

Assignment 4
Submission deadline: Friday Oct 21, 2016 by 8 PM
Submission format: upload document in Canvas

1. (100 points) Classification.

- (a) Load the **wine** dataset from the **rattle** package in R, and describe the dataset in your own words, in 2-3 lines.

Consider **Type** to be the response variable, and all other variables as features.

- (b) Perform classification using LDA (linear discriminant analysis) and report the classification error rate.
- (c) Perform classification using QDA (quadratic discriminant analysis) and report the classification error rate.
- (d) Perform classification using SVM (support vector machines) and report the classification error rate.
- (e) Rank the classification methods in your order of preference for this dataset, and justify your preference.

Assignment instructions:

1. **Honor code:** The Virginia Tech honor pledge for assignments is as follows:
"I have neither given nor received unauthorized assistance on this assignment."

The pledge is to be written out on all graded assignments at the university and signed by the student. Type up your name to sign.

2. Submit your assignment as a document (word, pdf or similar) to Canvas, clearly marked with student's name and assignment number, eg. Sengupta_Srijan_HW4.pdf. Your submission should include R code and answers to problems.
3. Late assignments will not be accepted. Check Canvas regularly for assignments and submission dates.
4. You are free to discuss assignment problems with your classmates, but submitted work (answers and codes) **must** be your own work. Students are not allowed to copy computer codes or answers from each other, and must write their own codes and answers.