

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.

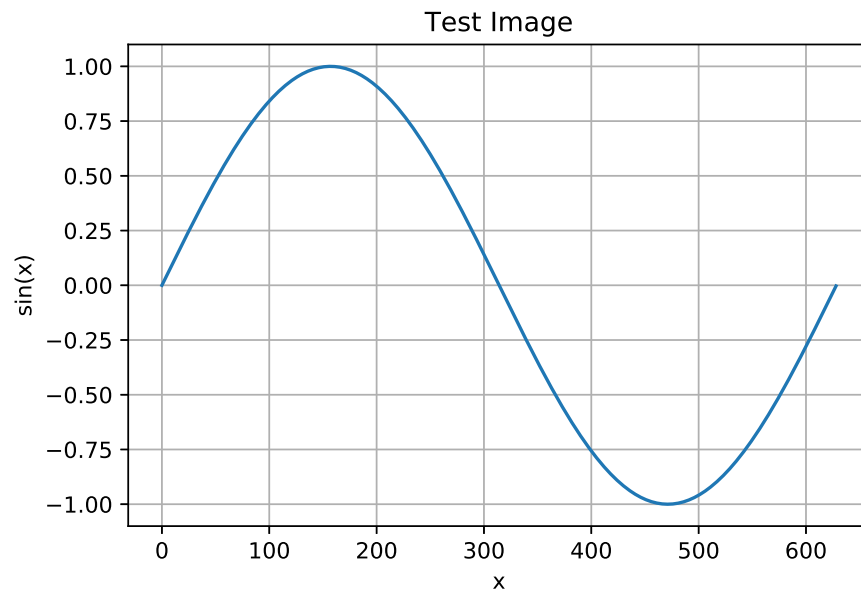


FIGURE 1. Image generation test from Jupyter Notebook.

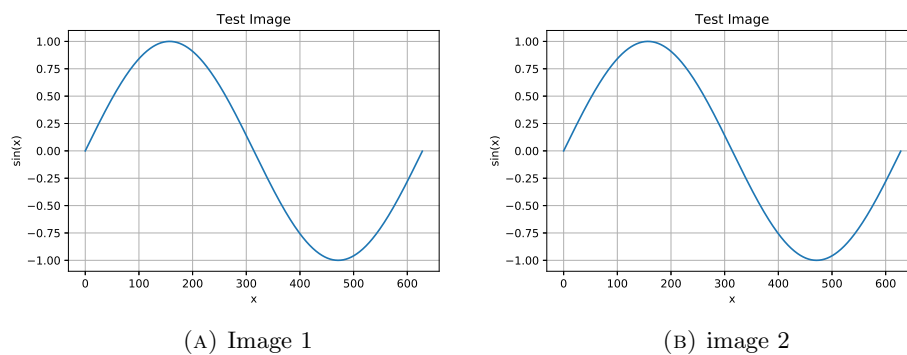


FIGURE 2. Image generation test from Jupyter Notebook.

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.****4. REFERENCES**

[1] ???

[2] ???

[3] ???