CENG 242

HW #6

(Due date June 15 2009)

Multisets are sets in which members can appear more than once. For example, {a,b,c,a,c,c} is a multiset. Members of multisets can be multisets as well, e.g. {0,a,b,{0,0},8} is a multiset as well. Naturally, every set is a multiset.

Note that in a multiset, {0,0,1} ? {0,1}, unlike ordinary sets. Order is not important, hence {0,0,1} = {0,1,0}.

Write a Prolog programme to implement two operations on multisets: (1) Multiset union, and (2) multiset equivalence.

See multiset entry in Wikipedia for detailed information about multisets.

Use Prolog's list notation to implement multisets. All list type elements are to be considered as multisets and their equality is to be checked according to multiset equivalence.

See examples in accompanying message for clarification. Feel free to come up with your own data and share it with others in course newsgroup.

Your code should not create repeated solutions. Use cuts whenever necessary to produce only one result or `yes'. (some interpreters suppress multiple `yes'. Use gnuprolog default setting to make sure you get them.)

Evaluation is black box if your code works. If it doesn't, we'll have a closer look. You do not need error checking (e.g. don't worry about cases where input is not a list; your predicate would just say no).