



CAs - Lab 01

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Exercise

Write a program in 8086 assembly to:

1. Read in input a short text of 4 lines, each of these lines long from 20 to 50 characters.
2. Count number of occurrences of the letters.
3. Apply a cryptographic algorithm.

Reading

- The program reads the lines with the instruction `INT 21H` and stores them in
`first_line DB 50 DUP(?)`
`second_line DB 50 DUP(?)`
`third_line DB 50 DUP(?)`
`fourth_line DB 50 DUP(?)`

End of reading

- Reading stops when one of this conditions is satisfied:
 - After at least 20 characters, an ENTER has been read.
 - 50 characters have been read without any ENTER, after the first 20 characters.
- The ENTER character corresponds to 13 in ASCII table.
- PLEASE NOTE: if you read an ENTER in the first 20 characters, the reading must continue.

Number of occurrences

- For each line, the program has to count how many times a certain character appears.
- Consider only letters, a...z, A...Z, discerning upper and lower case.
- For each line, output the most frequent character (appearing *MAX* times).
- For each line, print the list of characters appearing at least $MAX/2$ times.
- After each character printed, print also the number of occurrences.

Cryptographic algorithm

- Print the text using Caesar cipher, only applied to a...z, A...Z characters.
- Given parameter k , the Caesar cipher transforms the letter in $a+k$, considering the following pattern: a...zA...Za...zA...Z etc.
- Non-alphabetic characters stay the same.
- $k = 1$ for the first row, 2 for the second, 3 for the third, 4 for the fourth.
- Example with $k = 3$: piZza -> slcCd