Homework Assignment #10

10-1. You’ve just joined the Patriot Hedge Fund as an analyst. Your fund is considering shorting a corporate bond ETF that concentrates on speculative long-term corporate bonds. You randomly select 20 bonds with risk characteristics very similar to the bonds ETF portfolio and examine their historical performance. In particular, the data identify how long the bond has been active (in years) and whether the bond defaulted (no default = 0; default = 1). See the “Prob 10-1 default data.csv” file.

You decide that a Bernoulli distribution is a reasonable first choice as a data generating process that could have produced the binary response data. Perform a logistic regression to analyze the data; report your findings.

10-2. The senior partner in Patriot Hedge Fund was so impressed with your analysis of the bond default data in Prob. 10-1, that she asked you to take on larger task. You are to analyze 2000 records (see the Prob 10-2 data.csv” file) describing risk data of small portfolios. The “y” variable represents the number of defaults (i.e., counts) out of “m” bonds (i.e., trials) with two covariates, x1 and x2, representing the proportions of time the portfolio devoted to managing the portfolio (x1) and the proportion of time the portfolio managers’ assistants supported their managers.