

Bootstrap project

Ask Ignacio Cascos for a project number (1 to 12) and use the corresponding dataset. Read it as `read.csv("data_x.csv",header=TRUE)`.

Dataset `data_x.csv` contains data on variables `y`, `x1`, `x2`, `x3` and the goal is to build a linear regression model to predict `y` in terms of some of the other three variables. The dataset contains outliers and after building any OLS model it can be checked that the error residuals are not normally distributed. For these reasons, it makes sense to build a robust linear regression model (`rlm`) and use the bootstrap to study the significance of the regressors.

1. Build a robust linear regression model with the three covariates and use (95%) bootstrap confidence intervals on the regressors' coefficients to study their significance.
2. Use backward elimination to select the relevant covariates and provide the chosen regression model.
3. Provide 95% confidence intervals on the regression coefficients.
4. Build a 95% confidence interval on the mean response when $(x1, x2, x3) = (14, 14, 14)$.