CSE 503
Introduction to Computer Science for Non-Majors

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Day 08
JavaScript Control Flow and Exercises

Announcements

- Autograder for Lab #1 will be made available on Monday

Recap

- Learned what expressions, variables, statements, and functions look like in JavaScript
  - Mostly the same as in Python but with slightly different syntax:
    - JavaScript uses function — Python uses def
    - JavaScript uses &&, ||, ! — Python uses and, or, not
    - JavaScript uses let x; to declare a variable — Python just needs an assignment statement.

Control Flow in JavaScript

Just like in Python, JavaScript executes statements sequentially

This works...

```
let x;

let y = 5;

x = y * 10;
```

But this doesn't...why?

```
x = y * 10;

let x;

let y = 5;
```

Control Flow in JavaScript

Just like in Python, JavaScript executes statements sequentially

This works...

But this doesn't...why?

This is the first statement executed, but **x** and **y** don't exist until later!

```
let x;

let y = 5;

x = y * 10;
```

```
x = y * 10;

let x;

let y = 5;
```

Selection Statements in JavaScript

- JavaScript also has selection statements, with slightly different syntax

```
if (<condition 1>) {
    <body 1>
}
else if (<condition 2>) {
    <body 2>
}
else {
    <body 3>
}
```
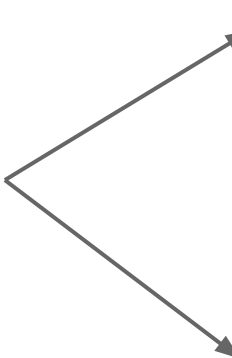
Selection Statements in JavaScript

- JavaScript also has selection statements, with slightly different syntax

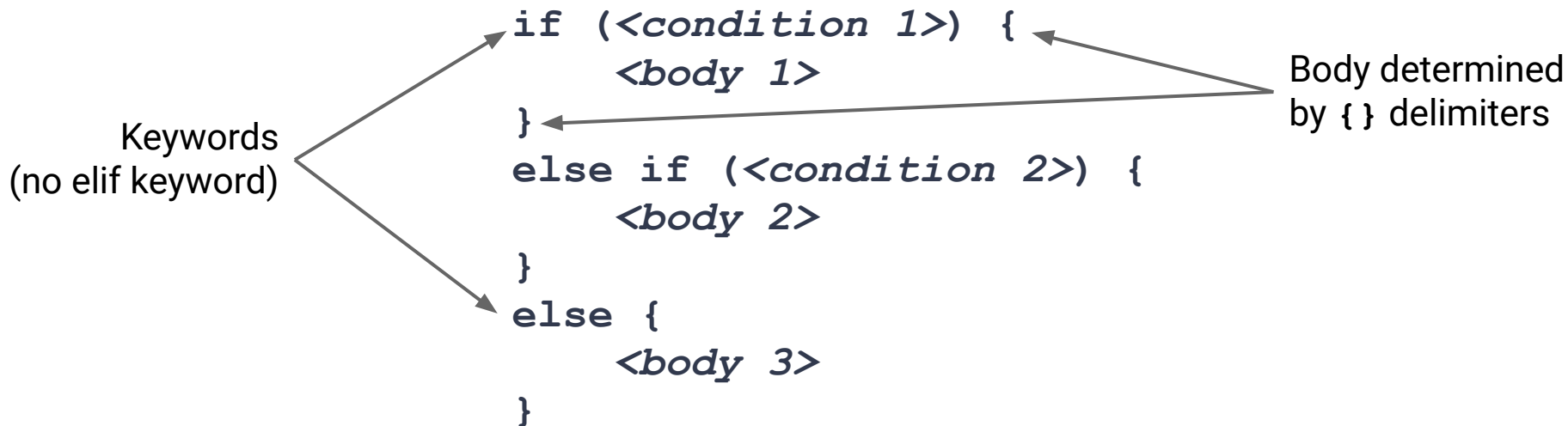Keywords
(no elif keyword)

```
if (<condition 1>) {
    <body 1>
}
else if (<condition 2>) {
    <body 2>
}
else {
    <body 3>
}
```

Selection Statements in JavaScript

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if (<condition 1>) {
    <body 1>
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Keywords
(no elif keyword)

