

# CONDITIONAL STATEMENTS



Conditional statements control the flow of your program based on conditions you set. This allows your code to respond in a certain way depending on those conditions. You can define any set of conditions and write code that responds exactly the way you need it to.

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# ABOUT CONDITIONAL STATEMENTS

- What is a conditional statement?
- What is a Boolean value?
- What kinds of logical tests can you perform in a conditional statement?

**A *conditional statement* checks for a certain true condition before executing its code:**

```
if truck_cost > 10000:  
    print("That's too much!")
```

**Every conditional statement has a *logical test* that evaluates a condition to determine whether it's True or False. These values are *Boolean values*.**

Here are some commonly used logical tests:

---

age == 21	Equality
age != 21	Inequality
age < 21	Less than
age <= 21	Less than or equal to
age > 21	Greater than
age >= 21	Greater than or equal to
name == 'jesse'	String equality
name != 'jesse'	String inequality

---

You can also check whether or not an item is in a list:

```
my_state in northwest_states  
my_state not in northwest_states
```

# IF STATEMENTS

- How do you write a simple if statement?

An if statement consists of a conditional test on one line and a statement or block of statements that run if the test returns True:

```
if plant_height < 3:  
    print("Keep it in the greenhouse!")
```

An if statement can also test a Boolean value and run if that value is True:

```
if game_active:  
    print("Let's play!")
```

# IF-ELSE STATEMENTS

- How do you write an if-else statement?
- How do you write a series of if-elif-else statements?

An if-else statement has an if statement that runs if the condition is True and an else clause that runs if the condition is False:

```
if plant_height < 3:  
    print("Keep it in the greenhouse!")  
else:  
    print("Move it outside.")
```

An if-elif-else block has an if statement, a series of test conditions if the first test fails, and an else block that runs if all tests fail:

```
if plant_height < 3:  
    print("Keep it in the greenhouse!")  
elif plant_height < 15:  
    print("Move it outside.")  
else:  
    print("Ready to harvest!")
```

An if-elif block doesn't require an else block.



# USER INPUT

- How do you prompt the user for input?
- How do you work with the data entered by a user?

The `input()` function pauses a program and waits for the user to enter data:

```
name = input("What's your name? ")  
print(f"Hello, {name}!")
```

```
What's your name? Cedar  
Hello, Cedar!
```

All data entered is converted to a string. Numerical data needs to be converted to the appropriate type before you can work with it:

```
price = input("How much for the truck? ")  
price = float(price)  
if price < 10000:  
    print("I'll take it.")
```

```
How much for the truck? 7500.00  
I'll take it.
```

# WHILE LOOPS

- What is a while loop?
- How do you use a list with a while loop?

## A while loop runs as long as a condition is True:

```
num = 0
while num < 3:
    print(num)
    num += 1
```

```
0
1
2
```

A list with at least one item evaluates to True. This loop runs until the list is empty:

```
bugs = ['bug 1', 'bug 2', 'bug 3']
while bugs:
    bug = bugs.pop(0)
    print(f"Fixing {bug}.")
print("All bugs fixed.")
```

```
Fixing bug 1.
Fixing bug 2.
Fixing bug 3.
All bugs fixed.
```

# THE BREAK AND CONTINUE STATEMENTS

- What does `break` do to a loop?
- What does `continue` do to a loop?

The `break` statement ends a loop when a certain condition occurs:

```
while True:
    name = input("What's your name? ")
    if name == 'quit':
        break
    print(f"Hello, {name}!")
```

```
What's your name? Cedar
Hello, Cedar!
What's your name? quit
```

The `continue` keyword breaks the loop and returns to the beginning of the loop:

```
while True:
    age = input("How old are you? ")
    age = int(age)
    if age < 0:
        print("That makes no sense!")
        continue
    print(f"{age} is a great age!")
```

```
How old are you? 17
17 is a great age!
How old are you? -5
That makes no sense!
How old are you? 5
5 is a great age!
```