04-analysis.Rmd

Results

Now that we have a better understanding of each of these regression methods, lets look at the data in order to see how each regression performed:

Table 1: Mean Squared Error For Each Regression

	Mean Squared Error
MSE of Least Squares	0.047472
MSE of Ridge Regression	0.053684
MSE of PLS Regression	0.050425
MSE of PCR	0.310760
MSE of Lasso Regression	0.051599

Lets take a look at how the estimated regression coefficients differ for each regression:

Table 2: Beta Coefficients for Each Regression

	Coefficient Names	Coefficients for PLS Regression	Coefficients for Least Squares	Coefficients for Ridge Regression	Coefficients for PCR	Coefficients for Lasso Regression
1	Income	-0.61	-0.60	-0.54	-0.60	-0.55
2	Limit	0.68	1.06	0.68	0.96	0.93
3	Rating	0.67	0.28	0.61	0.38	0.37
4	Cards	0.05	0.05	0.04	0.05	0.05
5	Age	-0.02	-0.01	-0.03	-0.02	-0.02
6	Education	-0.00	-0.01	-0.00	-0.01	0.00
7	Gender.Male	0.04	0.01	-0.06	0.01	0.00
8	GenderFemale	-0.04		-0.07	-0.01	0.00
9	StudentYes	0.88	0.92	0.76	0.93	0.89
10	MarriedYes	-0.02	-0.00	-0.03	-0.02	0.00
11	EthnicityAsian	0.07	0.03	0.03	0.04	0.00
12	EthnicityCaucasian	0.00	0.01	0.01	0.02	0.00

Figure 1: Coefficient Plot