# Logistic Regression I

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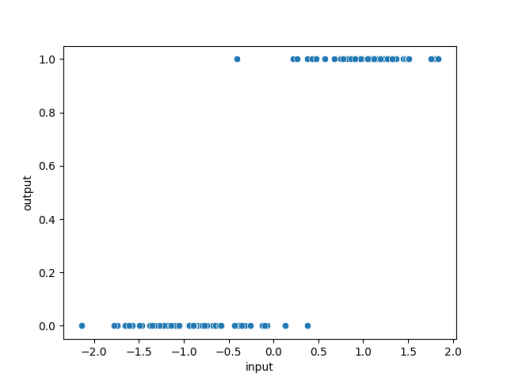
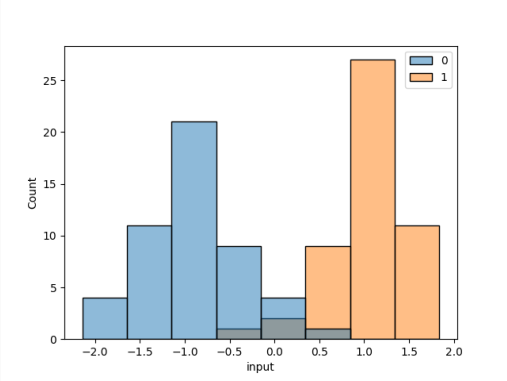
Fall 2025 COSC410A: Applied Machine Learning
Colgate University

