Project 04 - Bayes Network

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CSCI 544 - Machine Learning

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1 Program usage

In the `src` folder, simply type

        python bayes_network.py

which results in the output

```
Node : x1    Parent of x1 : []
Node : x2    Parent of x2 : ['x1']
Node : x3    Parent of x3 : ['x2']
Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
Node : Lightning  Parent of Lightning : ['Storms']
Node : Campfire    Parent of Campfire : ['BusTourGroup']
Node : Thunder  Parent of Thunder : ['Lightning']
Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
Node : Lightning  Parent of Lightning : ['Storms']
Node : Campfire    Parent of Campfire : ['BusTourGroup']
Node : Thunder  Parent of Thunder : ['Lightning']
Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
Node : Lightning  Parent of Lightning : ['Storms']
Node : Campfire    Parent of Campfire : ['BusTourGroup']
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Node : Thunder  Parent of Thunder : ['Lightning']
Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
```

```
Node : Lightning  Parent of Lightning : ['Storms']
Node : Campfire    Parent of Campfire : ['BusTourGroup']
Node : Thunder  Parent of Thunder : ['Lightning']
Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
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Node : Storms    Parent of Storms : []
Node : BusTourGroup    Parent of BusTourGroup : []
Node : Lightning  Parent of Lightning : ['Storms']
Node : Campfire    Parent of Campfire : ['BusTourGroup']
Node : Thunder  Parent of Thunder : ['Lightning']
percent correct: 99.3%
```
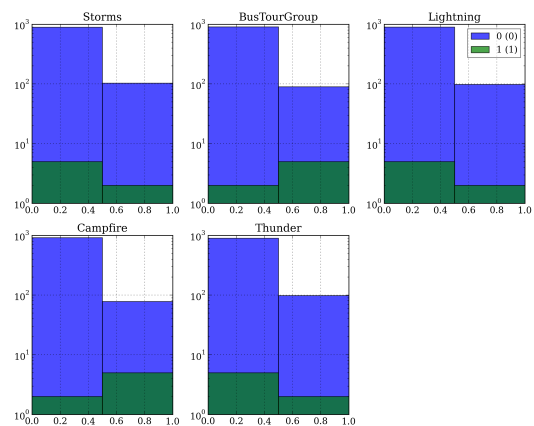
2 Data

Figure 1: The data for the project, separated by dimension. Note that there are far more negative (0) entries than positive (1) in all dimensions.