

A probabilistic approach to ML

Bayesian approach: find y that maximizes $\mathbb{P}(Y = y | \text{data}, X = x)$

This problem of Bayesian inference is hard to solve without additional hypothesis.

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Naive Bayes classifiers

- Make a naive, counter-intuitive hypothesis of conditional independence of the feature variables;
- Compute each class' probability for a new example using this hypothesis and picks the most probable one;
- Are a simple, scalable, online method;
- Despite their simplicity, perform surprisingly well and are competitive in many applications.