Compound Booleans

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Java

if statements

```
if(5 > 16)
{
   System.out.println(z);
}
```

What if we want to add more arguments???

if statements

We want to check if:
x is greater than 16 **AND** **x** is not equal to 20

```
if(x > 16){
   if(x != 20){


   }
}
```

The Logical AND (&&)

Definition:

The logical AND (`&&`) operator (logical conjunction) for a set of operands is true if and only if all of its operands are true.

```
((TRUE)  && (TRUE))    = TRUE
((TRUE)  && (FALSE))   = FALSE
((FALSE) && (TRUE))    = FALSE
((FALSE) && (FALSE))   = FALSE
```

if statements - AND

We want to check if:
x is greater than 16 **AND** **x** is not equal to 20

```
if(x > 16){
   if(x != 20){


   }
}
```

```
if((x > 16) && (x != 20)){



}
```

if statements - OR

We want to check if:
x is greater than 16 **OR** **x** is not equal to 20

```
if(x > 16){

}
if(x != 20){

}
```

The Logical OR (||)

Definition:

The logical OR (`||`) operator (logical disjunction) for a set of operands is true if and only if one or more of its operands is true.

```
((TRUE)  ||  (TRUE))   = TRUE
((TRUE)  ||  (FALSE))  = TRUE
((FALSE)||  (TRUE))   = TRUE
((FALSE)||  (FALSE))  = FALSE
```

if statements - OR

We want to check if:
x is greater than 16 **OR** **x** is not equal to 20

```
if(x > 16){

}
if(x != 20){

}
```

```
if((x > 16) || (x != 20)){



}
```

Lab: Compound Booleans

- Write a program that takes in 3 int variables from the user
- Using **three** if statements
  - Find the largest integer
- Using another **three** if statements
  - Find the smallest integer
- Print out the largest and smallest integers
- Verify your code works by trying different int value