1. What is conditional code?

Conditional code only runs sometimes—when a specific condition is met.

2. What are some examples of conditionals in everyday life?

* If I am tired, I will take a nap
* If I have enough money, I will buy a steak for dinner
* If the Bears win the Superbowl, I will paint my face blue and orange

3. What is the syntax for an if-statement?

if(<boolean expression>){<body>}

4. When does the code in the body of an if-statement run?

When the boolean expression in the parentheses is true

5. What is a boolean?

A boolean is a special data type that stores the values true and false

6. What is a boolean expression?

A boolean expression is any expression that evaluates to true or false

7. What is the not-operator in Java, and what does it do?

In Java, the not-operator is !, and it returns the opposite boolean value.

!true --> false

!false --> true

8. What are comparison operators?

Comparison operators tell you how two numeric pieces of data relate to each other.

For example, the expression **5 < 6** will return true because 5 is less than 6, and the expression **5 > 6** will return false because 5 is not greater than 6.

9. What are the 6 comparison operators in Java?

Greater than: >

Greater than or equal to: >=

Less than: <

Less than or equal to: <=

Equal to: ==

Not equal to: !=

10. How can you combine 2 or more boolean expressions together?

You can use AND (&&), OR (||), or XOR (^)

11. What does short circuiting do?

Short circuiting stops evaluating a boolean expression as soon as an answer is known.

For example, given the expression **3 == 4 && 4 < 5**, Java will only check the first part (3 == 4) and then return false. Since both parts of the expression must be true for the entire expression to be true, we can be sure that it is impossible for the expression to be true if the first part is false.

Similarly, given the expression **6 > 4 || 7 != 7**, Java will only check the first part (6 > 4) and then return true. Since either part of the expression can be true for the entire expression to be true, we can be sure that it is impossible for the expression to be false if the first part is true.

12. How can you tell Java not to short circuit?

To force Java to check every expression without short circuiting, simply only use 1 symbol for AND (&) and OR (|).

The expressions

**3 == 4 & 4 < 5**

and

**6 > 4 | 7 != 7**

will both be fully checked.

13. What is an else-statement?

An else-statement is a code snippet that only runs when all previous conditions are false.

14. Add onto the examples from question 2 by including an else-statement for each

* If I am tired, I will take a nap. Else, I will walk my dog
* If I have enough money, I will buy a steak for dinner. Else, I will have salad
* If the Bears win the Superbowl, I will paint my face blue and orange. Else, I will sell my Justin Fields jersey

15. What is an else-if-statement?

An else-if-statement is a code snippet that only runs if a condition is true and all previous conditions are false.

For example,

If I am over 25 I can rent a car. Else, if I am over 21 I can drink alcohol. Else, if I am over 18 I can vote. Else, if I am over 16 I can drive. Else, if I am over 15 I can work on a permit. Else, I am still a child and can’t do anything.