1. Intro to Conditionals

Writing Code = Problem Solving with Algorithms

1. Quiz: Flowcharts (3-1)

Diagram for how to solve a problem. <3 Flowcharts, but they are annoying to make.

1. Flowchart to Code

Basic if/else statement.

var price = 15.00;

var money = 20.00;

if(money >= price) {

console.log “buy the hammer”

} else {

console.log “don’t buy the hammer”

}

1. If...Else Statements

if (/\* this expression is true \*/) {

// run this code

} else {

// run this code

}

1. Else If Statements

The value inside the if statement is always converted to true or false.

if (weather === "snow") {

console.log("Bring a coat.");

} else if (weather === "rain") {

console.log("Bring a rain jacket.");

} else {

console.log("Wear what you have on.");

}

The identity (===) operator behaves identically to the equality (==) operator except no type conversion is done, and the types must be the same to be considered equal.

1. Quiz: Even or Odd (3-2)

var number = 2;

if (number % 2 === 0) {

console.log("even");

} else {

console.log("odd");

}

1. Quiz: Musical Groups (3-3)

if (musicians === 1) {

console.log("solo");

} else if (musicians === 2) {

console.log("duet");

} else if (musicians === 3) {

console.log("trio");

} else if (musicians === 4) {

console.log("quartet");

} else if (musicians > 4) {

console.log("this is a large group");

} else {

console.log("not a group");

}

1. Quiz: Murder Mystery (3-4)

var room = "dining room";

var suspect = "Mr. Parkes";

var weapon = "";

var solved = false;

if (room == "dining room" && suspect == "Mr. Parkes") {

weapon = "knife";

solved = true;

} else if (room == "gallery" && suspect == "Ms. Van Cleve") {

weapon = "trophy";

solved = true;

} else if (room == "billiards room" && suspect == "Mrs. Sparr") {

weapon = "pool stick";

solved = true;

} else if (room == "ballroom" && suspect == "Mr. Kalehoff") {

weapon = "poison";

solved = true;

} else {

weapon = "";

solved = false;

}

if (solved) {

console.log(suspect + " did it in the " + room + " with the " + weapon + "!");

}

1. More Complex Problems

&& || !

1. Logical Operators

Operator Meaning Example How it works

&& Logical AND value1 && value2 Returns true if both value1 and value2 evaluate to true.

|| Logical OR value1 || value2 Returns true if either value1 or value2 (or even both!) evaluates to true.

! Logical NOT !value1 Returns the opposite of value1. If value1 is true, then !value1 is false.

1. Logical AND and OR

I did this in part 8

Truth Tables

This behavior is called short-circuiting because it describes the event when later arguments in a logical expression are not considered because the first argument already satisfies the condition.

1. Quiz: Checking your Balance (3-5)

if (checkBalance) {

if (isActive && balance > 0) {

console.log("Your balance is $" + balance + ".");

} else if (!isActive) {

console.log("Your account is no longer active.");

} else if (balance === 0) {

console.log("Your account is empty.");

} else {

console.log("Your balance is negative. Please contact bank.");

}

} else {

console.log("Thank you. Have a nice day!");

}

1. Quiz: Ice Cream (3-6)

if ((flavor == "vanilla" || flavor == "chocolate") && (vessel == "cone" || vessel == "bowl") && (toppings == "sprinkles" || toppings == "peanuts")) {

console.log("I'd like two scoops of " + flavor + " ice cream in a " + vessel + " with " + toppings + ".");

}

1. Quiz: What do I Wear? (3-7)

if (18 <= shirtWidth && shirtWidth < 20 && 28 <= shirtLength && shirtLength < 29 && 8.13 <= shirtSleeve && shirtSleeve < 8.38) {

console.log("S");

} else if (20 <= shirtWidth && shirtWidth < 22 && 29 <= shirtLength && shirtLength < 30 && 8.38 <= shirtSleeve && shirtSleeve < 8.63) {

console.log("M");

} else if (22 <= shirtWidth && shirtWidth < 24 && 30 <= shirtLength && shirtLength < 31 && 8.63 <= shirtSleeve && shirtSleeve < 8.88) {

console.log("L");

} else if (24 <= shirtWidth && shirtWidth < 26 && 31 <= shirtLength && shirtLength < 33 && 8.88 <= shirtSleeve && shirtSleeve < 9.63) {

console.log("XL");

} else if (26 <= shirtWidth && shirtWidth < 28 && 33 <= shirtLength && shirtLength < 34 && 9.63 <= shirtSleeve && shirtSleeve < 10.13) {

console.log("2XL");

} else if (28 === shirtWidth && 34 === shirtLength && 10.13 === shirtSleeve) {

console.log("3XL");

} else {

console.log("N/A");

}

1. Advanced Conditionals
2. Truthy and Falsy

A value is falsy if it converts to false when evaluated in a boolean context. For example, an empty String "" is falsy because, "" evaluates to false. A value is truthy if it converts to true when evaluated in a boolean context.

“null” and -5 are truthy

All 6 Falsy values.

1. the Boolean value false
2. the null type
3. the undefined type
4. the number 0
5. the empty string ""
6. the odd value NaN (stands for "not a number")
7. Ternary Operator

The ternary operator provides you with a shortcut alternative for writing lengthy if...else statements.

conditional ? (if condition is true) : (if condition is false)

isGoing ? "green" : "red";

1. Quiz: Navigating the Food Chain (3-8)

var category = (eatsPlants && eatsAnimals) ? "omnivore" : eatsPlants ? "herbivore" : eatsAnimals ? "carnivore" : undefined;

1. Switch Statement

A switch statement is another way to chain multiple else if statements that are based on the same value without using conditional statements. Instead, you just switch which piece of code is executed based on a value.

The break statement can be used to terminate a switch statement and transfer control to the code following the terminated statement. By adding a break to each case clause, you fix the issue of the switch statement falling-through to other case clauses.

1. Falling-through

You can add a default case to a switch statement and it will be executed when none of the values match the value of the switch expression.

1. Quiz: Back to School (3-9)

switch (education) {

case "no high school diploma":

salary = 25636;

break;

case "a high school diploma":

salary = 35256;

break;

case "an Associate's degree":

salary = 41496;

break;

case "a Bachelor's degree":

salary = 59124;

break;

case "a Master's degree":

salary = 69732;

break;

case "a Professional degree":

salary = 89960;

break;

case "a Doctoral degree":

salary = 84396;

break;

}

console.log("In 2015, a person with " + education + " earned an average of $" + salary.toLocaleString("en-US") + "/year.");

1. Lesson 3 Summary

Breaking down problems into their logical steps is the first sign of a good programmer.

Conditional Statements and Logical Operators are important. As are truthy and falsy, ternary operators, and switch statements.