C++ Conditional Statements Explained

Introduction

Conditional statements in C++ allow the execution of different blocks of code based on specific conditions. The most commonly used conditional statements are:

- if

- if-else

- if-else-if

This document explains conditional statements with an example program to determine profit or loss in a transaction.

Understanding Conditional Statements

1. if Statement

- Executes a block of code if a specified condition is true.

- Syntax:

- if (condition) {

- // Code to execute if condition is true

- }

2. if-else Statement

- Executes one block of code if the condition is true, otherwise executes another block.

- Syntax:

- if (condition) {

- // Code if condition is true

- } else {

- // Code if condition is false

- }

3. if-else-if Statement

- Checks multiple conditions in sequence.

- Syntax:

- if (condition1) {

- // Code for condition1

- } else if (condition2) {

- // Code for condition2

- } else {
- // Default case if no conditions are met
- }

Example Program: Profit and Loss Calculation

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

int main() {
    int selling_price, cost_price;

    cout << "Enter the selling price of the product: ";
    cin >> selling_price;
    cout << "Enter the cost price of the product: ";
    cin >> cost_price;

    int profit = selling_price - cost_price;
    int loss = cost_price - selling_price;

    if (selling_price > cost_price) {
        float profit_percentage = ((float)profit / cost_price) * 100;
        cout << "The profit has occurred! and the profit is: " << profit << endl;
        cout << "The profit percentage is: " << profit_percentage << "%" << endl;
    } else if (cost_price > selling_price) {
        float loss_percentage = ((float)loss / cost_price) * 100;
        cout << "The loss has occurred! and the loss is: " << loss << endl;
        cout << "The loss percentage is: " << loss_percentage << "%" << endl;
    } else {
        cout << "No profit, no loss." << endl;
    }
```

```
    return 0;

}
```

Explanation of the Code

1. **Takes input** for selling_price and cost_price.

2. **Calculates profit or loss** based on input values.

3. **Checks conditions** using if-else statements:

    o   If selling_price > cost_price, it calculates and displays profit and its percentage.

    o   If cost_price > selling_price, it calculates and displays loss and its percentage.

    o   If both are equal, it prints "No profit, no loss".

4. **Uses typecasting** ((float)profit / cost_price) to avoid integer division issues.

Output Example

Input:

Enter the selling price of the product: 1200

Enter the cost price of the product: 1000

Output:

The profit has occurred! and the profit is: 200

The profit percentage is: 20%

This concludes the explanation of conditional statements in C++ with an example program.