

Homework 7 – Stat 230 – Fall 2022

Due date: Friday, October 28

Complete the following exercises and submit your assignment via gradescope (linked on the course webpage).

Problems to start after class Oct 21

Q1

The file `medschool.csv` contains data on 55 medical school applicants from a liberal arts college in the Midwest. We will focus on two variables, **Acceptance** (1 = accepted to medical school, 0 = not accepted) and **MCAT**, the student's score on the MCAT exam.

You can load the data using the command:

```
medschool <- read.csv("http://aloy.rbind.io/data/medschool.csv")
```

- (a) Fit the logistic regression of acceptance status on MCAT score. Report the fitted logistic regression model ($\text{logit}(\hat{\pi}) = \dots$).
- (b) For somebody who scored 30 on the MCAT, find the probability they were accepted.
- (c) For somebody who scored 30 on the MCAT, find the odds of being accepted (to not being accepted).
- (d) Compare the odds of acceptance for somebody who scored a 35 to somebody who scored a 30 on the MCAT and give a sentence interpreting this number.
- (e) Interpret the coefficient of MCAT in your model (in terms of odds).

Q2

Chapter 7 exercise E.1

- After class on October 21, you will be able to complete part (a)

Use the following code to load the data. Notice that * is used to denote missing values, so we add the `na.strings` argument to handle this.

```
birdnest <- read.csv("https://aloy.rbind.io/kuiper_data/Birdnest.csv", na.strings = "*")
```

Q3

Chapter 7 exercise E.2

- After class on October 21, you will be able to complete part (a)

```
donner <- read.csv("https://aloy.rbind.io/kuiper_data/Donner.csv")
```