Title

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Abstract

This mini-project aims to ...
We use ...
We found that ...

Introduction

Domain

Introduce your work: what you are modeling, if you are drawing inspiration from an existing model, study, paper, textbook example, challenge, ….
Briefly provide whatever background information on the domain you think is necessary for the reader to understand the model and your design choices.

HERE AND EVERYWHERE ELSE: ALWAYS KEEP IN MIND THAT, CRUCIALLY, WHATEVER TEXT/CODE/FIGURES/IDEAS/... YOU TAKE FROM ELSEWHERE MUST BE CLEARLY IDENTIFIED AND PROPERLY REFERENCED IN THE REPORT.

Aim

Explain the purpose of your project: what do you intend to observe/try/experience/…?

- Example: the purpose of this project is to implement part of the Bayesian network described in (?) and experiment with concepts seen in class
- Another example: our aim was to experiment the effect of discretization of continuous variables
- Yet another example: we are interested in comparing the run-time and error of approximate inference under different conditions
- One final example: we studied value of information: something mentioned in class but not covered in this module, which sparked our interest.

Method

Describe the methodology you followed

- Example: we used pgmpy library methods[1] to implement our network and run queries. To understand if differences in models, queries, parameters or number of samples induced differences in accuracy, we varied evidence nodes, conditional probability distributions, inference method, ...

Results

In a few lines: what are the most noteworthy results you have observed or things you have learned/understood from this project? (only the highlights: there will be a dedicated paragraph for presenting results in the Analysis section)

Model

Explain the following aspects of your model (if there is too much to say and not enough space, put in your notebook whatever does not fit here):

- nodes: if not self-explanatory, explain each random variable's meaning/intuition and type/range
- conditional distributions (for example, the CPTs, some or all of them)
- the procedure you followed to build your model (structure and conditional distributions): from reference paper? by analyzing the domain? learned from data? just assigned probability distributions arbitrarily? followed a particular methodology for building the network? ...

In general, only write whatever is relevant and necessary to understand the rest of the report. Do not explain concepts seen in class or explained in textbooks. Do not describe models taken from textbook/literature/tutorials/libraries, like (for example) the Asia network. Instead, if you are using a model as-is: just insert a reference or URL[2]

[1] This is just an example: indeed, it is NOT necessary to use pgmpy; the coding language doesn't have to be python either. Feel free to use whatever software framework suits your needs.

[2] https://www.bnlearn.com/bnrepository/.

Analysis

Experimental setup

Briefly describe the probability queries or other experiments that you have carried out. Describe how you plan to evaluate the results (for example: are there results that you would expect?)

Results

What did you observe?
All according to expectations?
Anything surprising or worthwhile mentioning?

Conclusion

Just one paragraph: what you have learned, anything interesting that came up, what are the limitations of your model/experiments/study/...

Links to external resources

Optionally, insert here:

- a link to your GitHub or any other public repo where one can find your code (only if you did not submit your code on Virtuale)
- a link to your dataset (only if you have used a dataset, for example, for learning network parameters or structure)

Leave this section empty if you have all your resources in Virtuale. Do not insert code/outputs in this report.

References