

Linear Discriminant Analysis (LDA)

Model the distribution of predictors in each category

- Use Bayes theorem to flip things around and obtain $P(\text{category} | \text{predictors})$

- Naive Bayes: features are conditionally independent given the class label

• Now: model the joint distribution of features given the class label

► assume distribution of the features within each category is normally distributed

► as the covariances of the MVN distribution are equal for both

► use the Bayes optimal classifier

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- Model the distribution of predictors in each category separately
- Use **Bayes theorem** to flip things around and obtain $P(\text{category} \mid \text{predictors})$
- Naive Bayes: features are ~~conditionally independent given the class label~~
- Now: **model the joint distribution of features given the class label**
 - assume distribution of the features within each category is normally distributed
 - assume covariances of the MVN distributions are equal for both classes
 - use the Bayes optimal classifier

Linear Discriminant Analysis (LDA) with 1 Predictor

