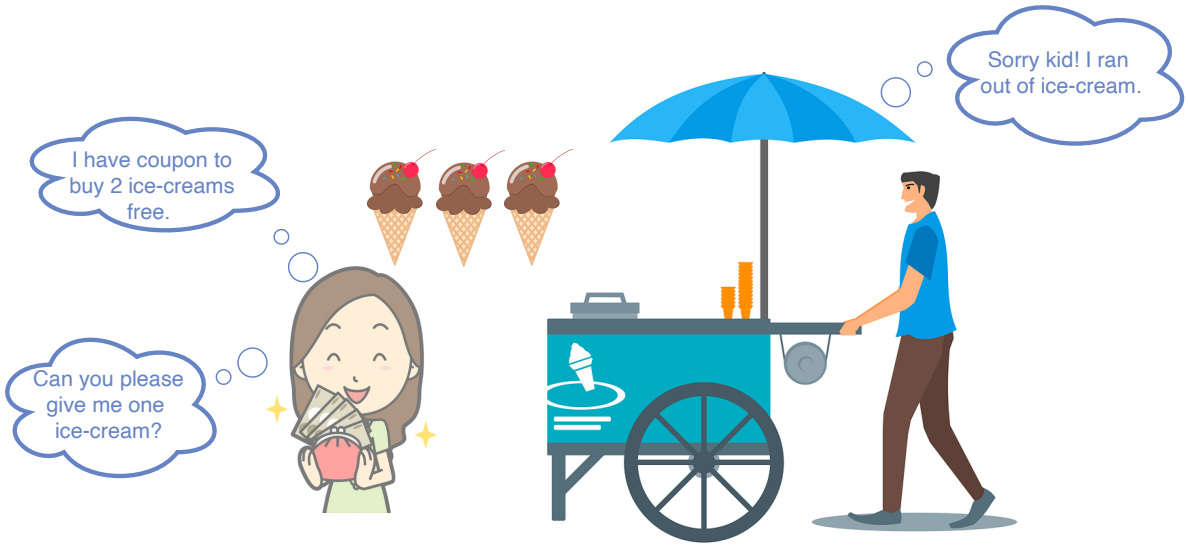
break Statement

Get introduced to the break statement in C++.

We'll cover the following

Introduction#

Suppose you have a coupon to buy five ice-creams free of cost, but the ice-cream man only has three ice-creams. In this case, while you can have some free ice-creams, the ice-cream eventually man runs out of ice-creams before you have utilized all your coupons.



In programming, we can use the `break` statement for such situations. The `break` statement can be used to jump out of the loop immediately when a particular condition evaluates to true.

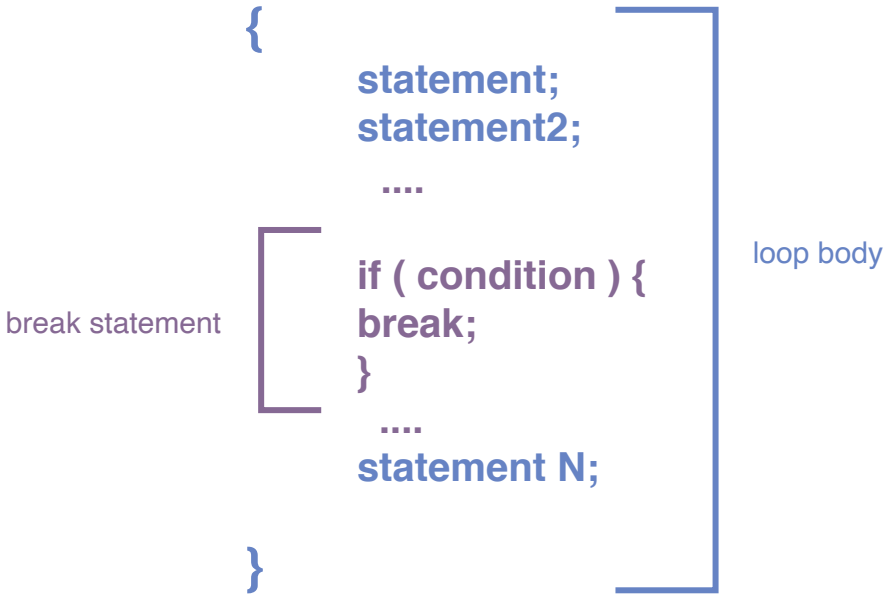
---

*The **break statement** terminates the loop and transfers control to the very next statement after the loop body.*

Use case#

Let's go over a use case of the `break` statement. It is very simple to use. You just have to write a `break` after the line that you want to terminate the loop

