

Assignment 2

Write a program implementing an algorithm for the solution of the transportation problem on a network. Input data should be read from a file whose name is "input.txt". Results of the solution should be written into a file whose name is "Output.txt".

Input data should have the following form:

Each line in the input file starts with a character defining the line type. The characters are:

c – the line is a comment;

p – the parameter line, contains two integers: the number of vertices and arcs in the problem graph;

n – a vertex description, contains two integers: vertex number (numbered from 1) and demand / supply of the vertex (supply is a negative number).

a – an arc description, contains three integers: two vertex numbers tail and head and cost of the arc.

All numbers are separated by spaces.

If a vertex is not described by any n-line, it is assumed that the vertex has neither demand nor supply.

Example.

```
p 6 8
c problem with 6 vertices and 8 arcs
n 1 -10
c supply of 10 at vertex 1
n 6 10
c demand of 10 at vertex 6
c arc list follows
c arc has <tail> <head> <cost>
a 1 2 1
a 1 3 5
a 2 3 0
a 3 5 1
a 5 4 0
a 5 6 9
a 4 2 1
a 4 6 1
```

Output data should contain:

- minimal value of the target function;
- triples (i, j, x_{ij}) , for $x_{ij} > 0$.

If the problem has no solution, the output file should contain the reason for this.

Deadline for the exercise submission is 1/03/2009. Submit source files by e-mail:

Bregman@bgu.ac.il The subject should be LP-Assignment 2. Write your name and ID in the e-mail text, not only in the attachments.
The assignment may be performed by pairs.