

## 403 Prelab 4

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1. What are the sizes of the normalized training and testing data sets and the associated labels?
2. Suppose you have applied the GD algorithm to minimize  $f(\hat{\mathbf{w}})$  in (E4.2) and obtained a minimizer  $\{\mathbf{w}^*, b^*\}$ , what are the sizes of  $\mathbf{w}^*$  and  $b^*$ ?
3. What are sizes of  $\hat{\mathbf{x}}_n$  and  $\mathbf{x}_n$ ?

1. Training :  $X = 30 \times 480$        $Y = 1 \times 480$

Testing :  $X = 30 \times 89$        $Y = 1 \times 89$

2.  $\mathbf{w}^* : 30 \times 1$

$\hat{\mathbf{w}} = 31 \times 1$

$b^* : 1 \times 1$

3.  $\hat{\mathbf{x}} : 480 \times 31$        $\hat{\mathbf{x}}_n = 1 \times 31$

$\mathbf{x}_n : 1 \times 30$