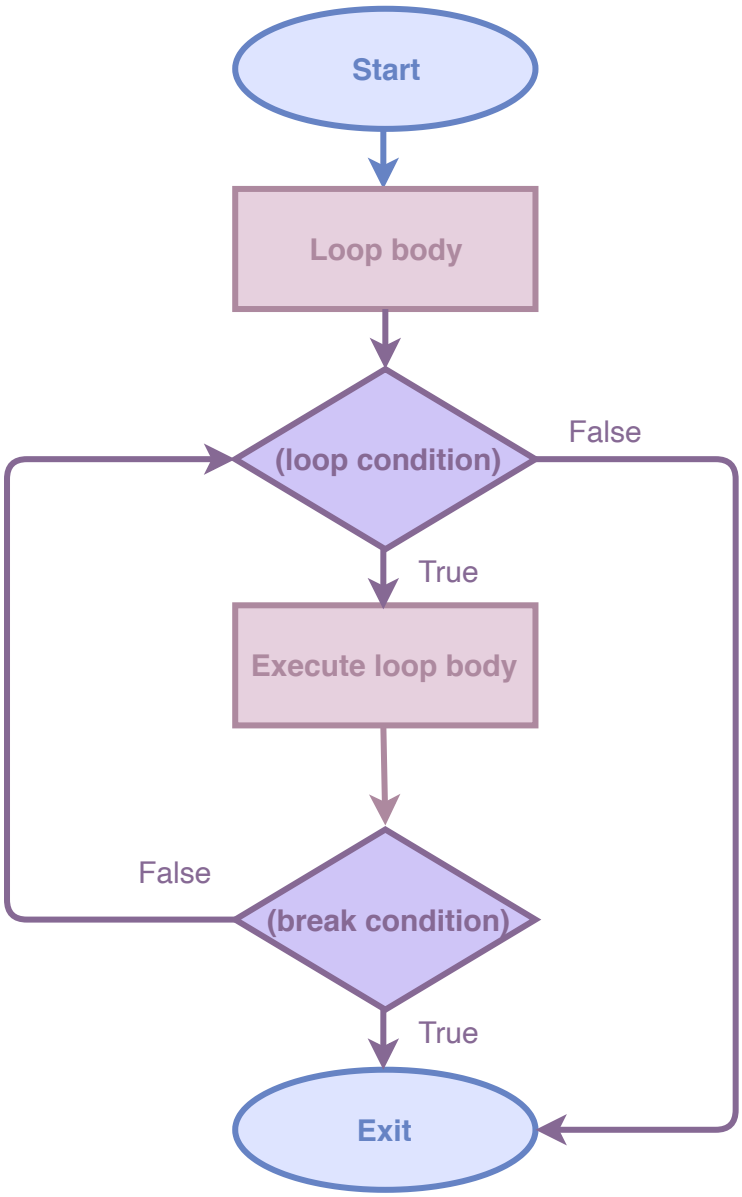
after!



The basic syntax of a `break` statement consists of an `if` keyword followed by a condition in round brackets. The curly brackets contain a `break` keyword that terminates the loop when the condition evaluates to true.

Flowchart#

Let's look at the flowchart of the above example of a `break` statement.



- The loop first evaluates its continuation condition.
- If the condition evaluates to `true`, it executes the code inside the loop body. If not, it skips the loop body.
- Inside the loop body, we have the `if` condition followed by a `break` statement.
- If the `break` condition evaluates to `true`, it exits the loop body. If not, it checks the loop condition again.

Example program#

Let's translate the example given above into a C++ program.

Press the **RUN** button and see the output!

```
#include <iostream>

using namespace std;

int main() {
  // Initialize variable icecream
  int icecream;
  // for loop start
  for (icecream = 5; icecream > 0; icecream--) {
    // loop body
    cout << "Number of free ice-creams = " << icecream << endl;
    // break statement
    if (icecream == 2) {
      break;
    }
    cout << "Buy an icecream" << endl;
  }
  // Exit loop
  cout << "Sorry! We ran out of ice-cream" << endl;
  return 0;
}
```

Output 1.09s

```
Number of free ice-creams = 5
Buy an icecream
Number of free ice-creams = 4
Buy an icecream
Number of free ice-creams = 3
Buy an icecream
Number of free ice-creams = 2
Sorry! We ran out of ice-cream
```

Explanation#

In the code above, we have a `for` loop that iterates from `5` to `1`. However, since we have a `break` statement that is executed when the value of the loop variable is `2`, the loop terminates, and it transfers control to the very next statement after the loop body.

Line No. 7: Declares a variable `icecream`.

Line No. 9:

- **`icecream = 5:`** The initial value of `icecream` is set to `5`.
- **`icecream > 0:`** When the loop condition evaluates to true, it executes the statements from **Lines No. 11 to 17**.
- **`icecream--:`** After executing the loop block, it jumps back to **Line No. 9** where it decrements the value of `icecream` by `1` and evaluates the condition again.

Line No. 11: Prints the value of `icecream` to the console.

Line No. 13: Checks if the value of `icecream` is `2`. If yes, then executes **Line No. 14** to **Line No. 15**. If no, then jumps to **Line No. 16**.

Line No. 14: Breaks the loop. When the break statement is executed, the program will exit the loop body and jump to **Line No. 19**.

Line No. 16: Prints `Buy an icecream` to the console

Line No. 19: Prints `Sorry! We ran out of ice-cream` to the console.

Quiz

Q What is the output of the following code?

```
int main() {
  int number = 1;
  for (number; number < 5; number++) {
    if (number == 3) {
      break;
    }
    cout << number << endl;
  }
}
```

A) 1

Your Answer

B) 1

2

Explanation

Initially, `number = 1`, loop condition = true, break condition = false

After 1st iteration, `number = 2`, loop condition = true, break condition = false

After 2nd iteration, `number = 3`, loop condition = true, break condition = true

When the `break` condition is `true`, loop will terminate and it will

transfer the control to the very next statement after the loop body.

C) 1

2

3

D) 1

2

3

4

Submit Answer

Reset Quiz

Interesting so far? Let's discuss the `continue` statement in the upcoming lesson.

Stay tuned!

Back

Next