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Lesson 3:
Conditionals

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Logical Operators

Here's the logical expression used to represent Julia's weekend plans:

```
var colt = "not busy";
var weather = "nice";

if (colt === "not busy" && weather === "nice") {
  console.log("go to the park");
}
```

Prints: "go to the park"

Notice the `&&` in the code above.

The `&&` symbol is the logical AND operator, and it is used to combine two logical expressions into one larger logical expression. If **both** smaller expressions are *true*, then the entire expression evaluates to *true*. If **either one** of the smaller expressions is *false*, then the whole logical expression is *false*.

Another way to think about it is when the `&&` operator is placed between the two statements, the code literally reads, "if Colt is not busy *AND* the weather is nice, then go to the park".

Logical expressions

Logical expressions are similar to mathematical expressions, except logical expressions evaluate to either *true* or *false*.

```
11 != 12
```

Returns: true

You've already seen logical expressions when you write comparisons. A comparison is just a simple logical expression.

Similar to mathematical expressions that use `+`, `-`, `*`, `/` and `%`, there are logical operators `&&`, `||` and `!` that you can use to create more complex logical expressions.

Logical operators

Logical operators can be used in conjunction with boolean values (`true` and `false`) to create complex logical expressions.

By combining two boolean values together with a logical operator, you create a *logical expression* that returns another boolean value. Here's a table describing the different logical operators:

Operator	Meaning	Example	How it works
<code>&&</code>	Logical AND	<code>value1 && value2</code>	Returns <code>true</code> if both <code>value1</code> and <code>value2</code> evaluate to <code>true</code> .
<code> </code>	Logical OR	<code>value1 value2</code>	Returns <code>true</code> if either <code>value1</code> or <code>value2</code> (or even both!) evaluates to <code>true</code> .
<code>!</code>	Logical NOT	<code>!value1</code>	Returns the opposite of <code>value1</code> . If <code>value1</code> is <code>true</code> , then <code>!value1</code> is <code>false</code> .

By using logical operators, you can create more complex conditionals like Julia's weekend example.

Logical operators can be used to combine multiple conditional statements into a single statement.

TIP: Logical expressions are evaluated from left to right. Similar to mathematical expressions, logical expressions can also use parentheses to signify parts of the expression that should be evaluated first.

QUESTION 1 OF 3

What value of [BLANK] would make the following expression evaluate to **false** . Notice the **!** right at the beginning!

```
!([BLANK] === 4) && "STRing" === "STRing"
```

Returns: false

- ☐ -4
- ☐ 4
- ☐ "4"
- ☐ "-4"

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QUESTION 2 OF 3

Select the operator that would make the following expression evaluate to **true** .

```
3 < -10 [BLANK] "James" !== "james"
```

Returns: true

- ☐ !
- ☐ ||
- ☐ &&

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QUESTION 3 OF 3

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Logical Operators

☐ true || false

☐ false && false

☐ !true

☐ (13 > -7) || (false == 0)

☐ (10 === "10") && (1 <= 2)

☐ (3 != 6 % 3) && !(24 > 45) && (!false)

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