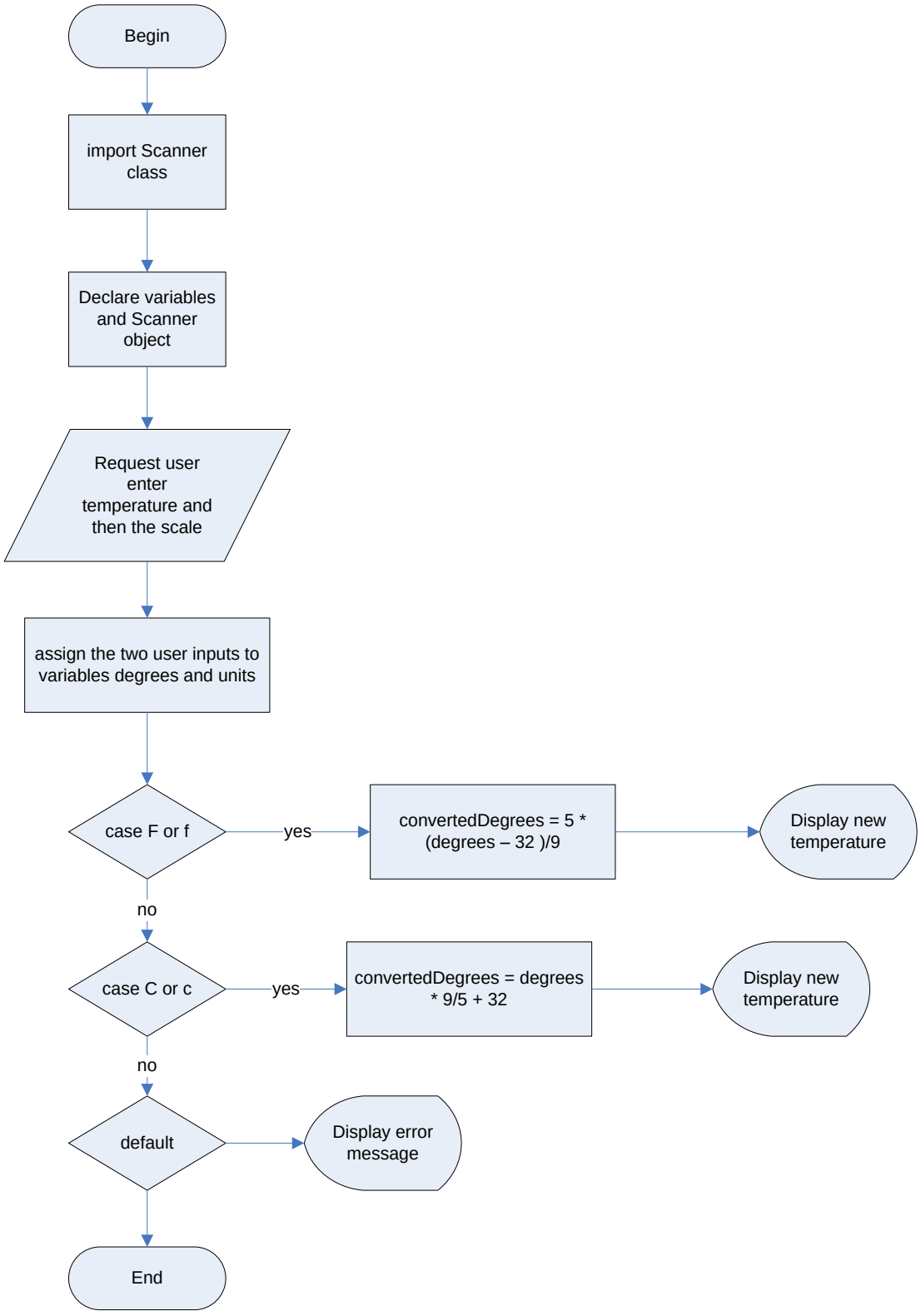
CIT 149: Java I
Chapter 3 Lab 3

In this lab we will request the user enter a temperature and the scale of 'C' or 'F' and convert the temperature to the opposite scale. The flowchart for this program is:



1. Open a new document window in TextPad and save the program as TemperatureConversion.java.

2. Type block comments that include your name, the date, and the purpose of the program.
3. Type the code that will import the Scanner class.
4. Type the class header, opening brace, main method header, and the main method's opening brace.
5. Within the main method type the following code to declare your variables:

```
double degrees, convertedDegrees;
char  units;
```

6. Type the code that will construct a Scanner object named *keyboard*.
7. First we will request the user enter the temperature and assign the user input to the variable *degrees* by typing:

```
System.out.println();
System.out.println();
System.out.println("Enter a temperature in degress (for example 29.6): ");
degrees = keyboard.nextDouble();
```

Notice how I added a couple of blanks lines? I could have accomplished the same result by adding the character set of \n twice before the word "Enter".

8. We ask the user to enter the scale letting the user know to enter only C, c, F, or f. Type:

```
System.out.println();
System.out.println("Enter 'F' (or 'f') for Fahrenheit or " + "'C' (or 'c') for Celsius:
");
units = keyboard.next().charAt(0);
System.out.println();
```

Here user input was assigned to the variable *units*. Notice that I had to include the charAt() method at the end? There is no method specifically for char data types. The charAt() method, in this case, takes only the first character entered.

9. Next we will create a switch statement to handle the conversions and assigning the conversions to the variable *convertedDegrees*. Type:

```
switch(units)
{
case 'F':
case 'f':
   convertedDegrees = 5 * (degrees -32)/9;
   System.out.println(degrees + " degrees F = " + convertedDegrees + " degrees
   Celsius.");
```

```
            break;

        case 'C':
        case 'c':
            convertedDegrees = degrees * 9/5 + 32;
            System.out.println(degrees + " degrees C = " + convertedDegrees + " degrees
           Fahrenheit.");
            break;
        default:
            System.out.println("Unknown units -");
            System.out.println("  cannot do calculation -");
            System.out.println("  next time enter either " + "'F' for Fahrenheit or 'C' for
            Celsius.");
    } //end switch
```

Here we use two different formulas for the conversions, depending on whether the user enter C, c, F, or f. Notice that our first two cases cover whether the user enter upper or lowercase.

A default case is given in case the user did not enter C, c, F, or f.

10. Close the main method and the class.
11. Compress the following files into a single zip or rar file and submit to the appropriate drop box.

    TemperatureConversion.java
    TemperatureConversion.class