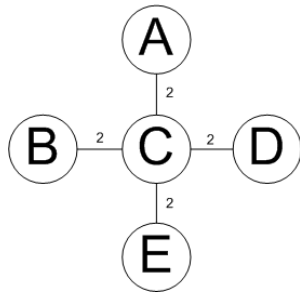


In a state, it is required to create a headquarters for emergency cases. Headquarters should be close to each city as much as possible so that intervening in emergency could be quick much as possible. Considering that there is more than one city in the state, a way to modeling connections is graphs.

As example, assume that there is 5 city in a state (A, B, C, D, and E) with the logical representation as follows:



According to this graph, total costs from potential headquarters city to other cities computed as:

	A	B	C	D	E	Total
A	-	4	2	4	4	14
B	4	-	2	4	4	14
C	2	2	-	2	2	8
D	4	4	2	-	4	14
E	4	4	2	4	-	14

According to this graph, the headquarters should be located in the city 'C' since total cost of C from the cities is minimum.

Develop an application that computes the optimal city from a given graph.

Input to your program will be a text file describing an undirected graph. The first line of the file states the number of vertices in the graph. The graph vertices are labeled 1..N, assuming there are N vertices in the graph. Each line in the rest of the file specify one graph edge as follows: vertex1, vertex2.

An example is given in the project file (graph1)

line	Vertex1	Vertex2	Edge Cost
1	1	2	8
2	1	3	2
3	3	4	4
4	2	4	3
5	2	5	5
6	4	5	1

- It may assumed that the program and the input (graph file) could be in the same directory
- It may assumed that all vertexes is connected
- The program should ask the name of input file and after the computation it should print out the optimal headquarters city.
  - > Enter the name of input file
  - < grahp1.txt
  - > The optimal city is "D" to install headquarters
- Submissions may be written in either Java or C#, which you pick in Project 2, platform changes is not allowed
- Grouping is not allowed in this homework. Please obey the ethical codes. Cheaters will be punished.
- **Rename your project as your id and name as follows "12345678910\_muratturk.java" before upload**
- You can create your own graph to test your program,  
<https://www.cs.usfca.edu/~galles/visualization/Dijkstra.html>  
 This page may create random graphs.
- In case of extra questions email to : ahmetmuratturk@anadolu.edu.tr