

Every year, eccentric socialites gather dangerous criminals from around the world and have them fight to the death, in the Tournament of Doom! Not surprisingly, there is a lot of money being exchanged because they bet on who will win. You have earned a ticket for this year’s tournament and are hoping to bet some money and pay off your hefty College tuition bill (and maybe also buy a jet ski and some cocaine). You have a big advantage; you have access to last year’s data and you can apply your knowledge of statistics and analyze this data, thus making better predictions for the tournament. The data that you have access to contains the following information on each criminal: age (measured in years), weapon (weapon of choice: 1=knife, 2= kusarigama, 3=bow staff, 4=katana, 5= Yari, 6= Tekko-Kagi, 7=three section staff), sex (0=female, 1=male), height (measured in inches), beefiness (how muscular they look, rated subjectively from 0 {Timothée Chalamet} to 100 {Arnold Schwarzenegger}), meanness (subjective rating of how mean they look, with higher scores meaning meaner, scores can be from 0-100), mohawk (0=no mohawk, 1=mohawk; think Far Cry 3 style), bs (number of times they have watched the movie Blood Sport), sf (number of hours they have spent playing street fighter), agility (how agile they look, rated subjectively from 0 to 100), and dangerousness (this is a composite variable that is calculated by taking the product of several other variables such as the number of people that they killed and how quickly they were able to dispatch their opponents. Higher numbers here mean more dangerous).

Address each one of the points below.

1. Given the subject area, there could be some interesting sex differences. How many can you find?
2. Let’s say we wanted to test if being mean caused your beefiness. First, test this. Now, suppose we had previous good evidence that sex might cause both beefiness and meanness. Test the effect of meanness on beefiness consistent with that belief. Justify why it would be key to include sex in the model. What do you conclude?
3. Your main task is building a model that predicts dangerousness. Build the best model you can, making sure to account for all the effects.
4. When you present your results, consider effect sizes, make sure you can clearly explain your results, and use at least 1 plot.

Use any resources you wish. Feel free to consult the internet and any books or notes. Also, feel free to use any previous code/syntax that you previously developed.