Program Frequent Itemsets

Consider the following frequent itemset problem: we are given a set of items A =
fa1; a2; : : : ; an and a set of baskets B1;B2; : : : ;Bm such that each basket is a subset
containing a certain number of items, Bi _ A. Given a support s, frequent itemsets are
subsets S _ A such that S is a subset of t baskets (that is, the items in S all appear in
at least s baskets).

For example, suppose that we have the following baskets:
B1 = fbeer; screws; hammerg
B2 = fsaw; lugnutsg
B3 = fbeer; screws; hammer; lugnutsg
B4 = fbeer; screws; hammer; routerg

If our support s = 2 then we're looking for all subsets of items that appear in at least 2
of the baskets. In particular:
_ flugnutsg as it appears in B2;B3
_ fbeerg as it appears in B1;B3;B4
_ fhammerg as it appears in B1;B3;B4
_ fscrewsg as it appears in B1;B3;B4
_ fbeer; screwsg as it appears in B1;B3;B4
_ fhammer; screwsg as it appears in B1;B3;B4
_ fhammer; beerg as it appears in B1;B3;B4

This problem is widely seen in commerce, language analysis, search, and _nancial ap-
plications to learn association rules. For example, a customer analysis may show that
people often buy nails when they buy a hammer (the pair has high support), so run a
sale on hammers and jack up the price of nails!

For this exercise, we will simplify this problem by computing the support for all combi-
nations of 1, 2, and 3 items. That is, for every single item, for every pair, and for every
triple, you will compute the number of baskets in which the combination appears.
Your program will accept a _le name as a command line argument which will include
an instance of this problem with the following format: the _rst line will contain a single
integer m representing the number of baskets. Each subsequent line contains a comma
delimited list of items in the basket. An example:

beer, screws, hammer
saw, lugnuts
beer, screws, hammer, lugnuts
beer, screws, hammer, router
Your output will include the combination as well as the number of times it appears. For
brevity, you may exclude those combinations for which the count is zero.
For example:
Items: [beer, router, screws, saw, lugnuts, hammer]
Number of baskets: 4
3 => [hammer]
3 => [beer]
1 => [router]
3 => [screws]
1 => [saw]
2 => [lugnuts]
1 => [saw, lugnuts]
1 => [beer, lugnuts]
1 => [router, hammer]
1 => [lugnuts, hammer]
1 => [router, screws]
1 => [beer, router]
3 => [beer, screws]
3 => [screws, hammer]

1 => [screws, lugnuts]
3 => [beer, hammer]
3 => [beer, screws, hammer]
1 => [beer, lugnuts, hammer]
1 => [beer, router, screws]
1 => [router, screws, hammer]
1 => [screws, lugnuts, hammer]
1 => [beer, screws, lugnuts]
1 => [beer, router, hammer]

Using PHP, name your script itemSet.php ; it should be invokable from the command line as:
itemSet.php infile.txt and output the results to the standard output.