Statistical Machine Learning
Assignment 3

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The entire code listing is included in the zip-file. The listings shown here are merely code snippets.

1 Bayesian linear regression

1.

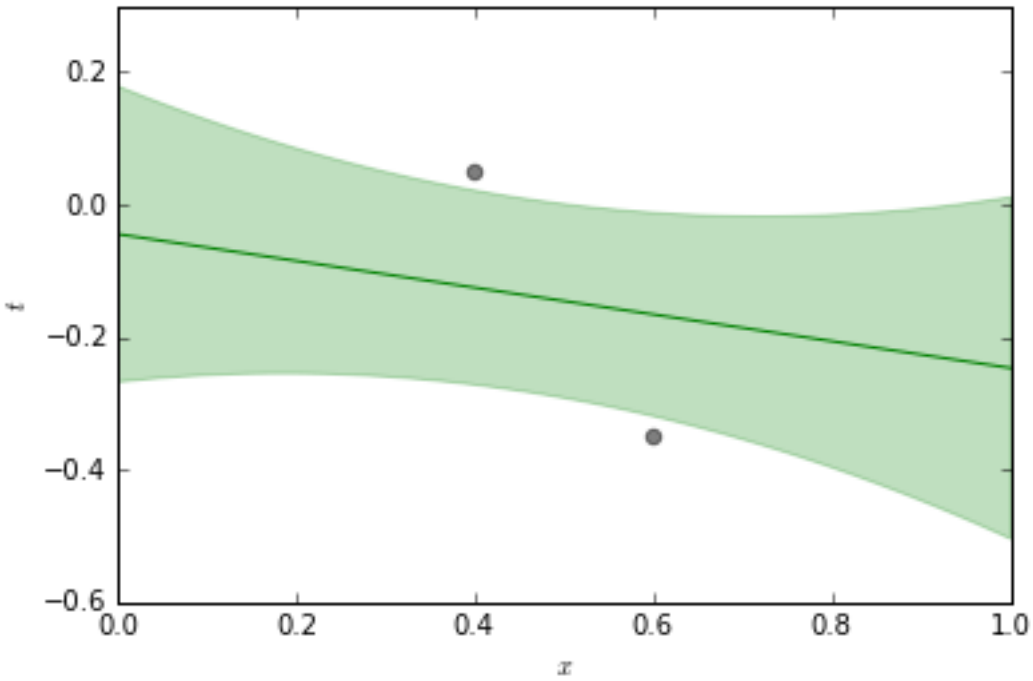

Figure 1.1: The mean of the predictive Gaussian distribution is represented by the green line, plotted against x. The two grey dots are the data points $\{x_1, t_1\}$ and $\{x_2, t_2\}$. The light green area indicates the standard deviation and is bound by the mean plus the standard deviationd and the mean minus the standard deviation.

2.

3.

2 Logistic regression

2.1 The IRLS algorithm

1.

2.

3.

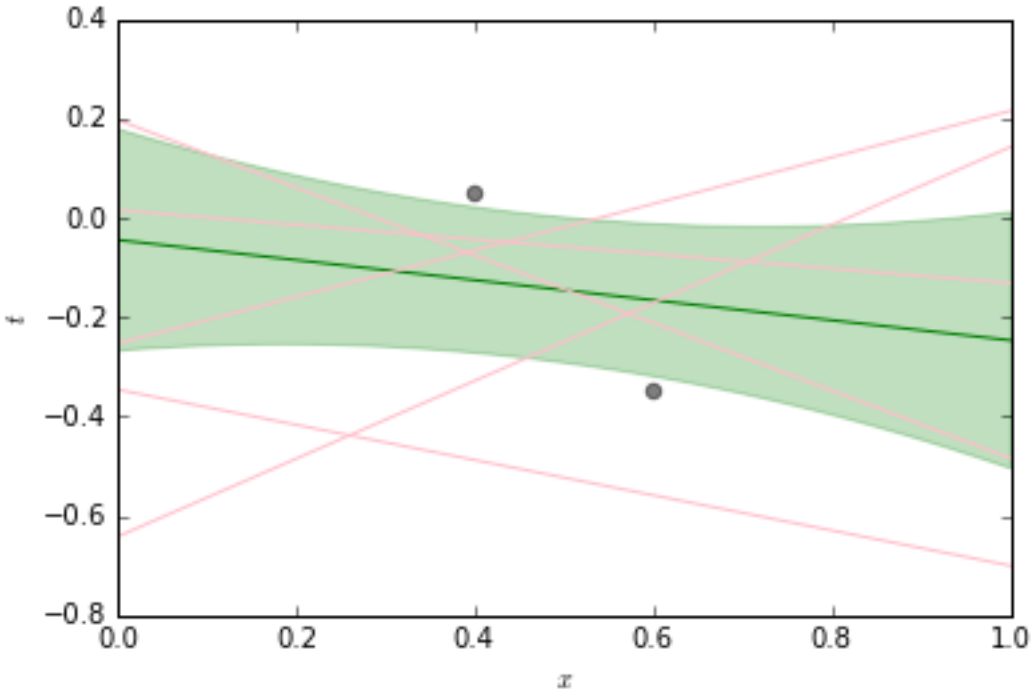

Figure 1.2: The pink lines represent $y(x, \boldsymbol{w})$ where the weights $\boldsymbol{w}$ are sampled from the posterior distribution with mean m_N and variance S_N.

2.2 Two-class classification using logistic regression

1.