Programming Assignment: Communication Network Designer

Here is the problem you need to solve. You are given *N* number of cities. You need to design a communication network connecting these cities. The costs of connecting the cities using fiber optic cables are given. This is called a cost matrix *M*. M is symmetric. The reliabilities of connecting the cities (i.e., the reliabilities of the fiber optic connections between the cities) are given by the matrix *R*. Your program needs to output a design to meet the following requirements:

a) Meet a given reliability goal.
b) Maximize reliability subject to a given cost constraint

Your program should take a text file as input defining the parameters.
Here is the format of the input file.

```
N    # number of cities
N(N-1)/2 numbers    # costs of inter-city connecting
N(N-1)/2 numbers    # reliabilities of inter-city connections
```