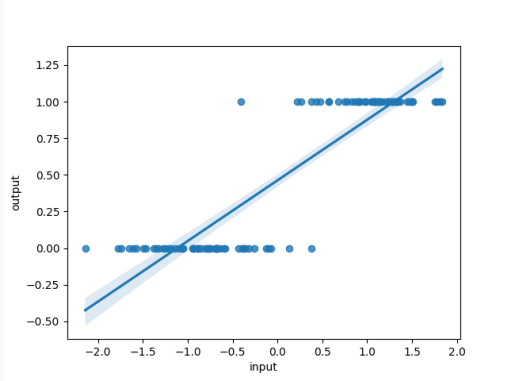
# Basic Problem




**(a)** Raw Data




**(b)** Distribution of Labels




**(c)** Fitted Line

**Figure 1:** Sample classification data in a regression setting

# Normal Vector

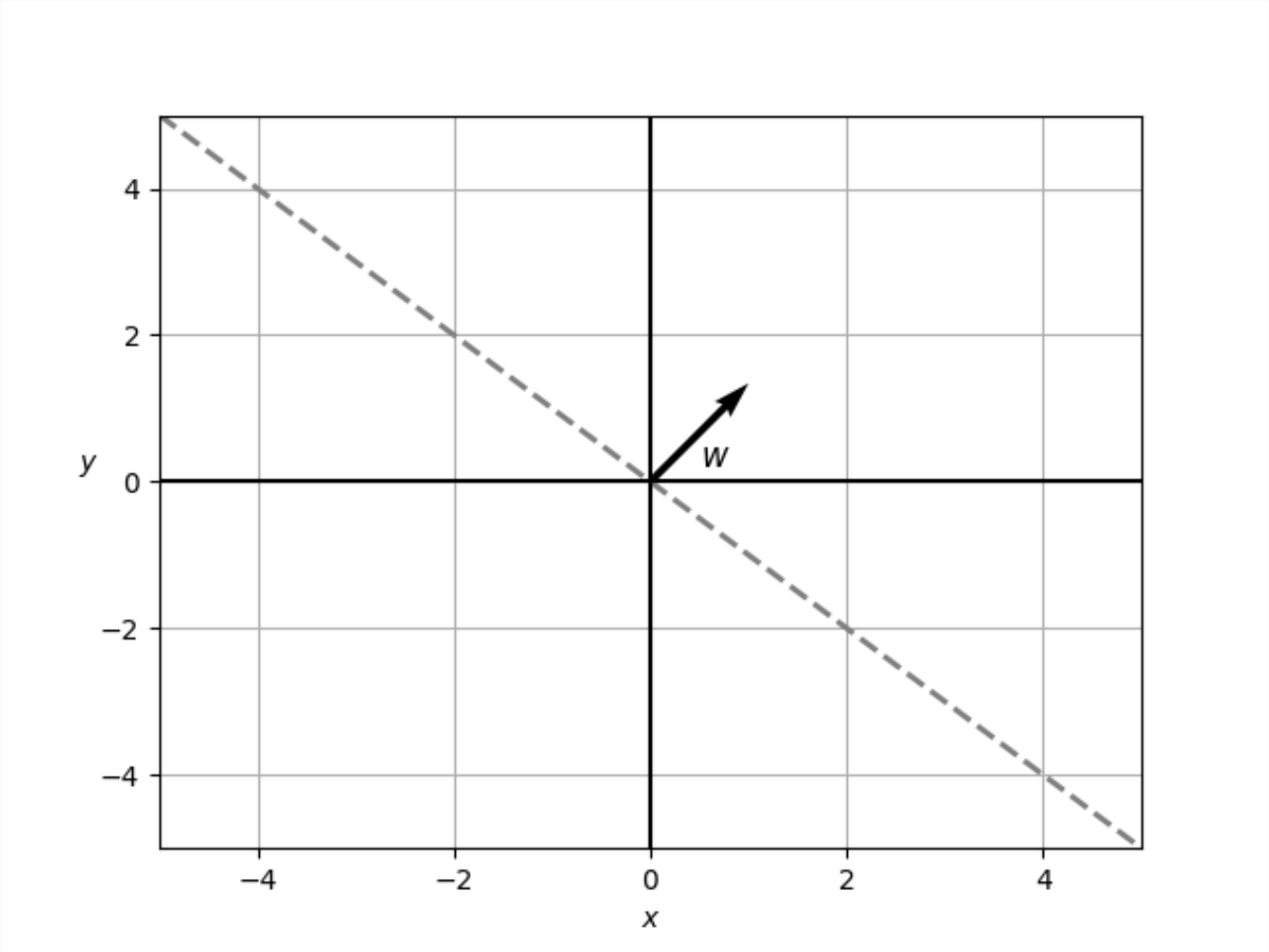



