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Programming Language used: Java 8 Software Required: JDK 11, JRE 11

Commands to execute:

1. Note: Go to the code folder <optionalAssignment2_code_dxs8730/BayesianNetwork> on to the terminal. The folder should contain bnet.java file.

   Compile command: javac bnet.java

   After compiling, it should generate class file such as bnet.class (main class).

   Execute command: java bnet <input numerator> given <input denominator>

   Execute command Example: java bnet Jt given Et Bf, java Bf At Mt

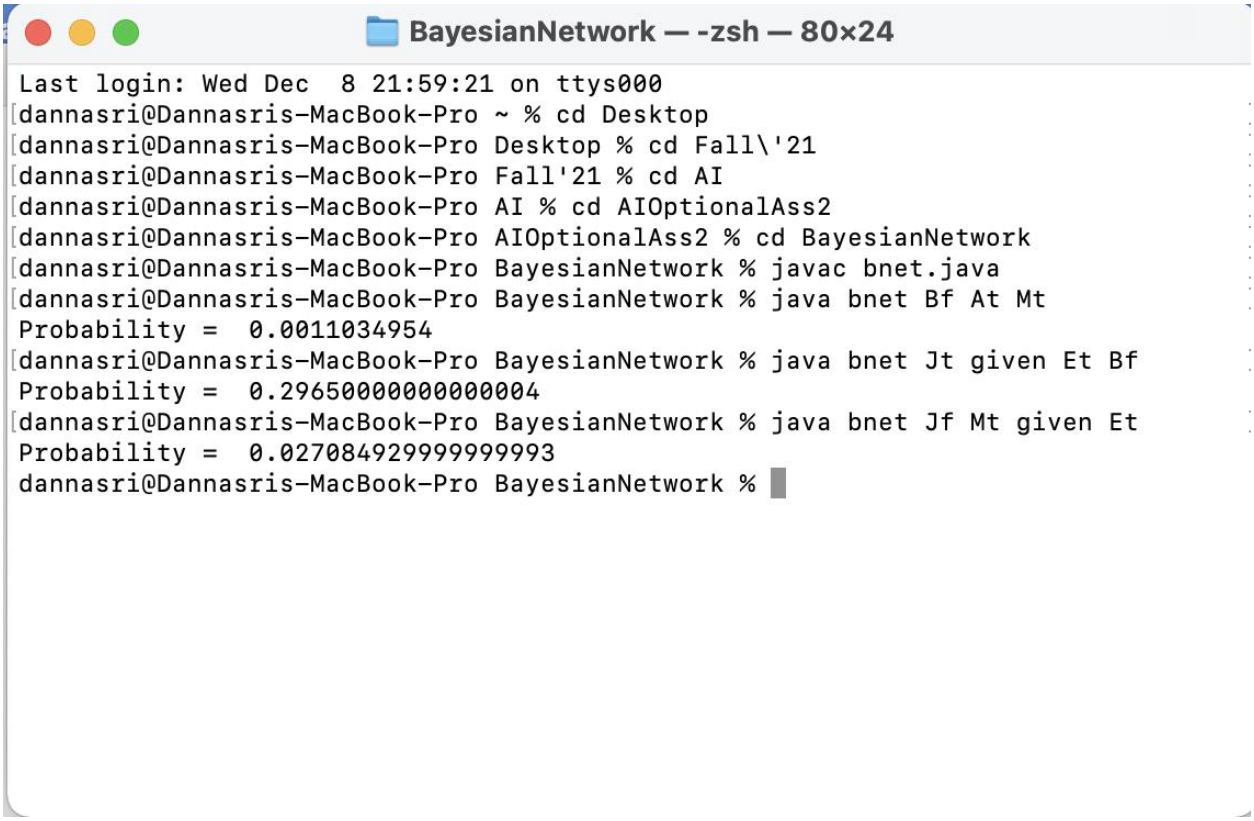
The Code is Structured as follows:

The code consists of four functions,

1. Generating bayesian network based on the table values – Used HashMap<String, Double> to store event and event values.
2. Generate parents – this will generate all possible parents based on the inputs provided in the command line.
3. Compute probabilities – this will calculate the product of all possible combinations
4. Calculate probabilities – this will calculate the sum of all possible product probabilities which we got from compute probabilities function.

In the main function, input split in to two parts, numerator and denominator based on the given input.

Sample Execution:


BayesianNetwork — -zsh — 80×24
Last login: Wed Dec 8 21:59:21 on ttys000
dannasri@Dannasris-MacBook-Pro ~ % cd Desktop
dannasri@Dannasris-MacBook-Pro Desktop % cd Fall\'21
dannasri@Dannasris-MacBook-Pro Fall'21 % cd AI
dannasri@Dannasris-MacBook-Pro AI % cd AIOptionalAss2
dannasri@Dannasris-MacBook-Pro AIOptionalAss2 % cd BayesianNetwork
dannasri@Dannasris-MacBook-Pro BayesianNetwork % javac bnet.java
dannasri@Dannasris-MacBook-Pro BayesianNetwork % java bnet Bf At Mt
Probability = 0.0011034954
dannasri@Dannasris-MacBook-Pro BayesianNetwork % java bnet Jt given Et Bf
Probability = 0.29650000000000004
dannasri@Dannasris-MacBook-Pro BayesianNetwork % java bnet Jf Mt given Et
Probability = 0.027084929999999993
dannasri@Dannasris-MacBook-Pro BayesianNetwork %