Programming Fundamentals

Lab #3

Topics

- Using Loops
- Input validation
- Creating classes and methods
- Accessing object/class methods and variables using the dot operator
- Instance and local variables

Concepts

while, do, for loops
break, continue statements
sentinel value
running sums
halting problem
dot operator
return types (e.g. void, int, String, etc.)
new keyword
toString() method

Exercise 1

In the AgeGuess.java program from the previous lab, insert a while loop so that the user has to keep guessing the age until he or she gets it right.

Exercise 2

Design and implement an application that reads an integer value and prints the sum of all even integers between 2 and the input value, inclusive. Print an error message if the input value is less than 2 and have the user reenter the number. Prompt accordingly. Call this EvenNumSum.java

Exercise 3

Design and implement an application that reads a string from the user and then determines and prints how many of each lowercase vowel (a, e, i, o, and u) appear in the entire string. Have a separate counter for each vowel. Also count and print the number of non-vowel characters. Call this VowelCounter.java

Exercise 4

Create a project with a class called **Box** (w/ *main*) that contains the following instance variable:

```
int size = 0;
```

Then add a method to this class named ***printBox*** with no parameters and void return type, that prints out to the screen a set of ***** (star) characters with ***size*** rows and ***size*** columns. Enter code in the ***main*** method to create a **Box** object, change its size to 5 (using the dot operator), and then invoke its ***printBox*** method. Run the program and fix any errors you may have.