

# CS139 – Decisions



# Relational Operators

- **Relational operator** – compare two values, evaluate to true or false

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

# Boolean Expression

- **Boolean Expression** – An expression that evaluates to true or false

`x < 7`

`a == b`

`3 != 4`

# Relational Operators and Types

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(.1 + .1 + .1) == .3 // false!!!!
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- Chars:

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'a' < 'b' // true
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'0' < '1' // true
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```
'Z' < 'a' // true, upper-case less than lower-case
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```
'9' < 'A' // true, numbers less than letters
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- They don't work *at all* with strings:

```
"HELLO" < "THERE" // Syntax error!!!
```

```
"HELLO" == otherString // Won't work as expected!!!
```

# If-Statements

- Syntax:

```
if (boolean_expression)
    statement_or_block
else
    statement_or_block
```

- Examples:

```
if (performance > 80)
    bonusPay += 1000;
```

```
if (performance > 80)
    bonusPay += 1000;
else
    System.out.println("You are fired.");
```



# Danger...

- What's wrong with this code?

```
if (performance > 80)
    System.out.println("Nice work!");
    bonusPay += 1000;
```

# Prevention...

- Style guide requires braces and proper indentation:

We use braces here:

```
if (performance > 80) {  
    bonusPay += 1000;  
}
```

To prevent the mistake from the previous slide.

```
if (performance > 80) {  
    System.out.println("Nice work!");  
    bonusPay += 1000;  
}
```

# Empty Blocks are Bad Style

- These are all functionally equivalent. Which is best?

```
if (performance <= 80) {  
  
} else {  
    bonusPay += 1000;  
}
```

```
if (performance > 80) {  
    bonusPay += 1000;  
} else {  
  
}
```

```
if (performance > 80) {  
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}
```