Using if and Match

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Opening Discussion

- Minute essay comments
    - Board vs. computer was split.
    - Calling functions.
    - Why format pay returns a string.
    - False is a keyword.
- Everything moved back.

Comparisons

- The condition needs to be a Boolean expression.

- The most common basic forms of these are comparisons.

- Use == and != for equality and non-equality.

- The ordering comparison operators are <, >, <=, and >=.

Coding the Example

- Let's write the code for the skating problem example.

- Guarding division is another example.

- What are some other simple examples of places where conditional execution would be helpful?

Motivation

- I want to have a function that tells me if two squares intersect.

- The function will be given the x and y location of the center of each square as well as the length of the side of each square.

- It should return a Boolean telling if they intersect.

Conditional Logic

- We talked about comparisons of values in the last class.

- We can also combine Boolean expressions together using Boolean logic.

- There are four Boolean operators:

  - && for and

  - || for inclusive or

  - ^ for exclusive or

  - ! for not

Short Circuit Operators

- The && and || operators are short circuit operators.

- This means that if the value is known after evaluating the first operand, the second operand won't be evaluated.

- This can prevent errors.

- Let's look at an example of this with division by zero.

Nesting ifs

- What you put in an if can be any expression or statement.

- As a result, you can put an if inside of another if.

- As we will see, Scala doesn't care what you nest inside of things. You write the logic that makes sense to you and says what you want to say.

The match Expression

- There is a second conditional expression in Scala called match.

  - *expr* match {

    - case *pattern* => *expr*

    - case *pattern* => *expr*

    - ...

  - }

- There are lots of options for the pattern, but the simplest one is literal values.

Minute Essay

- When might you want to use conditional execution? (Hint: any time you would use if in a sentence probably works.)