Algorithms and Data Structures

Module 4

Task 6

Brute force algorithm for TSP

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Task

Develop a program for solving TSP with the brute-force algorithm from lecture 13.

Input: an undirected graph G, represented as an edge list with edge weights. The input file format is described further.

Output: a text file whose first line contains total weight of the optimal Hamiltonian cycle and the second line contains this cycle represented as a space separated vertex permutation.

Two examples of input and respective output files are supplied.

The complete implementation of this assignment gives you 6 pts.

Task: input

Input file (text format):

- The 1st line: names of vertices, separated by spaces.

E.g.: `A B C D E F`

- Other lines contain edges *and their weights*. Each line describes one edge as two incident vertices together with the edge's weight, separated by space. Weights are fixed point decimal numbers; they should be represented with float numeric values.

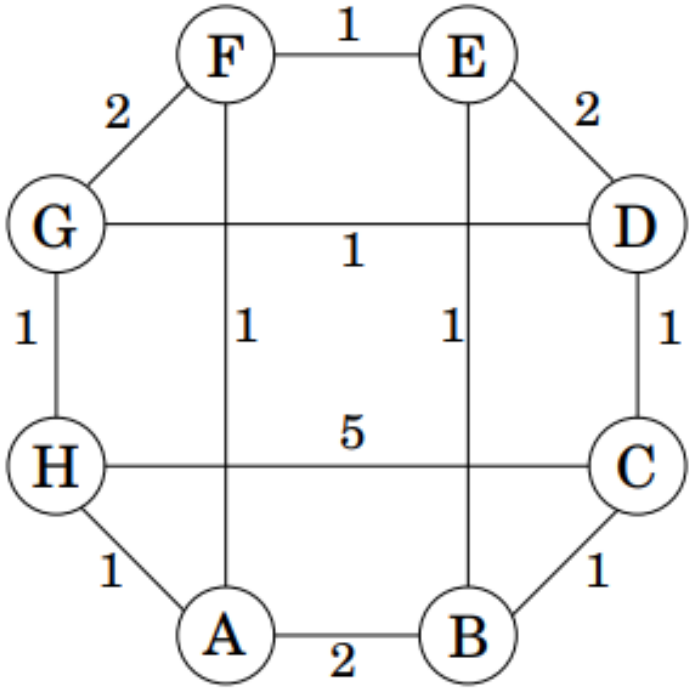
E.g., line

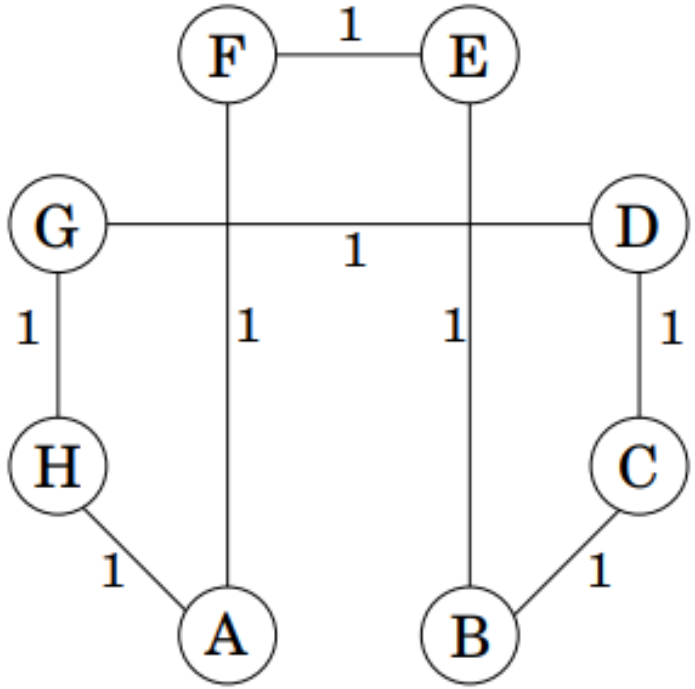
```
B C 5
```

represents edge (B,C) which has weight 5.

Sample instance

The sample problem instance (input and output files are supplied):





http://algorithmics.lsi.upc.edu/docs/Dasgupta-Papadimitriou-Vazirani.pdf