

Linear regression

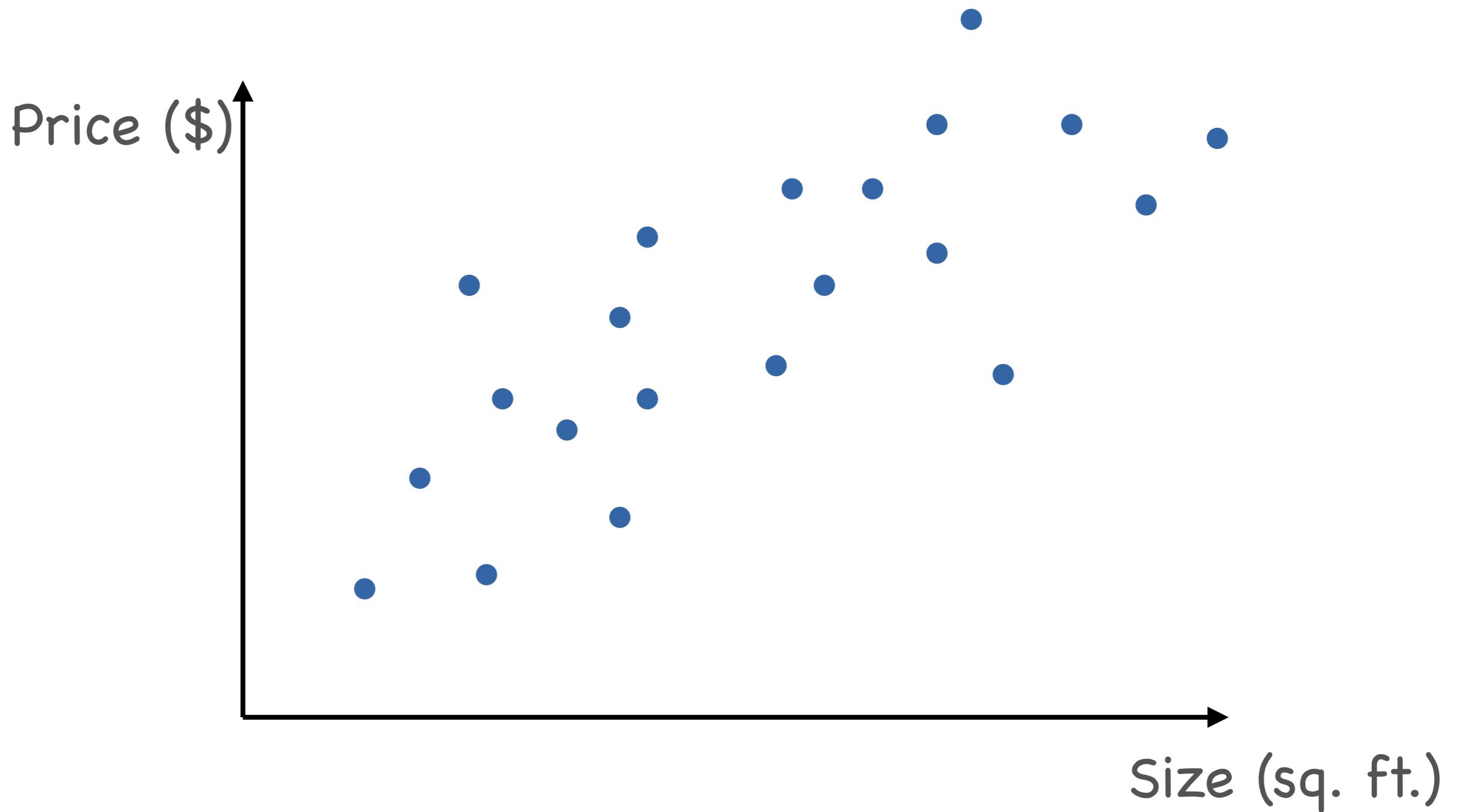
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A simple example

