**Program #8 Working with Map, Set & List  
Drug Interactions**

This program will be hand graded (with assistance from a script to automate compilation and execution). I will look for and grade new submissions several times per day but grading will not be instantaneous/continual.

**Background**

**Program #8** will require you to perform operations similar to a database join and query using three text files as the input for your database. You will also be required to use the Map and/or Set and/or List interface (TreeMap/HashMap and/or TreeSet/HashSet and/or ArrayList/LinkedList) as you see fit to solve the problem. You will be given a failing score if you solve this problem in a cs007 manner using nothing but arrays or ArrayLists. You must use the Map and Set containers.

Many people (especialy older people) take multiple medications concurently. For decades doctors and phamacists have monitored their patients' meds for adverse interactions. In recent years medical research has suggested that some foods can cause adverse reactions when mixed with certain drugs. For this reason many doctors now ask their patients to tell them if they are eating certains foods while on certain meds. The database below is maintained by a hypothetical pharmacy with four patients. You must read each database into a Map of some type (HashMap or TreeMap) since each file/database is a mapping between patients or foods/drugs or categories of foods/drugs.

**Once each file has been stored in a Map you must print out (in sorted order) the names of any patients who are mixing food/drug categories that should not be mixed.**

**You are given the following input files:**

* + [patient2food-drug.txt](http://www.cs.pitt.edu/~hoffmant/401/program-08/patient2food-drug.txt) Each line maps a patient to a set of foods or drugs that patient is taking/eating
  + John\_Doe,Broccoli,plavix,aspirin
  + Maria\_Valdez,lipitor,plavix
  + Vladimir\_Brezek,cialis,soybeans
  + Milton\_Milktoast,viagra,plavix

Enrich\_Grundy,lipitor,asparagus

* + [category2food-drug.txt](http://www.cs.pitt.edu/~hoffmant/401/program-08/category2food-drug.txt) Each line maps a category to a set of foods or drugs that comprise that category
  + STATINS,lipitor crestor zocor lipex
  + THINNERS,coumadin plavix aspirin
  + ANTI\_COAG,asparagus broccoli cabbage endive soybeans
  + ANTI\_INFLAM,aspirin motrin ibuprofen

ED\_MEDS,cialis viagra

* + [dont-mix.txt](http://www.cs.pitt.edu/~hoffmant/401/program-08/dont-mix.txt) Each line is a set of categories that should not be taken together
  + THINNERS ANTI\_COAG
  + STATINS ANTI\_INFLAME

ED\_MEDS THINNERS

**The Assignment**

Write a java Program named Program8.java that is excuted on the command line as follows:

**C:\> java   Program8   patient2food-drug.txt   category2food-drug.txt   dont-mix.txt**

**Expected Output**

**For 80% credit - you must match this output exactly:**

**C:\> java Program8 patient2food-drug.txt category2food-drug.txt dont-mix.txt**

**PATIENT -> FOOD/DRUG LIST:**

**Enrich\_Grundy asparagus lipitor**

**John\_Doe aspirin broccoli plavix**

**Maria\_Valdez lipitor plavix**

**Milton\_Milktoast plavix viagra**

**Vladimir\_Brezek cialis soybeans**

**FOOD/DRUG -> CATEGORY**

**ANTI\_COAG asparagus broccoli cabbage endive soybeans**

**ANTI\_INFLAM aspirin ibuprofen motrin**

**ED\_MEDS cialis viagra**

**STATINS crestor lipex lipitor zocor**

**THINNERS aspirin coumadin plavix**

**CATEGORY -> CATEGORY (don't mix)**

**ANTI\_COAG THINNERS**

**ANTI\_INFLAM STATINS**

**ED\_MEDS THINNERS**

**For 100% credit - you must match this output exactly:**

**C:\> java Program8 patient2food-drug.txt category2food-drug.txt dont-mix.txt**

**PATIENT -> FOOD/DRUG LIST:**

**Enrich\_Grundy asparagus lipitor**

**John\_Doe aspirin broccoli plavix**

**Maria\_Valdez lipitor plavix**

**Milton\_Milktoast plavix viagra**

**Vladimir\_Brezek cialis soybeans**

**FOOD/DRUG -> CATEGORY**

**ANTI\_COAG asparagus broccoli cabbage endive soybeans**

**ANTI\_INFLAM aspirin ibuprofen motrin**

**ED\_MEDS cialis viagra**

**STATINS crestor lipex lipitor zocor**

**THINNERS aspirin coumadin plavix**

**CATEGORY -> CATEGORY (don't mix)**

**ANTI\_COAG THINNERS**

**ANTI\_INFLAME STATINS**

**ED\_MEDS THINNERS**

**THE FOLLOWING PATIENTS ARE MIXING FOODS/DRUGS THAT SHOULD NOT BE MIXED**

**John\_Doe**

**Milton\_Milktoast**