Building Your First Learning Program

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We'll Use...

Python 3

Three libraries

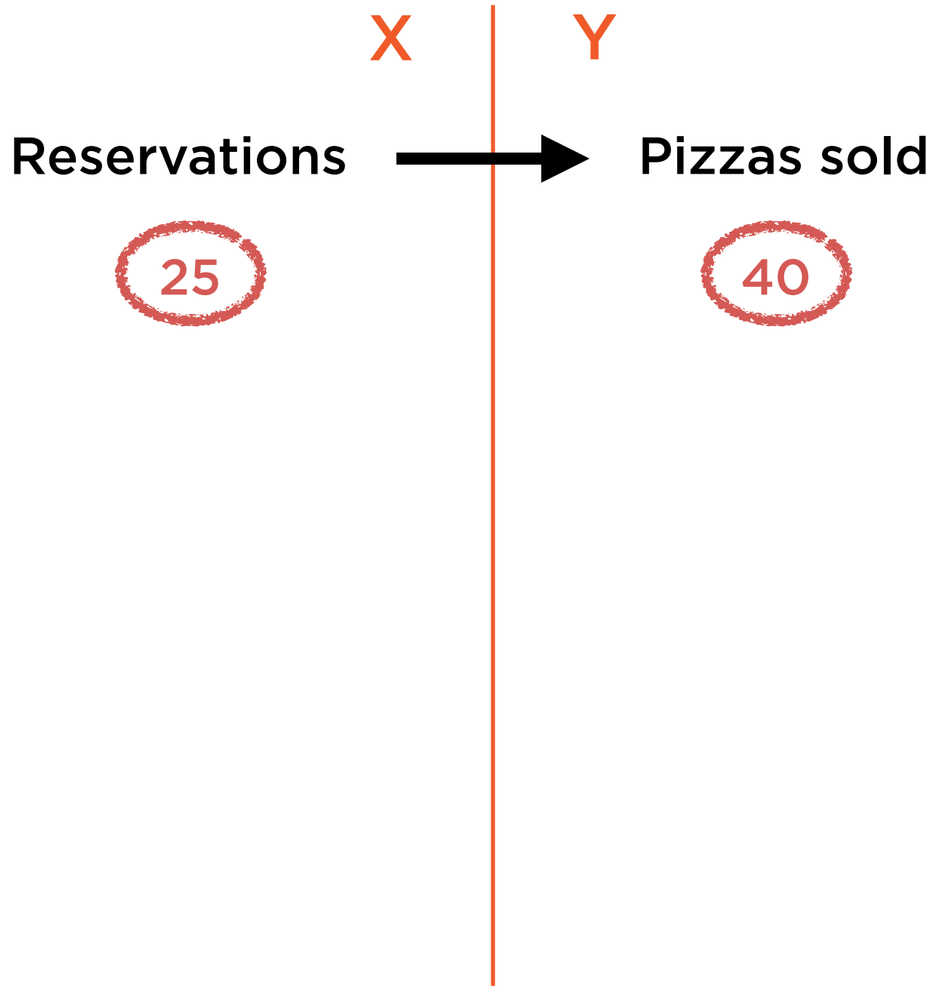
- Jupyter
- NumPy
- Matplotlib

If you want to run the code yourself, check the *README*.