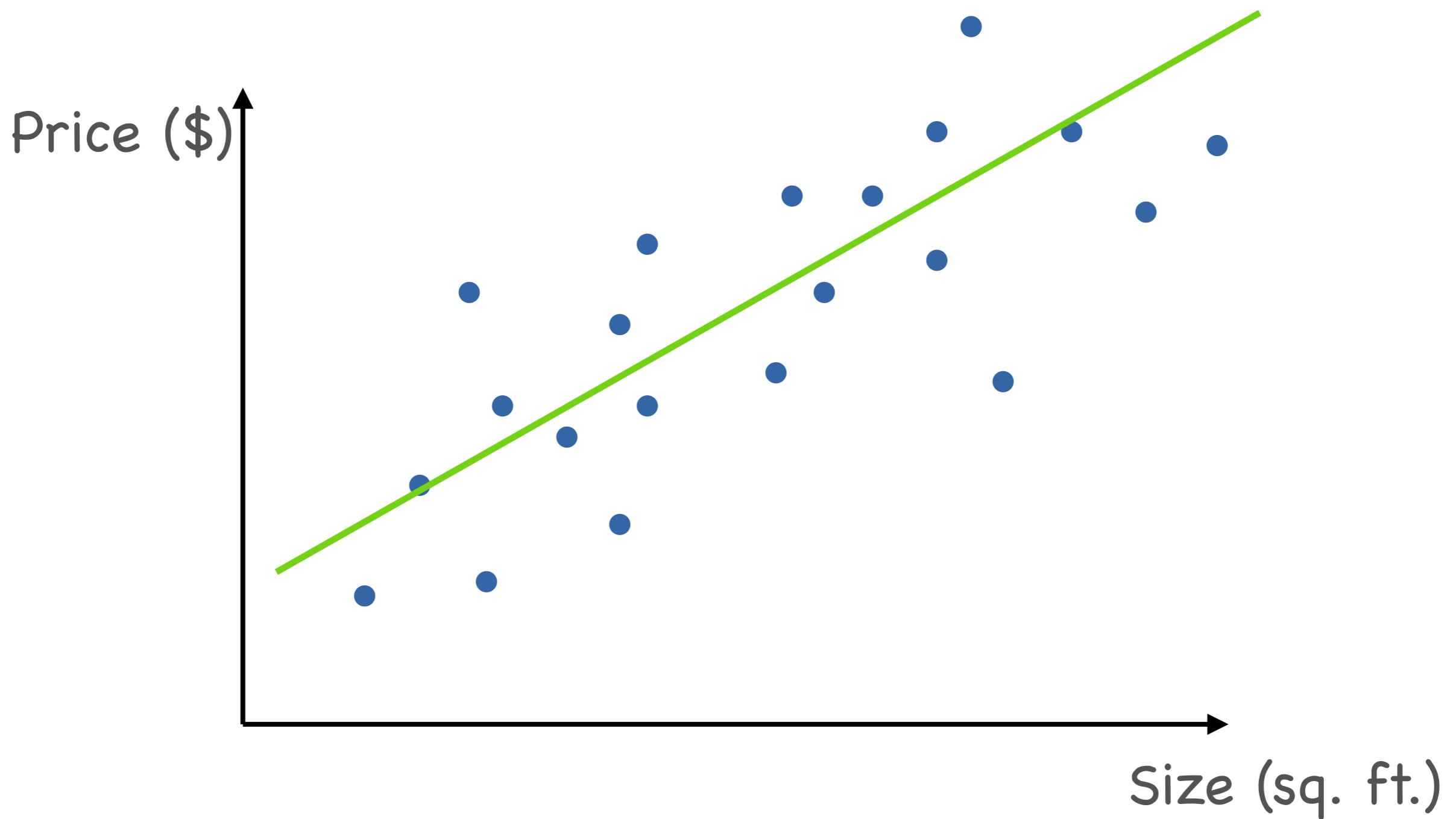


- \$1,200,000
- 3200 sq. ft.
- 5 beds
- 3 baths

A simple example



A simple example



Linear regression

- Input: \mathbf{x} (tensor)
- Output: $y \in \mathbb{R}$
- Parameters: \mathbf{w}, b
- Regression: $\hat{y} = \mathbf{w}^\top \mathbf{x} + b$
- Loss: $\ell(\hat{y}, y) = |\hat{y} - y|$
or $\ell(\hat{y}, y) = (\hat{y} - y)^2$

Optimization

- **Loss:** $\ell(\hat{y}, y) = (\hat{y} - y)^2$
 $= (\mathbf{w}^\top \mathbf{x} + b - y)^2$