

**Computer Sciences - I Facoltà di Ingegneria**  
**Written Exam 9 september 2009**  
**Books and notes allowed (time: 2h)**

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A text file contains a list of bank transactions; the number of these transactions is arbitrary and unknown and cannot be overestimated a priori. The transactions are reported one per row in the following format:

**name\_accountholder surname\_accountholder amount\_transaction**

Knowing that:

- the number of account holders is not greater than 100
- the number of transactions per account holder can be arbitrarily large and cannot be overestimated a priori
- it is not possible to make any assumption about the position of the transactions of each account holder in the text file
- the opening balance of each account holder is 0.00 €
- there are not cases of homonymy (same name and surname) among the account holders
- both **name\_accountholder** and **surname\_accountholder** are strings composed by a maximum number of 20 characters. All of them are alphabetic characters.
- **amount\_transaction** is a real number with two decimal digits

write a C program that takes as input the **text file of the transactions**, whose name is passed as the **first argument on the command line**, and produces as output other two text files. The names of the **two output files** are passed as the **second and the third argument on the command line**, respectively. The first output file must contain the list of the account holders with a positive final balance, ordered in terms of **decreasing active balance**; the second output file must contain the list of the account holders with a negative final balance, ordered in terms of **increasing passive balance** (see the example below). Both the files must report the information about the account holders with the following format:

**name\_accountholder surname\_accountholder final\_balance**

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**Example of execution**

<i>transactions.txt</i>		
Barry	White	468.02
Mario	Rossi	-345.67
Bianca	Neri	1000.00
Peter	Green	6543.43
James	Brown	9876.54
James	Brown	-888.88
Luigi	Bianchi	1234.56
Mario	Rossi	123.98
Peter	Green	-543.43
Anna	Neri	987.65
James	Brown	-357.91
Luigi	Bianchi	-654.32
James	Brown	-876.54
Mario	Rossi	-98.76
Mario	Rossi	100.00
Peter	Green	-654.43
Luigi	Bianchi	-864.20
James	Brown	45.67
Peter	Green	-643.43
Anna	Neri	567.89
James	Brown	-555.55
Barry	White	-208.46
Luigi	Bianchi	-135.79
James	Brown	444.44
Anna	Neri	159.36
Peter	Green	-43.43
James	Brown	-915.00
Barry	White	-999.99
Mario	Rossi	-678.90
Luigi	Bianchi	-852.96
James	Brown	7410.74
Anna	Neri	519.63

Suppose that the program is saved with name *BALANCE.EXE* and executed from command line as follows:

C:\> *BALANCE transactions.txt active.txt passive.txt*

The program takes the input file *transactions.txt* and produces the two output files *active.txt* and *passive.txt*

<i>active.txt</i>		
James	Brown	14183.51
Peter	Green	4658.71
Anna	Neri	2234.53
Bianca	Neri	1000.00

<i>passive.txt</i>		
Barry	White	-740.43
Mario	Rossi	-899.35
Luigi	Bianchi	-1272.71