07 Branches (if)

May 12, 2022

1 Branches (if)

1.1 Basic If

If statements makes decisions.

Try out our first if statement:

[1]:
```
int a = 5;
int b = 6;
if (a + b > 10)
    Console.WriteLine("The answer is greater than 10.");
```

```
The answer is greater than 10.
```

In words, this if statement is saying "if a plus b is greater than 10, write the line 'The answer is greater than 10' ". > What would happen if a + b is less than 10? Try editing the previous code to see.

Did nothing happen? That's great! Since the the **conditions** (a + b is greater than 10) of the if statement weren't met, the code didn't go into the if statement, and therefore had nothing to print. ## What's a condition?

The `condition` is the statement in parentheses after the `if`. A `condition` is a boolean, which means it has to return a true or false. that means using symbols such as `>`, `<`, `<=`, `>=` or `==`. > Practice boolean statements. Try out some different symbols and numbers to see the answer.

[2]:
```
bool outcome = 3 > 5;
Console.WriteLine("This condition is " + outcome);
```

```
This condition is False
```

1.2 Else

Before, if the conditions of the `if` statement weren't met, the entire if statement was skipped. But what if you want something to happen in both cases? `else` is what happens if the conditional comes out false.

Run this code and change the conditional a couple times to see the different outcomes.

[3]:
```
int a = 5;
int b = 3;
if (a + b > 10)
    Console.WriteLine("The answer is greater than 10");
else
    Console.WriteLine("The answer is not greater than 10");
```

```
The answer is not greater than 10
```

1.3 Multi-line If statements

What if you want more complex code in your `if` statements? That's great, just add curly braces around what you want done.

Try it out! Run the following code.

[4]:
```
int c = 4;
if ((a + b + c > 10) && (a == b))
{
    Console.WriteLine("The answer is greater than 10");
    Console.WriteLine("And the first number is equal to the second");
}
else
{
    Console.WriteLine("The answer is not greater than 10");
    Console.WriteLine("Or the first number is not equal to the second");
}
```

```
The answer is not greater than 10
Or the first number is not equal to the second
```

`&&` means "and". It's a way to link up multiple conditionals. You can also use `||` as "or".

The `if` conditional above checks that adding a, b, and c up is greater than 10 AND that a equals b. If both are true, it goes into the `if` statement; otherwise, it goes into the `else` part.

[ ]:
```

```