

CIS 162 Lab 2

Conversions

Preparation

Do the following before arriving at lab:

- Read chapter 3.1 – 3.7
- Read 1.6 with an emphasis on creating and using Scanners
- Read 3.7 with an emphasis on integer division and the remainder operator

Objectives

After completing this lab, you should be able to:

- *create* a project and class
- *read* data from the keyboard using the Scanner class
- *make calculations* using assignment statements and variables
- *display results* using the `print()` and `println()` methods

Lab Activity #1 – Convert to seconds

1. Start BlueJ
2. Open the Project from last week (or create a new one).
3. Create a new Class called “ConvertToSeconds”
4. Edit the top comment section to describe the class and add both of your names as authors.
5. Remove the two automatically generated methods.
6. Create a main method (copy from Figure 1.6.2 in zyBook)
7. Prompt the user to enter three integers for hours, minutes and seconds.
8. Use variables with meaningful names
9. Calculate and display the number of equivalent seconds
10. When working correctly, copy to the corresponding zyLab in Chapter 3 for testing

Sample Output

```
Hours: 1
Minutes: 6
Seconds: 6
3966 seconds
```

Lab Activity #2 – Convert from seconds

1. Create a new Class called “ConvertFromSeconds”
2. Prompt the user to enter one integer for the number of seconds.
3. Calculate and display the number of equivalent hours, minutes and seconds (refer to section 3.7 about integer division and the modulo or remainder operator)

```
hours = total / 3600;  
total = total % 3600;
```
4. When working correctly, copy to the corresponding zyLab in Chapter 3 for testing

Sample Output

Seconds: **20000**

This is 5 hours, 33 minutes and 20 seconds.

Lab Activity #3 – Convert to dollars

1. Create a new Class called “ConvertToDollars”
2. Prompt the user to enter four integers for quarters, dimes, nickels and pennies.
3. Calculate the total number of cents by combining quarters, dimes, nickels and pennies.
4. Divide by 100.0 and place in a **double**
5. Display the equivalent in dollars and cents.
6. When working correctly, copy to the corresponding zyLab in Chapter 3 for testing

Sample Output

Quarters: **6**

Dimes: **6**

Nickels: **6**

Pennies: **6**

This is equivalent to \$2.46

Lab Activity #4 – Mad Lib

A mad lib is a simple game where you ask someone to name a few specific types of words and then you create a paragraph by inserting the words. The result is usually pretty silly but really fun for ten year olds!

1. Find a mad lib on the Web or create one on your own.
2. Create a new class called MadLib with a main method.
3. Prompt the user for several words. Your mad lib should have at least five requested words. Refer to section 4.5 about reading Strings.
4. When working correctly, show your instructor

Simple Sample

Enter a food: **hamburger**

Enter a color: **red**

Enter an emotion: **sad**

Eating red hamburger makes me sad.

Lab Activity #5 – Four 4s Problem

Use the number 4 four times in various permutations to create expressions that result in 0 – 9.

Use integer division and any of the four operators and parens (e.g. +, -, *, /). There may be more than one solution for each result.

$$0 = 4 + 4 - 4 - 4$$

$$5 =$$

$$1 = (4 + 4) / (4 + 4)$$

$$6 =$$

$$2 = (4 / 4) + (4 / 4)$$

$$7 =$$

$$3 =$$

$$8 =$$

$$4 =$$

$$9 =$$

Grading Criteria

This lab is worth one point for attendance and additional points for the corresponding zyLabs in Ch 3.