Why Linear Regression Fails for Classification

1. Predictions can be < 0 or > 1
2. Treats classes as ordered numerical values
3. Sensitive to outliers in feature space
4. Squared loss inappropriate for binary outcomes

Example:

Predict probability of disease (should be in [0,1])

Linear Regression Output:

Any real number

$\in \mathbb{R}$

$\rightarrow$

NEED

Required Output:

Bounded [0,1]

Probability

Solution Requirement:

Output bounded to [0,1] representing probability