Boolean Expressions and Conditional Execution

Chapter 5
For Next Time

- Read Chapter 5
Relational Operators

- Compare two expressions
- Evaluate to Boolean values: `true, false`

<table>
<thead>
<tr>
<th>Operator</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>==</code></td>
<td>is equal to</td>
</tr>
<tr>
<td><code>&gt;=</code></td>
<td>is greater than or equal to</td>
</tr>
<tr>
<td><code>&lt;=</code></td>
<td>is less than or equal to</td>
</tr>
<tr>
<td><code>&lt;</code></td>
<td>is less than</td>
</tr>
<tr>
<td><code>&gt;</code></td>
<td>is greater than</td>
</tr>
<tr>
<td><code>!=</code></td>
<td>is not equal to</td>
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</tbody>
</table>
Test #1 is *two weeks* from today
Begin Lab 4 *immediately* after finishing Lab 3
Visit the tutors!
Boolean Operators

- Combine simpler Boolean expressions to make compound Boolean expressions

<table>
<thead>
<tr>
<th>$e_1$</th>
<th>$e_2$</th>
<th>$e_1 &amp;&amp; e_2$ (and)</th>
<th>$e_1 | e_2$ (or)</th>
<th>!$e_1$ (not)</th>
</tr>
</thead>
<tbody>
<tr>
<td>false</td>
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<td>false</td>
<td>false</td>
<td>true</td>
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</table>
Evaluate the Following Expressions

```
int x = 5, y = 2;

x >= 5
x > 5
x == 5
x == y
x != y
x >= 5 && y < 10
x >= 5 || y < 10
x < 0 && y > 10
```

```
if Statement

- Conditionally execute sections of code based on the value of a Boolean condition

```cpp
if (condition) body
```
if/else Statement

Select one execution path from two possible execution paths

```plaintext
if ( condition )
    ifbody
else
    elsebody
```

"If" Statement(s)

"Else" Statement(s)
if vs. if/else
More complex conditionals