**CS 180 Problem Solving and Object Oriented Programming**
Fall 2011

Homework #6

Assigned Wednesday October 12, 2011
To be turned in during your recitation session (October 20-21, 2011)

Q1. Solve Exercise 7.3 from the textbook. First try answering the question by manual analysis of the code and then test your answer by actually compiling and executing the code.

Q2. Solve Exercise 7.4 from the textbook. First try answering the question by manual analysis of the code and then test your answer by actually compiling and executing the code.

Q3. Write a program in Java that performs the following tasks.

1. Read from the console an integer, say, `n`.
2. Create an array, say `A`, of `n` integers.
3. Initialize `A` to randomly generated integers from 0 (inclusive) to 100 (exclusive).
4. Create another array, say `hist`, of 10 integers.
5. Set `hist[0]` to the number of integers in A that are in the range [0-9]; set `hist[1]` to the number of integers in `A` that are in the range [10, 19], and so on. Note that `hist[9]` will contain the number of integers in A that are in the range [90-99]. Both numbers in a range are inclusive. For example, [50-59] includes 50 and 59.
6. Display `hist` array.

Try to write an efficient program implying that **do not** simply create 10 loops to count numbers in each range and assign to `hist[0]` and then to `hist[1]`, etc. Instead, use just one loop for step 3, one or two for step 5, and one for step 6. Also use as few statements as possible in the loop for Step 5.

**Example:**

Suppose that n=5; // The user has entered 5.

Suppose that A=[12 3 29 7 91] // These are the randomly generated integers.

Then your program must output all elements of `hist` to be 0 except the following:

hist[0]=2; hist[1]=1; hist[2]=1, and hist[9]=1.

<End of Homework 6>