Topics: Selection (conditional) statement, input using Keyboard class

Reading (JV): Sec 2.7 (exclude the Random class), Sec 2.8, 3.0-3.2

Example 1: Temperature conversion, re-visited

Write a program to convert a user-entered temperature in degrees Fahrenheit to degrees Celsius. Display the temperature both in °F and °C.

// Convert temperature from F to C
import cs1.Keyboard;

public class TempConvert {
    public static void main(String[] args) {
        final int FREEZE = 0;
        System.out.print("Enter temp in F: ");
        double tempF = Keyboard.readDouble();
        double tempC;
        tempC = (tempF-32)*5/9;
        System.out.println(tempF + "F is " + tempC + "C");
        if (tempC < FREEZE)
            System.out.println("So very cold!");
        else
            System.out.println("Tolerable");
    }
}

Conditional Statement

```
if ( condition1 )
    statement1;
else
    statement2;
```

- At most one statement is executed
- At most one else clause

The while loop

```
while ( condition )
    statement ;
```

Pattern for doing something n times

```
int i= 1;
while ( i<=n ) {
    // do something
    // increment counter
    i= i + 1;
}
```

Pattern for doing something an indefinite number of times

```
% initialization
while ( not stopping signal ) {
    // do something
    // update status (variables)
}
```
User Input

See Lewis & Loftus Sec 2.7 for details on the `Keyboard` class.

Examples:

```java
var1 = Keyboard.readInt();
var2 = Keyboard.readDouble();
var3 = Keyboard.readChar();
var4 = Keyboard.readBoolean();
```

Example 2: Shipping cost

A shipping company calculates shipping prices as follows:

- A package weighing 5 lbs (pounds) or less costs $12, excluding tax.
- A package weighing over 5 lbs and less than 10 lbs costs $18, excluding tax.
- A package weighing at least 10 lbs costs $20 plus $1.50 for each pound over 10 lbs. For example, a 10.5 lb package costs $20.75 to ship, excluding tax.
- Tax (8%) is charged for shipment to Region 1. No tax is charged for shipment to Region 2.

Write a program segment that

- prompts the user for package weight (variable `wt`), destination code (variable `code`). Code will be entered as 1 or 2.
- calculates the shipping charge (including tax) and stores the result in variable `charge`
- prints the value of `charge` in a descriptive sentence.

```java
double charge; // shipping charge

// Get the package weight and destination code
System.out.print("Enter the package weight: ");
double weight = Keyboard.readDouble();
System.out.print("Enter destination code (either 1 or 2): ");
int des_code = Keyboard.readInt();

// Calculate shipping charge without tax

// Add tax for destination code 1

System.out.println("The shipping charge (including tax) = "+charge);
```