Regression

Linear regression

Regularization

Regularization techniques/shrinkage methods

Evaluation metrics for regression

Examples of supervised learning

1. Predict whether an email is spam or not
2. Predict the price of a stock in 6 months from now
3. Predict amount of glucose in blood of diabetic person
4. Predict whether patient hospitalized due to heart attack will have second heart attack

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Regression: when we predict quantitative outputs

Classification: when we predict categorical (qualitative) outputs

Regression – measure that attempts to determine relationship between dependent variable Y and set of independent variables X (X1,X2,…… Xn)

• We attempt to find the “best fit line” by minimizing the difference between the actual and predicted values

• But positive differences could offset negative ones

• That’s why we take the squared differences

Ordinary Least Squares

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Regression line should be as close as possible to point (x\_bar,y\_bar) which represents average values of data.

Multiple linear regression

When there is a single input variable , regression is referred to as simple linear regression.

When there are multiple input variables X ^ t = (X1 ,X2,….XP), regression is referred to as multiple linear regression.

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