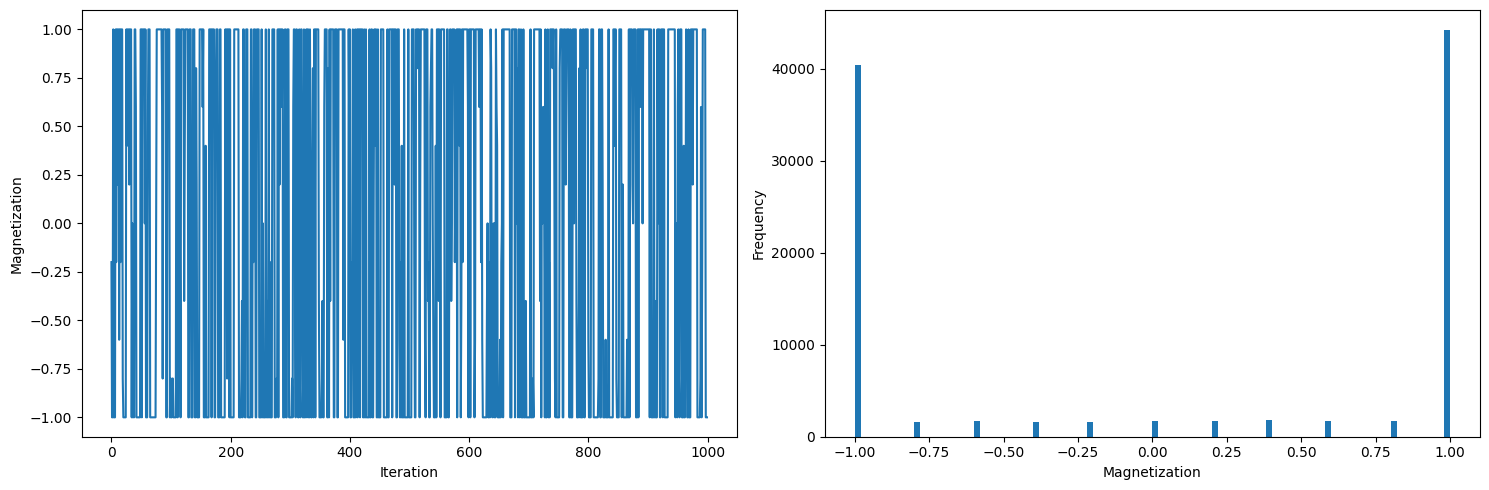
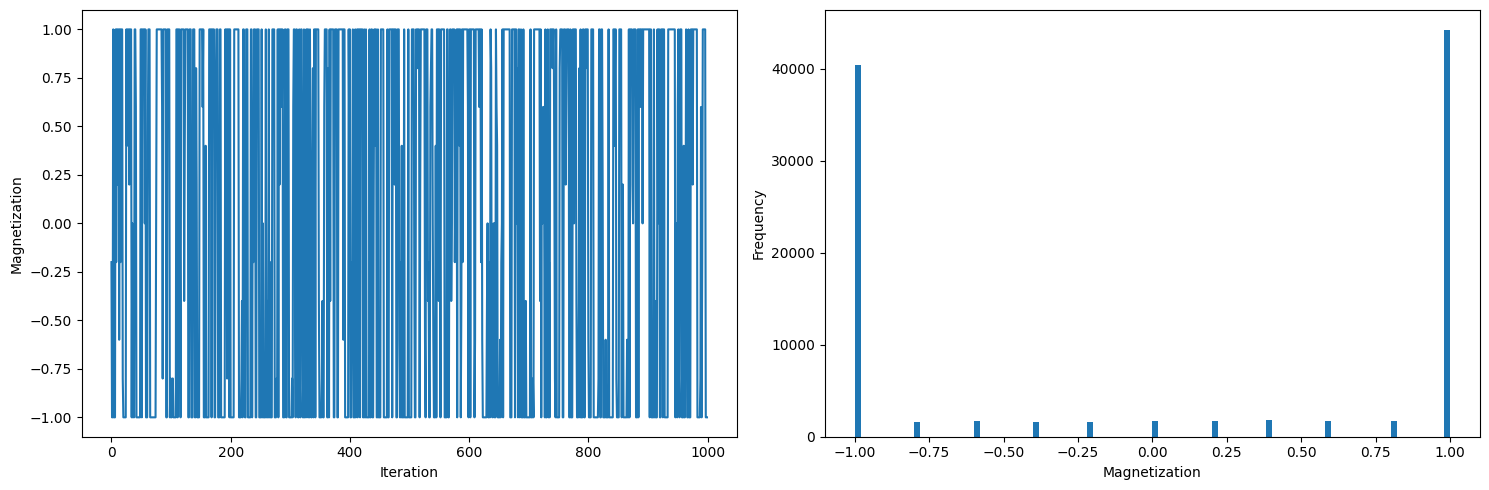
Advanced Machine Learning: Programming Assignment 2 Report

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# Part 1: Gibbs Sampling

Gibbs Sampling was performed on the given distribution, to generate N = 10,000 samples. The obtained graphs are given as below:

