Regression

Jordan Boyd-Graber
University of Colorado Boulder
LECTURE 17

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

Content Questions

.

Administrivia

- Boosting HW due Friday
- Review on Monday
- Midterm next Wed

MPG Dataset

- Predict mpg from features of a car
    1. Number of cylinders
    2. Displacement
    3. Horsepower
    4. Weight
    5. Acceleration
    6. Year
    7. Country (ignore this)

Simple Regression

If $\beta = 0$, what's the intercept?

Simple Regression

If $\beta = 0$, what's the intercept?
23.4

What are the coefficients for OLS?

Simple Linear Regression

What are the coefficients for OLS?

cyl	-0.329859
dis	0.007678
hp	-0.000391
wgt	-0.006795
acl	0.085273
yr	0.753367

What are the coefficients for OLS?

    cyl −0.329859
    dis   0.007678
    hp   −0.000391
    wgt −0.006795
    acl   0.085273
    yr   0.753367
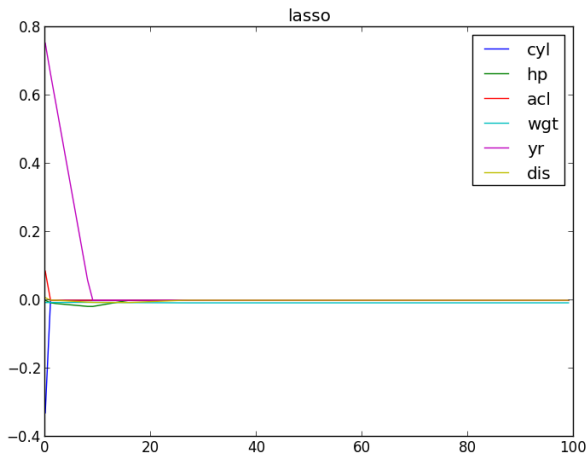
Intercept: -14.5

Simple Linear Regression

```
from sklearn import linear_model
linear_model.LinearRegression()
fit = model.fit(x, y)
```
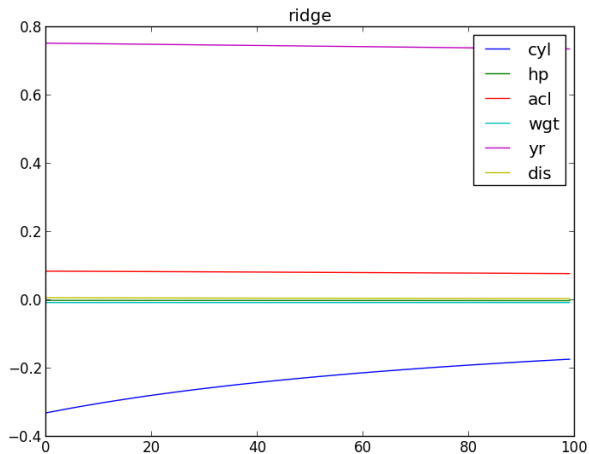
Lasso

- As you increase the weight of alpha, what feature dominates?
- What happens to the other features?

Weight is Everything

How is ridge different?

Regression isn't special

- Feature engineering
- Regularization
- Overfitting
- Development / Test Data