

STA 135 Final project

Due Jun 10th

Read the following instructions carefully:

- You should work individually, not in a group.
- You are not allowed to discuss your project with anyone other than the instructor or TA.
- Any outside help beyond that from the instructor or TA is considered plagiarism. This including asking a tutor, your classmates (for example, comparing answers), posting the questions to homework help sites, etc. Should we believe you have sought outside help, you will be reported to the Student Judicial Affairs office.
- You are allowed to use or modify your previous functions, or the instructors functions that are posted online.
- Do not share answers, or specific values for calculations.
- If you want to ask clarifying questions about code and general approach, or have difficulty in finding a dataset to work with, go to the office hours of the instructor or TA.

Guidelines:

You should find a dataset at first and conduct proper data analysis that you have learned from this class. Your results should be written in report form, including a cover page and an appendix of your R code at the end of the report. This means you write in full sentences, and have the following sections for the body of your report.

- 1 Introduction: Briefly summarize the goal of the analysis in your own words.
- 2 Summary: Summarize your data. These can be plots, or sample estimates. Interpret the plots and/or estimates.
- 3 Analysis: Your data analysis should contain at least the following parts. You may add something else if needed.
 - (a) Construct simultaneous confidence intervals based on T^2 and Bonferroni correction.
 - (b) Two-sample Hotelling's T^2 test.
 - (c) Principal component analysis.
 - (d) Linear discriminant analysis.
- 4 Interpretation: Interpret your confidence intervals, tests and plots in terms of the problem.
- 5 Conclusion: Describe and interpret your findings.

Details:

- i A title page including your name, the name of the class, and the name of your instructor.
- ii Do not include R code in the body of your report. R code used to produce the results should all go to the appendix.
- iii Typed.
- iv Double-sided pages.

For example, your project should be put together in the following order (stapled):

Cover page.

Introduction, summary, analysis, interpretation, and conclusion.

Code appendix.