COMP0120 PROJECT - SUPPORT VECTOR MACHINES (SVMS)

JOHN DUFFY, STUDENT NUMBER: 19154676

1. Mathematical Setting - Summary

1.1. Binary Classification.
Primal Problem
Dual Problem

1.2. Hard Margin.

1.3. Soft Margin.

1.4. Challenge!
More classes?
Different Penalty Functions?
Algorithms not on syllabus?

1.5. Non-Linear Classification.
Kernels?

2. Simulation Study

2.1. Chosen Data Set.
Challenges?
How to address?

2.2. Resulting Optimisation Problem.
Convex/Non-Convex
Constrained/Unconstrained
Smooth/Non-Smooth
Linear/Quadratic/Non-Linear
Challenges

3. Solution of Optimisation Problem

3.1. Algorithm 1.

3.2. Algorithm 2.