Body determined
by `{ }` delimiters

Selection Statements in JavaScript

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if (<condition 1>) {
    <body 1>
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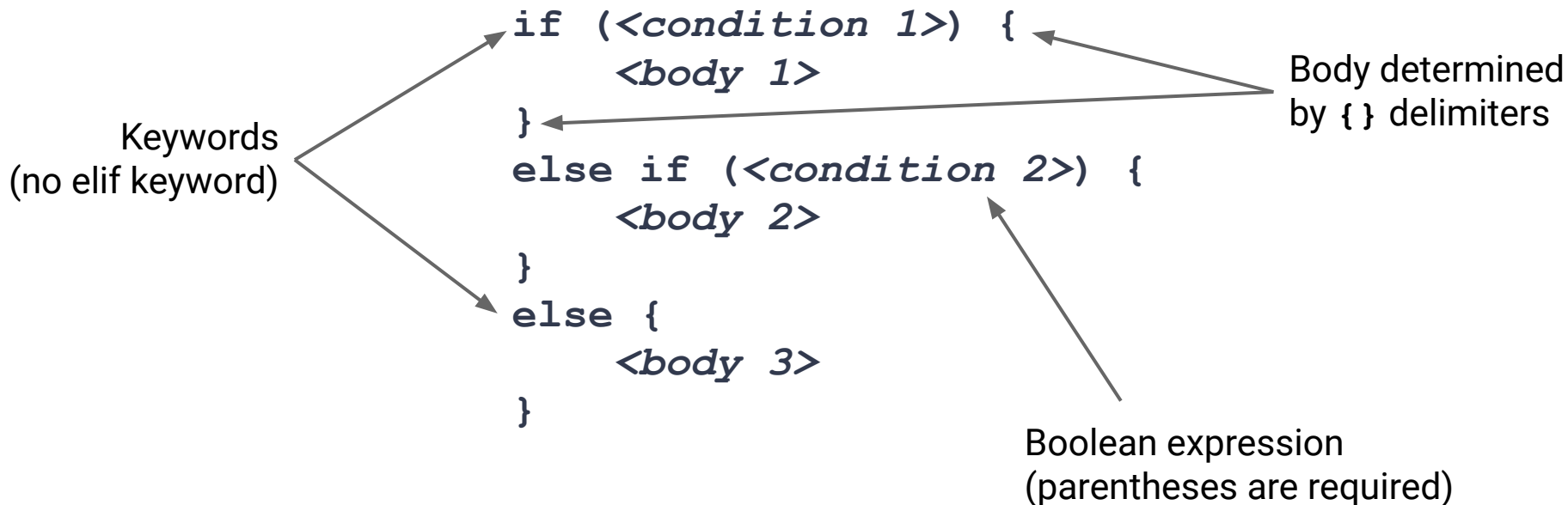
Keywords
(no elif keyword)

Body determined
by { } delimiters

Boolean expression
(parentheses are required)

Selection Statement Example

```
if (weather == "snowing") {
    console.log("I'll wear boots today!");
}
else if (weather == "sunny" && temp > 75) {
   console.log("I'll wear flip flops today!");
}
else {
   console.log("I'll wear sneakers today!");
}
```

General Rules

- Must start with an `if`
- May be followed by one or more `else if`
- May be ended with a single `else` (but does not have to be)
- Conditions will be checked in order, until the first one that is `true`
  - The corresponding body will be executed, and the rest will be skipped
  - The body of `else` only executes if everything is `false`

More in depth specification can be found [here](#)

Exercise #1

Define a function in JavaScript named `totalCost`. This function takes two numerical arguments, a price and a quantity.

The price is the price of a single item, and quantity are the number of items being purchased. The function should return the total cost of these items.

Write some tests before defining your function.

To assert something in JavaScript, call the `console.assert(...)` *function*

Discussion in replit…

Exercise #2

Now we want to extend our previous example to be able to handle if an item is on sale! Define a function named `saleCost` that takes 3 arguments: the price of an item, the quantity being purchased, and a Boolean value indicating if there is a sale.

If the third argument is `false`, then there is no sale, and you can return the cost just like we did in Exercise #1.

If the third argument is `true` if there is a "buy one get one free" sale, so you only have to pay for half of the items.

Write some tests…think about the different cases that could arise and what the answer should be before you code!

Discussion in replit…