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**Subject: Project 5**

**Class: DSCI 512**

**Section: 01W**

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1. Load the dataset bike.csv into memory. Convert holiday to a factor using factor() function. Then split the data into training set containing 2/3 of the original data (test set containing remaining 1/3 of the original data).
2. Build a support vector machine model.
   1. The response is holiday and the predictors are: season, workingday, casual, and registered. Please use svm() function with radial kernel and gamma=10 and cost = 100.
   2. Perform a grid search to find the best model with potential cost: 1, 10, 50, 100 and potential gamma: 1, 3, and 5 and using radial kernel and training dataset.
   3. Print out the model results. What’s the best model parameters?
   4. Forecast holiday using the test dataset and the best model found in c).
   5. Get the true observations of holiday in the test dataset.
   6. Compute the test error by constructing the confusion matrix. Is it a good model?