Programming Assignment #1 CSE 215

1 Overview

For this assignment, you're going to write a C program to operate on sets. Our universe of elements consists of all (normal, printable, non-whitespace) single characters that can be entered from the keyboard (a-z, A-Z, 0-9 and punctuation).

Your program should prompt the user for the elements of the first set (called A): the user enters the elements, followed by $< ENTER >$. Do the same for the second set (B). Then print the following information:

- The elements of A in the usual format: $\{e_1, e_2, ..., e_n\}$
- The elements of B
- The cardinality of A and B
- $A \cup B$
- $A \cap B$
- $A \setminus B$

2 Details

- You should prompt the user for their two input strings
- Remember, a set cannot contain more than one copy of an element. **If the user enters an element twice, it should only appear in the set once.**
- Ignore whitespace (use ctype's "isspace()" function), but treat other characters as elements of the set. Remember to ignore any trailing newlines in your input.
- **the empty set is a valid set**
- Submit your .c program via Canvas by the due date/time. If your code includes multiple files, submit them as a tarball (.tgz).

3 Assumptions

You may assume input lines are no more than 120 characters each, and include only "normal" characters (no ESCapes, odd CTRL chars, etc.)

4 Recommendations

Start this assignment early! Use structures to simplify your code, and make things modular. If you define a membership-test function first, it will simplify writing an insert function. With those two functions, building a set from the input is very simple, as is calculating the union, intersection and complement.