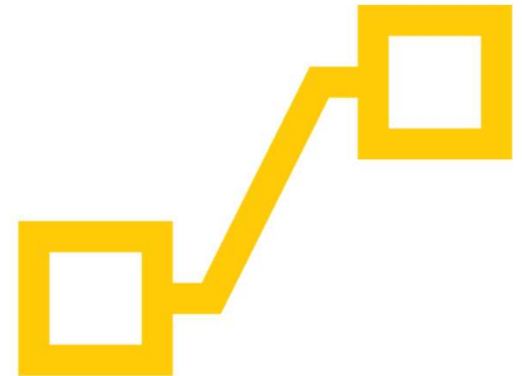
# Taking Input Inside a for loop



# While Loop

- ▶ Used when the number of repetitions/iterations is not known in advance
- ▶ Loop runs and executes a block of code repeatedly until a condition becomes false

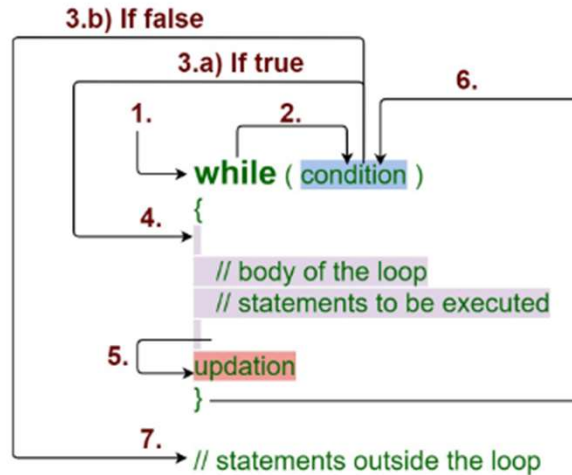
59

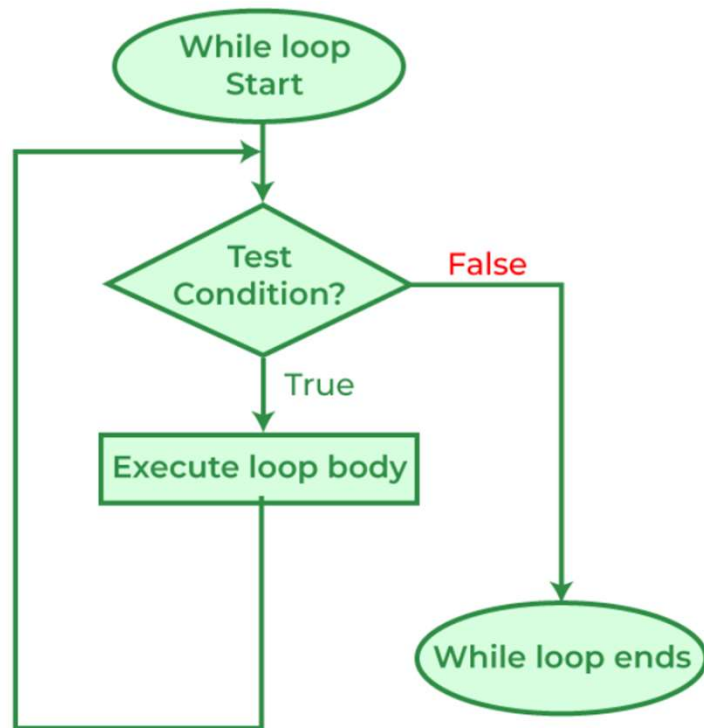




# Syntax of while loop

## While Loop





# Flow chart of while Loop

```
// C++ program to illustrate while loop
#include <iostream>
using namespace std;

int main()
{
    // initialization expression
    int i = 1;

    // test expression
    while (i < 6) {
        cout << "Hello World\n";

        // update expression
        i++;
    }

    return 0;
}
```

## Example#01

### While Loop

```
// C++ program to illustrate while loop

#include <iostream>
using namespace std;

int main()
{
    // initialization expression
    int i = 1;

    // test expression
    while (i > -5) {
        cout << i << "\n";

        // update expression
        i--;
    }

    return 0;
}
```

## Example#02

### While Loop



Using Multiple Variables and Compound Conditionals  
in a while loop

# Activity

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- ▶ Write code(s) in C++ to print first five even and odd numbers using while loop