

13-th Bulgarian National Olympiad in Informatics

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Problem 2. Module programs.

A programming language X is an interpreting type language. The programs, written in it, have module structure with no more than 256 modules in one program. Each module has a size of no more than 1K bytes and each row is no longer than 255 bytes. The source of each module is a text file entitled by the name of the module. This name is a character string, containing no more than 8 arbitrary letters or digits. During the execution time, the interpreter loads the sources in a buffer and begins the execution starting from a module, referred as main. Any called module is loaded in the buffer immediately after the calling module. The module removes itself from the buffer as soon as it terminates its execution. A call of a module is invoked by a command

CALL <name of a module>

This command is written in a single row in the source of a calling module. It is not allowed recursion calls, neither immediately (SUB1 calls SUB1), nor indirectly (SUB1 calls SUB2, SUB2 calls SUB3, ..., SUBn calls SUB1). Write a program for finding out the minimal length of the buffer, that is enough to ensure loading of all the modules, required for a correct execution of a given program.

Remark: When a row of program's source is being loaded into the buffer, one more invisible character, besides the visible ones, is being inserted.

The input text file INP contains the name of the main module.

The output must be written into a text file OUT and must contain only one number: the length of the buffer in bytes, found by your program.

An example. Assume the following files are located in the current directory, in which your program is running:

A(24)	B(14)	C(27)	D(17)	E(35)	F(13)
**	**	****	***	*****	*
CALLB	***	CALLE	**	*****	**
***	CALLC	***	CALLF	*****	**
CALLF		CALLD	**	****	****
**		***		*****	

The lengths in bytes of the files are written in brackets. Nonessential parts are signed by *'s. When calling your program with an input file INP containing a string "A", your output should be 100.

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