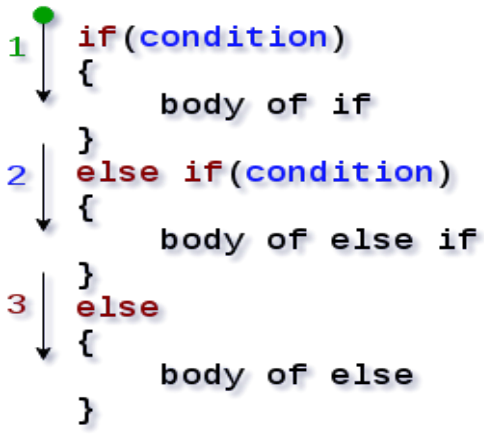
If / Else If / Else

Branching in programming is the act of taking a specific path while omitting other paths. The path to be taken is determined by conditions. The unique thing with an **if** statement is that it doesn't need to be followed by an **else if** or **else** statement. For example, if you wanted to execute a piece of code under a certain condition, you can use a solo **if** statement:




```
if(inventory <= 0)
    cout << "Sold out";
```

Let's assume **inventory** in an integer that holds the number of items for sale at a store for a particular product. If the number is less than or equal to zero, display to the customer that the item is sold out. Now, let's use branching to display either a sold out message or a message stating an item is in stock.

```
if(inventory <= 0)
    cout << "Sold out";
else
    cout << "In stock! You can buy up to " << inventory << " items";
```

Now, if there is available inventory for purchase, the customer will be given the current number of items they can purchase versus the sold out message. As you may notice, **else if** has not been used, and does not need to be just like **else** wasn't needed in our first example. Let's add another branch to entice customers when stock is low.

```
if(inventory <= 0)
    cout << "Sold out";
else if(inventory == 1 || inventory == 2)
    cout << "In stock! Better buy! Only " << inventory << " left!";
else
    cout << "In stock! You can buy up to " << inventory << " items";
```

What the program will do is:

```
Step 1 : Check to see whether the if condition is true.
Step 1a: True = Execute if body and exit. False = Go to step 2.
Step 2 : Check to see whether the else if condition is true.
Step 2a: True = Execute else if body and exit. False = Go to step 3.
Step 3 : Execute else and exit.
```

Remember, **else** will execute if all previous branches evaluate to false. There can be as many **else if** statements as you'd like. If the body is one line long, curly brackets are not needed.