

# Boolean Expressions and if

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# Opening Discussion

- Minute essay comments
  - Ways of viewing the contents of a file.
  - Roller skating is spring only.
  - Using a second terminal.
  - Tab completion in the REPL.
  - Can you use Scala to solve equations for variables?
  - Use the TAs!
  - Entering 567.0 into money formatter.
  - When to use val/var.
  - Files for scripts.

# More

- Unicode does support Chinese.  
<http://www.utf8-chartable.de/>
- Difference between println and printf.
- How do you know when to use spaces? Not in tokens.
- Explain tar, gzip, and gunzip.
- Prep for quizzes with reading and practice.
- Send me text corrections. It is EC.
- Course website gets to all types of material.
- Finish formatting money.

# Motivating Conditional Execution

- For my roller skating class I have a component of the grade based on an endurance test where you have to skate for 12 minutes. This component is worth 20 points. The grade you get is 0 for 20 or fewer laps and 20 for 40 or more laps. Between those extremes you get one point for every lap over 20.
- Calculating this value requires that we do different things in different situations. This is called conditional execution.

# if

- The most basic form of conditional execution is the if.
- The syntax is as follows:
  - *if(condition) expr else expr*
- When Scala gets to an if, it evaluates the condition. The condition is an expression of type Boolean.
- If the condition is true it evaluates the first expression, otherwise it evaluates the second expression.

# Expression or Statement

- In Scala you can use `if` as an expression, so it returns a value, or just as a statement where you ignore the value.
- When used as a statement, the `else` is optional.

# Code Blocks

- In Scala you can make complex statements or expressions by putting multiple statements inside of curly braces.
- If it is used as an expression, the value of the expression will be the value of the last expression in it.

# 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?

# Minute Essay

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