IIT Bhilai
Department of EE & CS
Machine Learning: CS550, 2018-19, M

Assignment 2 **Due date**: 19 Sep 2018

Implement the following SVM classifiers using python and various libraries including Scikit_Learn: *Linear Maximal Margin Classifier* on MNIST dataset https://www.kaggle.com/c/digit-recognizer,
Polynomial kernel of degree d, *Gaussian radial basis function kernel and sigmoidal kernel* on IRIS flower dataset https://www.kaggle.com/uciml/iris.
Do the following:

a) Load data and train SVM linear classifier on it. Make sure to split the data into train and test data.
b) What is the number of updates k required before the SVM classifier converges?
c) Display the weights learnt by the linear classifier, the margin and performance of the Linear classifier.
d) For Polynomial kernel, work with degree 4, 5 and 8. Report performance of the classifier for each degree.
e) For Gaussian kernel, work with three different values of γ. Report performance of the classifier for each Gamma.
f) For Sigmoidal kernel, work with three different values of β and γ. Report performance of the classifier for each set of β and γ.
g) Write your learning in a maximum one page.