The goal of this program is to understand the relative properties of the inference algorithm. In order to do so, using the alarm Bayes Network, Figure 14.2 from the Russell and Norvig book, use the parameters of the CPTs from the Figure and implement exact inference by enumeration, prior sampling, rejection sampling and likelihood weighting.

Program should take a set of strings as input. They will appear as the following:
 [< N1; V 1 >; :::;< NN; V N >] [NQ1; :::;NQM].

The first set of strings is the evidence set and the next is the query.

For simplicity the node indexes as A, B, E, J, M corresponding to alarm, burglary, earthquake, John and Mary calling.

An example input:
[< A; t >< B; f >][J] which queries for John calling given that alarm is true and burglary is false.

[< E; t >< J; t >][M;A] which queries for Mary calling and Alarm given that earthquake and John calling are true.

Correspondingly the output is now a set of strings[< NQ1; P1 >< NQ2; P2 >].

So the output corresponding to the previous cases could be [< J; 0:9 >] and [< M; 0:08 >< A; 0:96 >].

Run each sampling algorithm 10 times for each number of samples. For example, run prior sampling 10 times and average the inferred probability over the test queries as follows.

1. Alarm is false, infer Burglary and JohnCalls being true.
2. JohnCalls is true, Earthquake is false, infer Burglary and MaryCalls being true.
3. MaryCalls is true and JohnCalls is false, infer Burglary and Earthquake being true.