School of Computing and Information Systems
The University of Melbourne
COMP30027 Machine Learning (Semester 1, 2021)

Workshop: Week 6

1) Revise SVMs, particularly the notion of "linear separability".

   (i). If a dataset isn't linearly separable, an SVM learner has **two** major options. What are they, and why might we prefer one to the other?

   (ii). Why are SVMs "binary classifiers", and how can we extend them to "multi-class classifiers"?

   (iii). Contrary to many geometric methods, SVMs work better (albeit slower) with large attribute sets. Why might this be true?

2) We have now seen a decent selection of (supervised) learners:

   - Naive Bayes
   - 0-R
   - 1-R
   - Decision Trees
   - *k*-Nearest Neighbour
   - Support Vector Machines

   (i). For each, identify the model built during training.

   (ii). Rank the learners (approximately) by how fast they can classify a large set of test instances. (Note that this is largely independent of how fast they can build a model, and how well they work in general!)