

PROBLEM 2

Some companies are partial owners of other companies because they have acquired part of their total shares. For example, Ford owns 12% of Mazda. It is

said that a company A controls company B if, at least, one of the following conditions is satisfied:

- a) $A = B$
- b) A owns more than 50% of B
- c) A controls k ($k > 1$) companies, $C(1), \dots, C(k)$, so that:
 $C(i)$ owns $x(i)\%$ of B for $1 < i < k$ and $x(1) + \dots + x(k) > 50$.

The problem to solve is:

Given a list of triples (i,j,p) which means that the company i owns $p\%$ of company j , calculate all the pairs (h,s) so that company h controls company s .

There are at most 100 companies.

Write a program to:

- 1 Read from an ASCII input file, COMPANY.DAT, the list of triples, (i,j,p) , to be considered for each case (that is, each data set), where i, j and p are positive integers. Different cases (data sets) will be separated with a blank record.
- 2 Find all the pairs (h,s) so that company h controls company s .
- 3 Write to an ASCII output file, COMPANY.SOL, all the pairs (h,s) found, with h different from s . The pairs (h,s) must be written in consecutive records and in increasing order of h . The solutions for different cases must be separated with a blank record.

Example:

COMPANY.DAT			COMPANY.SOL	
2	3	25	4	2
1	4	36	4	3
4	5	63	4	5
2	1	48		
3	4	30		
4	2	52		
5	3	30		
1	2	30	2	3
2	3	52	2	4
3	4	51	2	5
4	5	70	3	4
5	4	20	3	5
4	3	20	4	5