CMSC 216 Quiz 3 Worksheet

The third quiz for the course will be on Fri, Jun 24. The following list provides more information about the quiz:

- The quiz will be a written quiz (no computer).
- Closed book, closed notes quiz.
- Answers must be neat and legible. **You must use pencil.**
- Check the quiz/exam rules at: **http://www.cs.umd.edu/~nelson/classes/examRules.html**

The following exercises cover the material to be included in this quiz. Solutions to these exercises will not be provided, but you are welcome to discuss your solutions with the TA or instructor during office hours.

Exercises

1. Define a function that computes the string of 0's and 1's associated with an integer unsigned value. You can assume an integer has a maximum of 32 bits.

2. Define a function call maxAndMin that has the following prototype:

   void maxAndMin(int a[], int *max, int *min)

   The function will find the maximum and minimum present in array a and return those values via the pointers parameters.

3. Define a method call intersection that has the following prototype:

   int intersection(int *a, int size_of_a, int *b, size_of_b, int *common);

   The method will initialize the common array with elements that are present in arrays a and b. The method will return the number of elements in common. You can assume the common array is large enough to fit the result.

4. Define a structure (using typedef) called Name that has the following fields:

   first_name – maximum size 80
   last_name – maximum size 80

5. Define a compareName method that takes two Name structures and returns -1 if first parameter precedes the second, 0 if they are equal and 1 otherwise.

6. Define a structure (using typedef) called Customer that has the following fields:

   full_name – of type Name (defined above)
   age → integer
   phone → string (maximum size 12)

7. Define a method call printCustomer that prints the contents of a Customer structure.

8. Define a function called initialize that reads the full name, age, and phone number of a customer and returns a Customer structure initialized with those values. For example, the method will be called as follows: initialize("John", "Smith", 45, "301-555-5555").

9. Define a method that reads names from a file and prints them capitalized. Assuming data is present in a file called names.txt, we should be able to execute the program in the command line as follows: a.out names.txt

   Your program should generate an error if an incorrect number of parameters is provided.

10. How would you redirect the output of the previous program so the results are sent to a file called myResults.txt instead of the standard output?

11. Define a method called loadDatabase that reads a file with entries that corresponds to customers. The function has as parameter an array of Customer structures which is initialized with the provided data. You can assume no more than 200 customers will be present in the file. The format of the input data will be full name, age and phone number.