**Figure 2:** Normal vector **w** for the dotted line.

# Sides

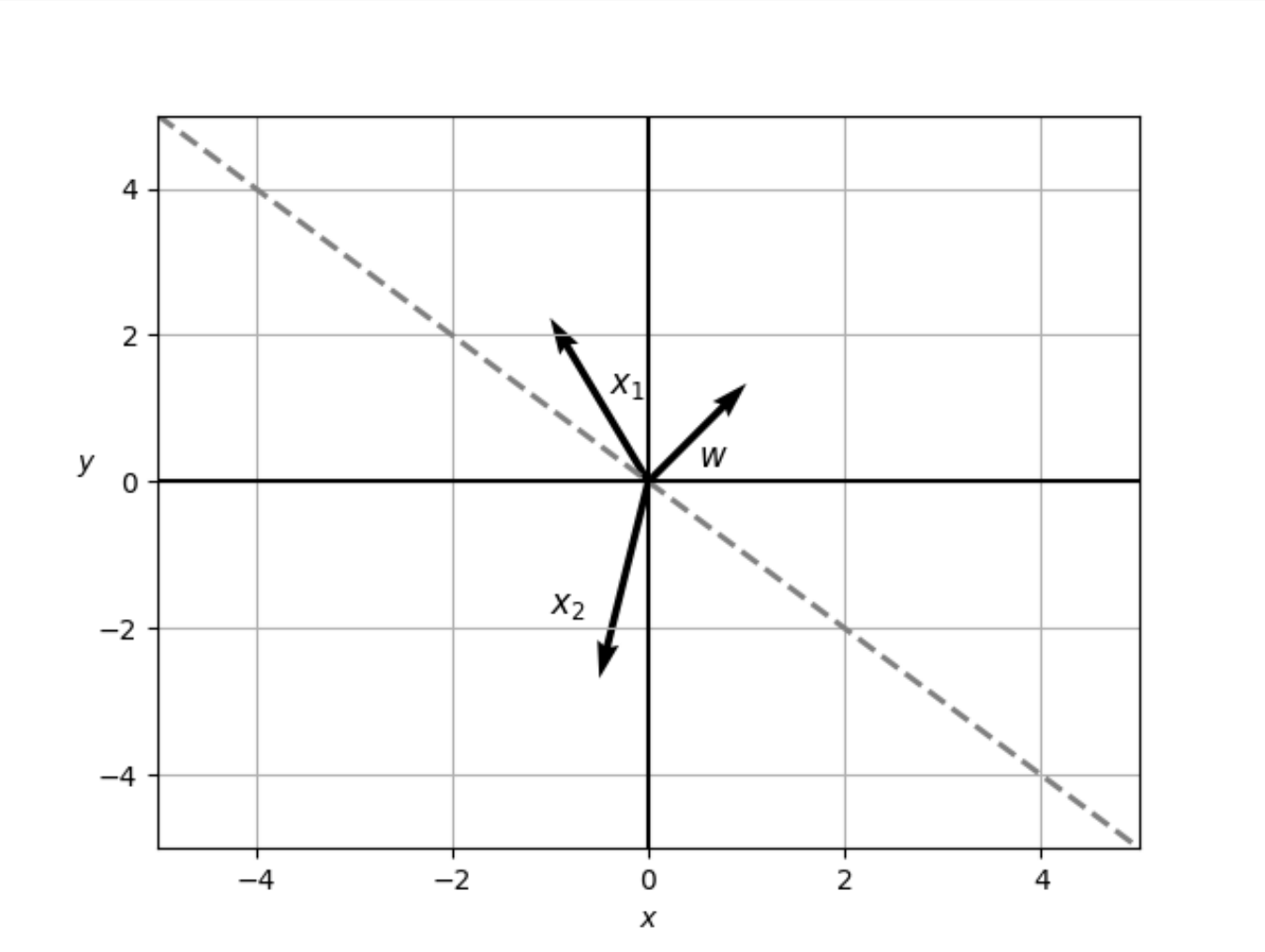



**Figure 3:** Sample vectors for points $x_1$ and $x_2$ above and below the dashed line.

# Simple

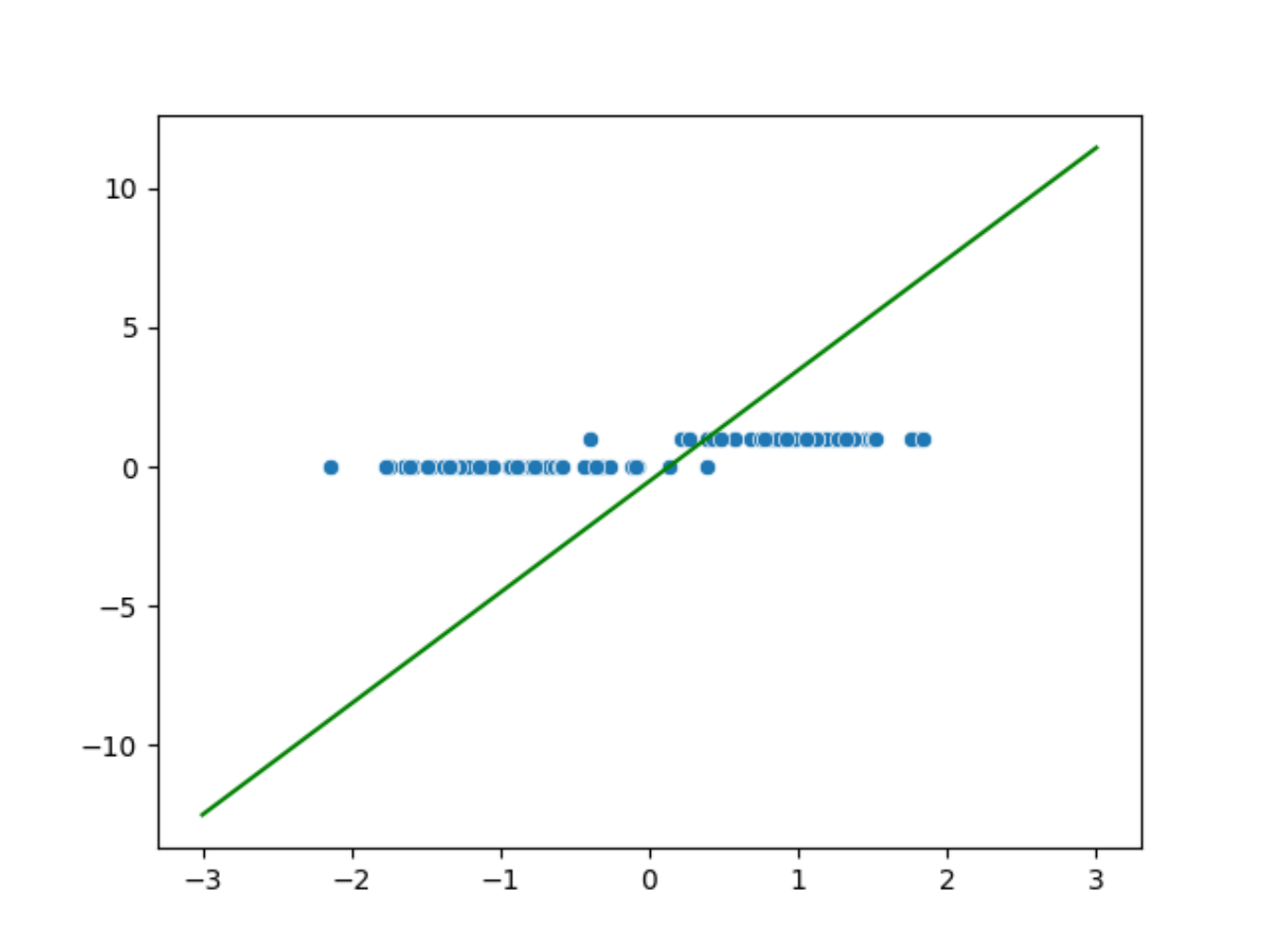



