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Machine Learning
Spring 2014
Bayes Network

Using the ordering {Storms, Bus, Lightning, Campfire, Thunder} for one of my folds I got:
Storms Parents: Lightning
Bus Parents: Lightning
Lightning Parents: Thunder
Campfire Parents: Thunder
Thunder Parents: None

As usual for mine, to run the program you just have to run the .JAR and follow the instructions. (NOTE: Give this one a few seconds, it chugs a little bit before the results will pop up.)

I didn't do either of the extra credit things.

As usual I pretty much just followed the algorithm exactly. I wrote methods called log_g and K2 which do the steps from the slides. Then I just decided to make a class called Helpers where I implemented static methods for several little tasks: logfact, getCount, pred, addAttributes, subAttributes, getMatches, getAttributeValue. All of them have a comment above them in the code which briefly describes what they do. After that I just followed the exact same steps I did in Naive Bayes except I used my parental attribute relations to shrink the universe for attributes which had parents.

Results:
Fold 1: 99/100 classified correctly
Fold 2: 100/100 classified correctly
Fold 3: 100/100 classified correctly
Fold 4: 98/100 classified correctly
Fold 5: 100/100 classified correctly
Fold 6: 99/100 classified correctly
Fold 7: 100/100 classified correctly
Fold 8: 99/100 classified correctly
Fold 9: 99/100 classified correctly
Fold 10: 99/100 classified correctly

Positive	Negative	
0	7	Positive
0	993	Negative

It appears to indeed run into the issue you described where the data-set is so biased that it just ends up classifying everything as negative. Average accuracy is around 99%, though obviously if it picked all 7 of the positives in a test-set for a fold it would probably get 93% for that fold.