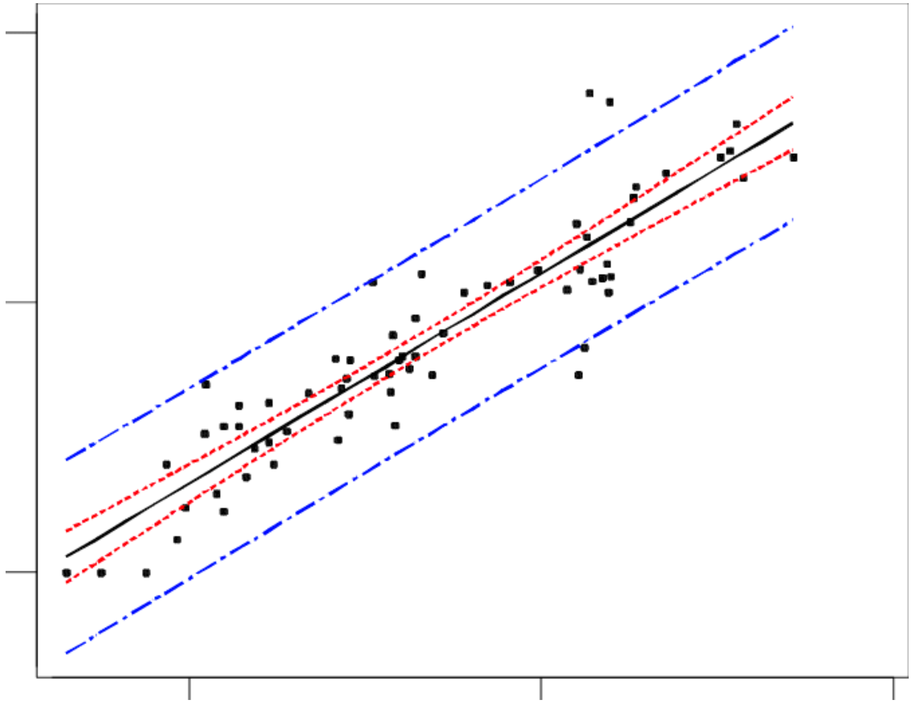
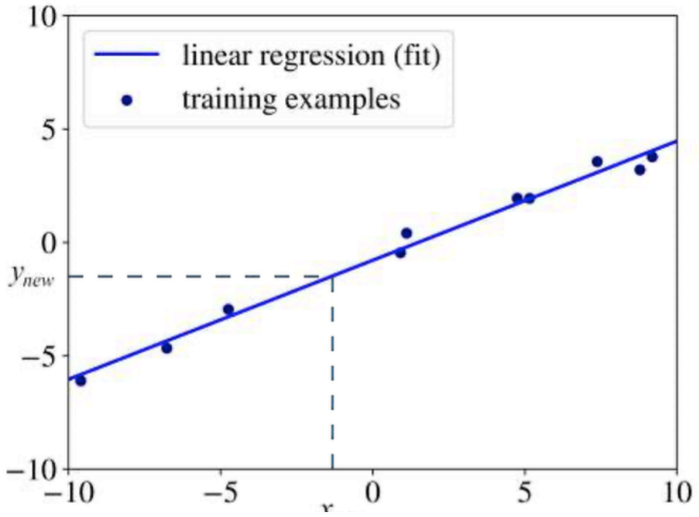


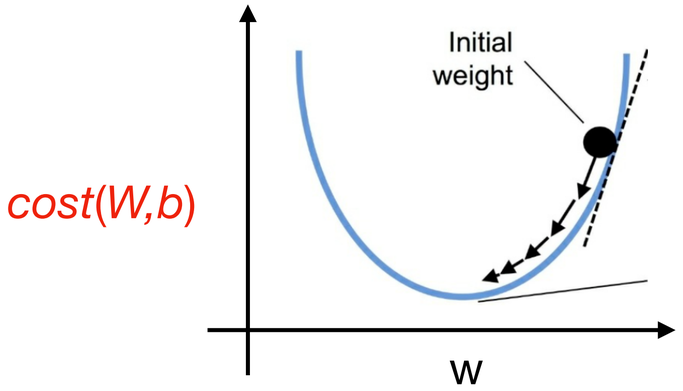
Linear Regression Lab

Jin Hyun Kim

Review

- Linear Regression



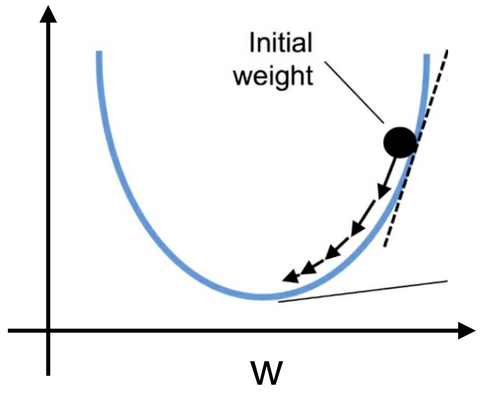


$$cost(W,b) = \frac{1}{N}\sum_{i=1}^{N}((Wx^{(i)} + b) - y^{(i)})^2$$

- Start with initial guesses
  - Start with random value
  - Keeping changing W and b a little bit to try and reduce cost(W, b)
- Each time you change the parameters, select the gradient which reduces cost(W, b) the most possible
- Repeat until it converges to a local minimum

Review

- Linear Regression



$$cost(W,b) = \frac{1}{N}\sum_{i=1}^{N}((Wx^{(i)}+b)-y^{(i)})^2$$

- Start with initial guesses
  - Start with random value
  - Keeping changing W and b a little bit to try and reduce cost(W, b)
- Each time you change the parameters, select the gradient which reduces cost(W, b) the most possible
- Repeat until it converges to a local minimum

$$W = W - \alpha\frac{\partial}{\partial W}cost(W,b)$$

$$\frac{\partial}{\partial W}cost(W,b) = \frac{2}{N}\sum_{i=1}^{N}x^{(i)}((Wx^{(i)}+b)-y^{(i)})$$

$$b = b - \alpha\frac{\partial}{\partial b}cost(W,b)$$

$$\frac{\partial}{\partial b}cost(W,b) = \frac{2}{N}\sum_{i=1}^{N}((Wx^{(i)}+b)-y^{(i)})$$

Programming Assignments #3

- Update the program of Gradient Descendent Algorithm that we discussed in class so that it guesses petal length or width for given sepal length and width of Irish

  - Divide data by Setosa, Versicolor, Virginica

Next

- Logistic Regression