**Figure 4:** A line fit to group labels onto other sides of the line.

# Logistic Regression

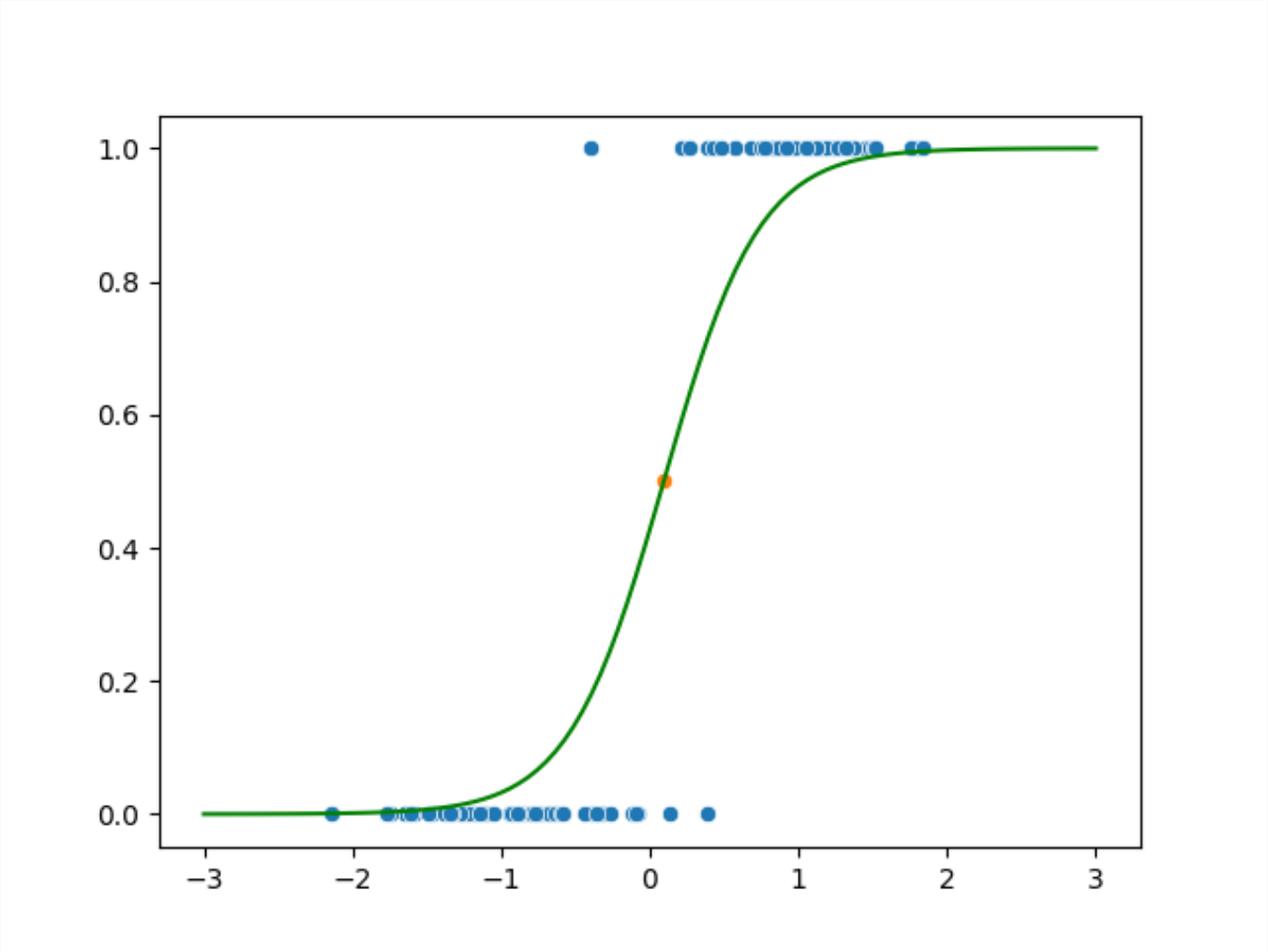



**Figure 5:** A model fit with to satisfy the logistic regression criteria.