

CISC 3120

C05: Flow Controls

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Outline

- Recap and issues
 - Selections & iterations
 - Assignments
- Flow controls in Java
 - More on selection & iterations
 - Break, continue, and return
- Assignments

Reminder

- Last day to drop a class

Recap: Questions?

- I have multiple Java classes, which one should I run?
- How do I use your sample program? How do I open your Eclipse project?
- What do you require to organize my weekly practice repository?

Recap: Selections & Iterations

- Selections
 - if-then statement
 - if-then-else statement
- Iterations
 - while statement
 - for statement
 - enhanced for statement

Boolean Expression

- An expression evaluates to either true or false
 - true and false are Java keywords
 - How about these statements?
while (true);
while (false);
 - More in "LearnJava" in the "sampleprograms" repo

Relational Operators

- $<$, \leq , $>$, \geq , $==$, \neq
- Where you can use them depending on data types
 - Is it meaningful to say “less than” or “greater than”) for the data type?

Testing Object Equivalence

- Relational operators "==" and "!=" work for objects

```
Integer n1 = new Integer(3120);
```

```
Integer n2 = new Integer(3120);
```

```
System.out.println(n1 == n2);
```

```
System.out.println(n1 != n2);
```

```
System.out.println(n1.equals(n2));
```

- More in "LearnJava" in the "sampleprograms" repo

How about String Objects?

- Compare the following two cases

```
String s1 = new String("CISC 3120");  
String s2 = new String("CISC 3120");  
System.out.println(s1 == s2);  
System.out.println(s1.equals(s2));
```

```
String s1 = "CISC 3120";  
String s2 = "CISC 3120";  
System.out.println(s1 == s2);  
System.out.println(s1.equals(s2));
```

More Examples on Strings

- Compare these two:

```
String s1 = "CISC 3120";  
String s2 = "CISC 3120";  
System.out.println(s1 == s2);  
System.out.println(s1.equals(s2));
```

```
// string literals allocated in run-time constant pool  
String s1 = "CISC 3120";  
String s2 = s1;  
System.out.println(s1 == s2);  
System.out.println(s1.equals(s2));
```

Conditional Operators

- Three operators that produce a Boolean value
 - AND (&&)
 - OR (||)
 - NOT (!)
- Do NOT confuse them with
 - Bitwise AND (&)
 - Bitwise OR (|)
 - Bitwise NOT (~)
 - Bitwise XOR (^)

Short-Circuiting

- JVM ceases to evaluate further once a truth or a falsehood value is unambiguously determined.

Examples for Conditional Operators

- See "LearnJava" in the "sampleprograms" repo

Switch Statement

- Form

```
switch(integral-selector) {  
    case integral-value1 : statement; break;  
    case integral-value2 : statement; break;  
    case integral-value3 : statement; break;  
    case integral-value4 : statement; break;  
    case integral-value5 : statement; break;  
    // ...  
    default: statement;  
}
```

Example for Switch Statement

- See "LearnJava" in the "sampleprograms" repo

Iterations

- while statement
- for statement
- enhanced for statement
- do-while statement
- Examples
 - See "LearnJava" in the "sampleprograms" repo

Break Statement

- Recall the switch statement
- Can I use it in a loop?
- See "LearnJava" in the "sampleprograms" repo

Continue Statement

- See "LearnJava" in the "sampleprograms" repo

Return Statement

- See "LearnJava" in the "sampleprograms" repo

The Simple Dotcom Game

- The SimpleDotCom project in the "sampleprograms" repo
- Coding Style:
 - How do I name the package names now?

Question

- More discussions on
 - Selection & iterations
- Discussion on the break, continue, and return statements.

Assignments

- Practice examples to be posted at the class website
 - Practice assignments due one week from assignment date (if Thursday, due next Thursday; if Tuesday, due next Tuesday)
- CodeLab assignments
 - Deadline set for the first batch
- Upcoming: project 1