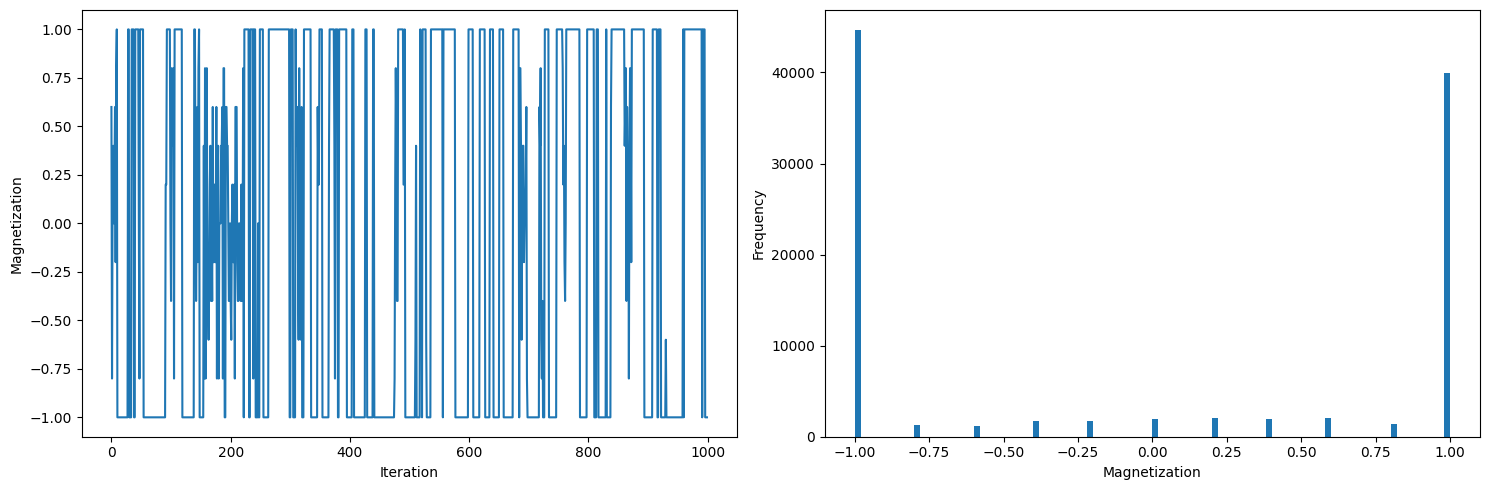


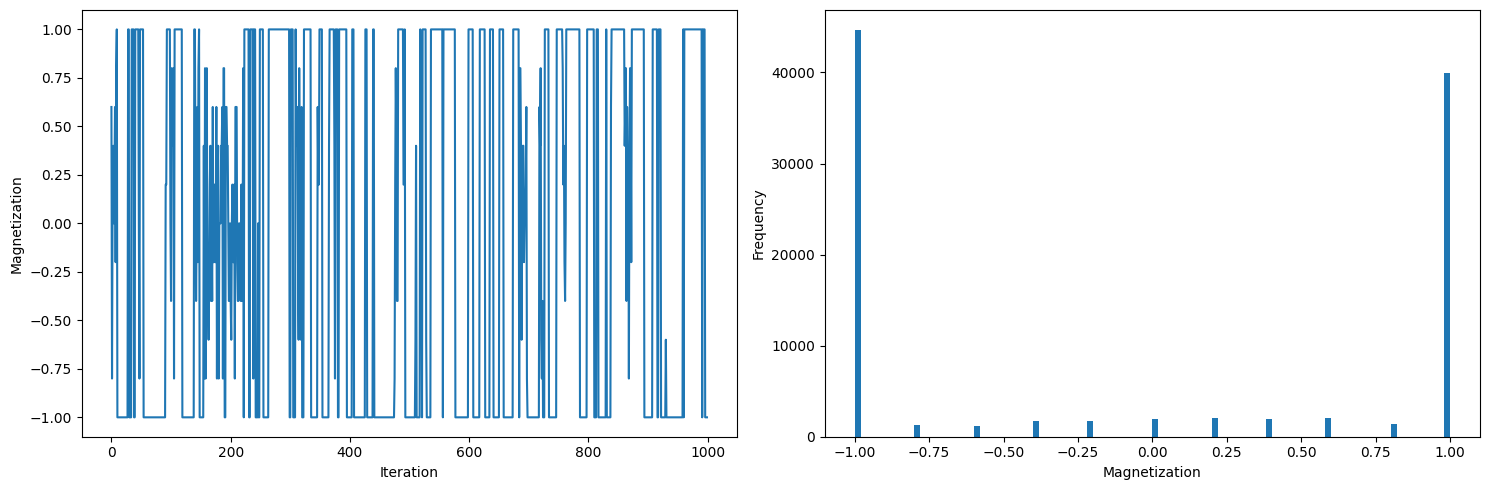
****

We observe that there’s a spike in magnetization values of -1 and +1. Frequency of the rest is low.

# Part 2: Metropolis-Hastings Algorithm

Metropolis-Hastings sampling was performed on the given distribution, taking the proposal distribution to be . The obtained graphs for is shown below.





We observe, yet again, the there’s a spike in magnetization values of -1 and +1. Frequency of the rest is low.

MH sampling was performed on a number of values. Rest of the graphs are there in the accompanying Jupyter Notebook. From the graphs we observe that the magnetization vs frequency graphs are similar for all values. However, the iteration vs magnetization graph is showing us, that for low the magnetization samples change frequently with each iteration, while for higher values of , the magnetization doesn’t tend to change so frequently.