

11-th Bulgarian National Olympiad in Informatics

May 6 and 7, 1995

Second day

Text file SET-EXPR.TXT consists of rows, which total count is not known until the file will have been read completely. Each row contains a string. Allowed charactres are capital letters, small parenthesis "(" and ")", and signs "+", "*" and "\". Every string is interpreted as an expression defining a set by using one-letter names of some primitive sets and operations "+" for union, "*" for intersection and "\" for set difference.

Text file SET-VAL.TXT contains all primitive sets. Each row of this file consists of set's name, sign "=" and a list of elements, separated by commas and embraced by "{" and "}".

An example:

SET-EXPR.TXT

```
(A+B)*F\B
(F\D)*A+B
D*A
```

SET-VAL.TXT

```
B={VW,ALFA,BMW}
A={VW,RENAULT}
F={8,TP,VW}
```

Problem 1.

Write a program, that outputs into text file SET-RES.TXT the values of the expressions taken from file SET-EXPR.TXT computed by using the data from SET-VAL.TXT. In case there are expressions which are not correctly given, your program should output into the correspondig row the message ERROR IN EXPRESSION(*i*), where *i* is positional number of the non-correct expression.

Remark: The file SET-VAL.TXT contains definitions of all occured in the file SET-EXPR.TXT primitive sets in spite of an expression is correct or not.

Problem 2.

Write a program, that inputs the sets from the file SET-RES.TXT and outputs them into text file CHAINES.TXT as several sequences, in each sequence the sets being ordered in an ascending order by inclusion. Your program must write every such sequence on a separate row in which the numbers of the sets must be separated by the sign "<".

Problem 3.

Write a program, that finds the greatest by count sequence of sets taken from the file SET-RES.TXT, in which the sets are ordered in an ascending order by inclusion. Your program must write this sequence into text file BIGCHAIN.TXT with the numbers of the sets separated by the sign "<".

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