Boolean Expressions and Conditional Execution

1

Relational Operators

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

Operator	Meaning
==	is equal to
>=	is greater than or equal to
<=	is less than or equal to
<	is less than
>	is greater than
!=	is not equal to

3

Boolean Operators

- Combine simpler Boolean expressions to make compound Boolean expressions

e_1	e_2	e_1 && e_2 (and)	e_1 || e_2 (or)	! e_1 (not)
false	false	false	false	true
false	true	false	true	true
true	false	false	true	false
true	true	true	true	false

5

Evaluate the Expressions

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

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

Tautology

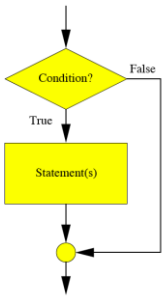
Contradiction

6

`if` Statement

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

```
if ( condition )
   body
```

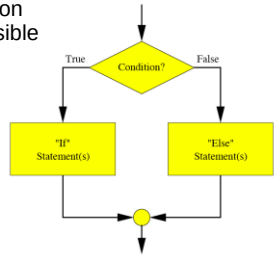


7

`if/else` Statement

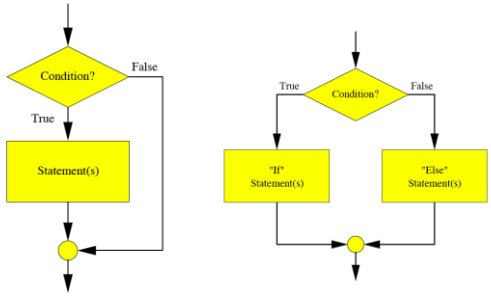
- Select one execution path from two possible execution paths

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



8

`if` vs. `if/else`



9

Next . . .

More complex conditionals

10