Test Accuracy

Set	MLP	Linear	Poly	RBF
1	0.992*	0.990	0.977	0.964
2	0.958	0.516	0.969*	0.918
3	0.875	0.839	0.946*	0.944
4	0.969	0.965	0.972	0.983*
5	0.960*	0.856	0.960*	0.951
6	0.889	0.813	0.935*	0.933
7	0.976*	0.951	0.925	0.976*
8	0.817	0.695	0.918	0.951*
9	0.882	0.624	0.900	0.921*
10	0.843	0.783	0.908	0.923*

* best scoring method per data set

Observations:

1. For a data set(Data Set 1) which can be classified by a single linear classifier, all methods perform almost the same
2. For a dataset (Data Set 2), which needs two decision surfaces(two linear classifiers),the multilayer perceptron shows its advantages with 2 decision boundaries for each layer over the Linear SVM which is not suitable for classifying such data. Other methods being nonlinear perform well too.
3. Thus for noisier datasets, the performance of Linear SVM decreases due to their linear decision surfaces and more layers are needed for better solution for MLP thus increasing complexity. However the polynomial SVM and RB kernel perform reasonably well.
4. The RBF kernel performs the best in all the cases because it can produces multiple non linear decision surfaces whereas polynomial kernel produces only a single non linear decision boundary.