



# Conditions

CSCI 201

Principles of Software Development

Jeffrey Miller, Ph.D.

*jeffrey.miller@usc.edu*



# Outline

- Conditions
- Program

# Conditional Statements

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- Java has three conditional statements, similar to C++
  - › `if-else`
  - › `switch-case`
  - › Conditional ternary operator `?:`
- The conditional and boolean operators work similar to C++ as well

# Comparison and Boolean Operators



- Comparison operators

==      !=

>      >=

<      <=

- › NOTE: Comparison operators only work for primitive data types. Methods will be created for object comparisons

- Boolean operators

- Bitwise boolean operators

&  
|

- Logical boolean operators

&&  
||  
!

# if Statements



- What is the difference between these two code snippets?

```
1 int num=1;
2 if (num < 1) {
3
4 }
5 else if (num > 1) {
6
7 }
8 else {
9
10 }
```

```
1 int num=1;
2 if (num < 1) {
3
4 }
5 if (num > 1) {
6
7 }
8 if (num == 1) {
9
10 }
```

# switch Statements



- `switch` statements can only take a byte, short, int, or char
- The values in the cases must be hard-coded (no variables)
  - › The conditions must match equality
- You can have a `default` case if you want
- Once one case becomes true, the rest of the cases will not be checked

```
1  switch (grade) {
2      case 'A':
3          System.out.print ("Excellent");
4      case 'B':
5          System.out.print ("Good");
6          break;
7      case 'C':
8          System.out.print ("Eh");
9      case 'D':
10         System.out.print ("I guess");
11         break;
12     case 'F':
13         System.out.print ("Failed");
14 }
```

# Multi-Condition **switch** Statement



```
1  switch (grade) {
2      case 'A':
3      case 'B':
4      case 'C':
5      case 'D':
6          System.out.print ("Passed" );
7          break;
8      case 'F':
9      default:
10         System.out.print ("Failed" );
11     }
```

# switch VS if

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- It does not make a difference if you use an `if` statement or a `switch` statement
  - › There is no change in efficiency
- Every `switch` statement can be written as an `if` statement, but not vice versa – why not?



# Conditional Ternary Operator



- There is only one ternary operator in Java (and C++)
- The conditional ternary operator can assign a value based on the result of a condition

```
1  int num = 2;
2  String status;
3  if (num < 3) {
4      status = "low";
5  }
6  else {
7      status = "high"
8  }
9
10 status = (num < 3) ? "low" : "high";
```



# Outline

- Conditions
- Program

# Program



- Write a program to prompt the user for two numbers and takes one parameter off the command line to represent the operation he would like to perform with the two numbers. Perform that operation. Use a case statement to determine the operation. A sample execution is below.

```
c:\>java csci201.Operation /
Please enter first number: 21
Please enter second number: 3
21 / 3 = 7
c:\>
```