Project 2

CS 1411.001

Due at 11:59 PM on 4/23/2012

Late submissions will not be graded

Write and submit the program described below. The program should include the following:

- Use functions where it makes sense.
- Repeating code should be in a function.
- Functions should never be longer than my screen.
- Meaningful variable, function names, and file names.
- Comments
    - All of the comments described in previous assignments
    - I should never have to read your code to know what a function does
    - If you find a piece of code online and it isn't something standard (i.e. something you could find in your text book or I've shown you in lab) then it requires a description of what it does and why. If you don't know what a piece of code does, don't use it!
- Output to the screen should be easy to read and understand.
- Your programs should not crash regardless of what the user enters or if files get moved. It should exit out properly.
- Do not use code that you don't understand! Any unusual code will require an explanation. Be sure to always close your text files when you're reading or writing.

Write a program that will allow the user to type in a file path name or file name that contains a list of sets or allow them to type sets from console. Afterwards, all sets should be displayed. They should be listed with a name, such as set1, set2, set3, that can be used to reference when the user gives commands of set operations. Additionally, the user should be able to view the commands that are available by entering in the word help into console.

The file will of the following form:

1,2,3,4

1, 3, 5
2, 4

Each line is a new set and each element is separated with a comma.

Input through the console will be in similar format, except a set can only be entered one at a time. Make sure that it is clear to the user what the format is.

The commands must be given on one line, so you will be required to parse the command. The following operations are expected to be supported in the described format:

Operation	Command-line format	
Union	set1 & set2	
Intersection	set1 | set2	
Difference	set1 - set2	
Symmetric difference	set1 ^ set2	
Cartesian product	set1 X set2	
Subset	set1 <= set2	
Proper subset	set1 < set2	
Super set	set1 => set2	
Proper super set	set1 > set2	
Cardinality	card set1	
Membership - in	x E set1	where x is single element
Membership - not in	x !E set1	where x is single element
Power set	power set1	
Display this table	help	

Spacing should not matter.

When the user enters the command help, display the above table for them to reference.

After the user enters the command for an operation, you should print the correct result. A result could be a True or False, a number, or a new set.

If it is a new set, ask the user if they'd like to store the new set to be used so they can perform operations on it as well.

Remember that all sets must be in {} when displayed on the screen.

Submit the assignment to blackboard with the following name:

eraidername_proj2.py for the assignment

Replacing eraidername with your own eraider username.