Project 4

Due on Sunday, March 12 by 11:30PM

Your written report should be addressed to Dr. Steven Vamosi, a botanist at University of Calgary

Using all the relevant materials we have covered in the class to prepare this report. As **minimum requirements**, your report **must include**

1. Define the goal.
2. Describe the details of your data generation process.
3. Carry out the data generation process.
4. Develop the classification rule covered in the lecture. You may create additional rule(s) if you want to.
5. Classify the training data points for both the cherry tree leaves and the pear tree leaves (report your classification errors).
6. Classify new leaves with measurements (width and length in mm) u = (32, 82), v = (38, 52) and w = (40, 76).
7. Show that the observation space is partitioned into two distinct regions by **a straight line** under the classification rule covered in the lecture. *Show the equation of this straight line and plot it in the observation space*.
8. Develop a new classification rule for the case where you ***cannot*** assume the two species share the same covariance matrix. What does your new rule look like geometrically (compared with the result in item 7)?
9. Give a presentation of your classification rule(s) in class on March 14; **be ready to classify any pair of measurements given to you** during your presentation.

Important Note: DO NOT use ANY LDA package to do this project. You are expected to write up all the details by yourself. A project report relying on any LDA package will receive a zero (0) mark.