ECCS 1611 – Programming 1

Lab 5 – Iteration - Programming practice with for and while statements.

Please write the following programs using Visual Studio or Xcode. When completed, please take screenshots as noted on the checksheet.

**Programming practice with loops**

**P5.1** Write a program using two **for** loops that will calculate the sum of all even numbers between 2 and 100, inclusive, and then the sum of all squares between 1 and 100, inclusive.

Example run:

The sum of all even numbers between 2 and 100, inclusive, is 2550.

The sum of all squares between 1 and 100, inclusive, is 338350.

**P5.2** Write a program using one **while** loop that will read in a sequence of integers guaranteed to be within the inclusive range of 0 through 99,999 from the user. Print out the smallest input, the largest input, the number of even inputs, and the number of odd inputs. HINT: refer to the code from the in-class handout inputDemo03.cpp or from the Example Code program in Section 4.5.2 (Reading Until Input Fails) of your textbook.

Example run (with user input indicated with ***bold italics***):

Enter number or Q to quit: ***100***

Enter number or Q to quit: ***200***

Enter number or Q to quit: ***300***

Enter number or Q to quit: ***90001***

Enter number or Q to quit: ***7***

Enter number or Q to quit: ***999***

Enter number or Q to quit: ***Q***

Largest value: 90001 Smallest value: 7

Even number count: 3 Odd number count: 3

**P5.3** Write a program that reads a positive integer value called number and prints out all of its binary digits. The algorithm is as follows:

Print the remainder of dividing the current value by the conversion base by using: number % 2

then keep just the quotient of that division by replacing number with: number / 2

Repeat these two steps until the value of number is 0.

Example runs (with user input indicated with ***bold italics***):

Please enter a number: ***13***

1

0

1

1

Note that with this algorithm the resultant binary value is read from bottom to top: 1310 = 11012