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

- Conversion day
    - We have a class on Tuesday, September 19
- Q: what do we do on Thursday?

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

- <, <=, >, >=, ==, !=

- 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