Model Selection & Regularization

Lecture 7

Termeh Shafie

Recall: Linear Models and Least Squares

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_p X_p + \epsilon$$

$$\text{RSS} = \sum_{i=1}^{n} (y_i - \hat{\beta}_0 - \sum_{j-1}^{p} \hat{\beta}_{j_1} x_{ij})^2$$

Model with all available predictor variables is commonly referred to as **the full model**

Issues:

- predictive accuracy
- model interpretability

Solutions:

- select subset of predictors
- consider extension to the least squares solution of full model