Classification Algorithms on GPU Variants

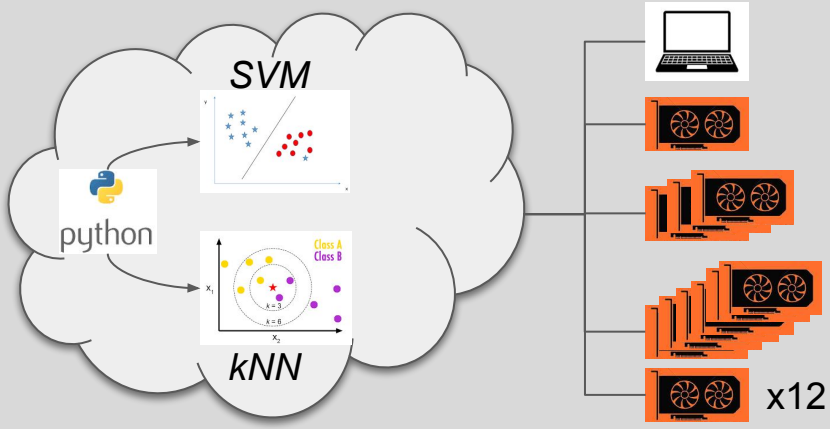
Project Description

Motivation:

- Machine Learning (ML) techniques trending in recent years
- Support Vector Machines (SVM) and k-Nearest Neighbor (kNN) are popular classification algorithms (CA)
- Graphical Processing Units (GPU) run ML algorithms efficiently
- Ex. Predicting states of a domain, predicting stock, and understanding customer sentiment

Goal:

- Determine which system can perform ML classification the best at a reasonable price so that novice programmers can use as reference



Project Objectives/Deliverables

- Choose a dataset with several million tuples for classification
- Implement two CA and optimize for GPU utilization
- Run these implementations on several GPU configurations
- Provide a working demo
- Write a paper on the findings

Student Learning Objectives

- Learn two distinct CA popular within the ML field
- Learn to optimize these algorithms for better efficiencies using GPUs

Qualifications/Requirements

- Programming Language Python and Bash Scripting (both required)
- Basic statistical analysis knowledge (preferred)

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