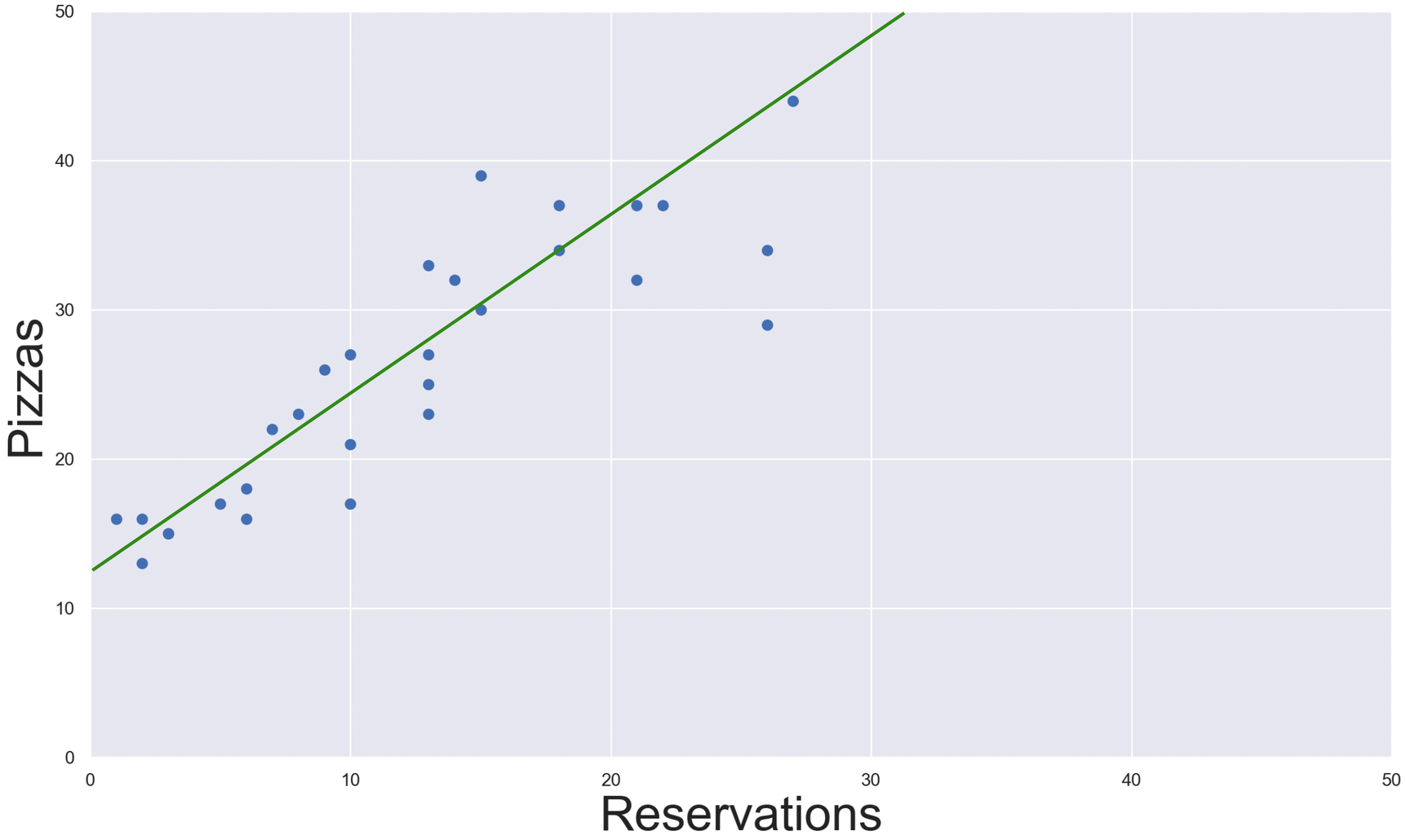
The Problem That We Want to Solve

Reservations → **Pizzas sold**

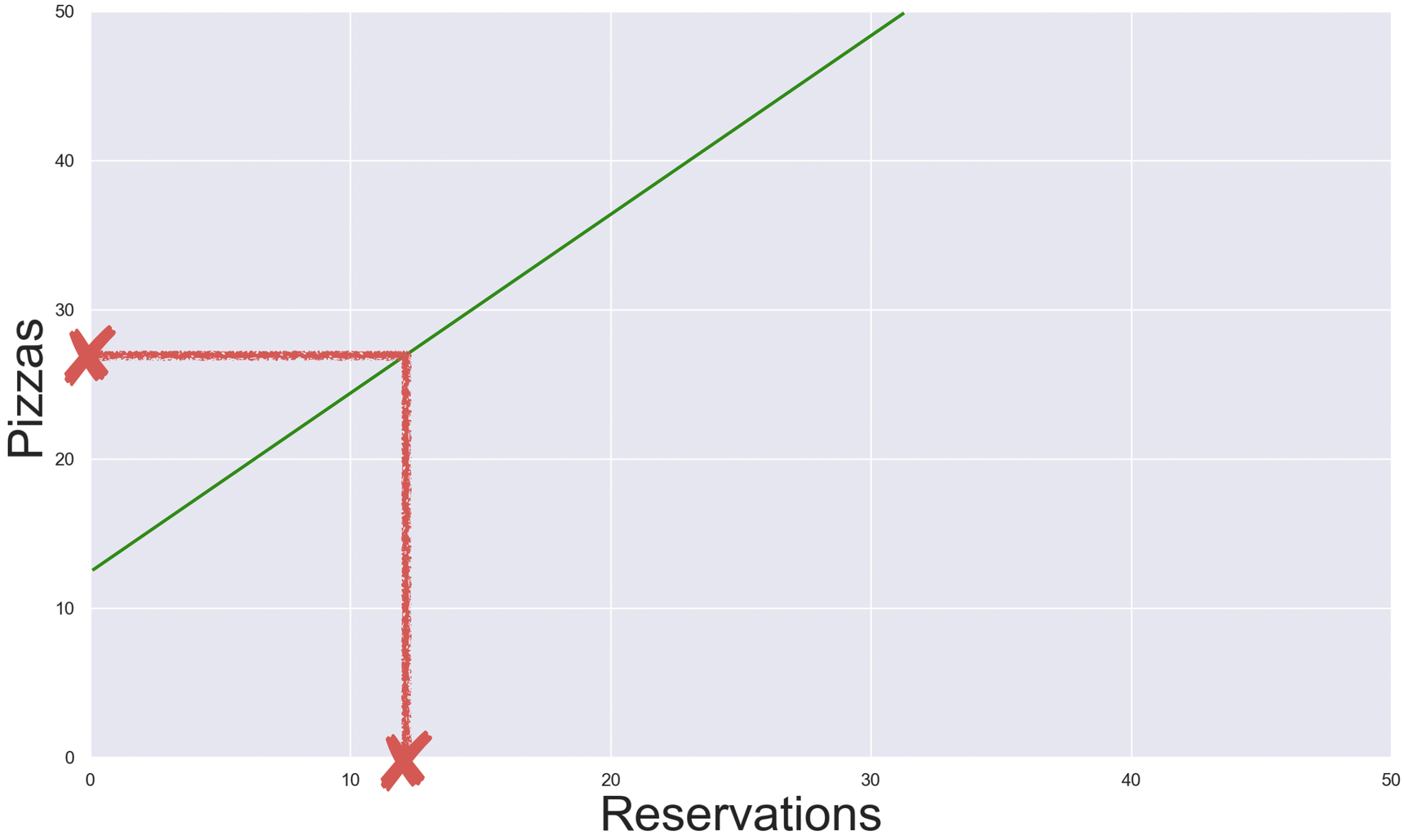
We Want to Learn the Relation Between...



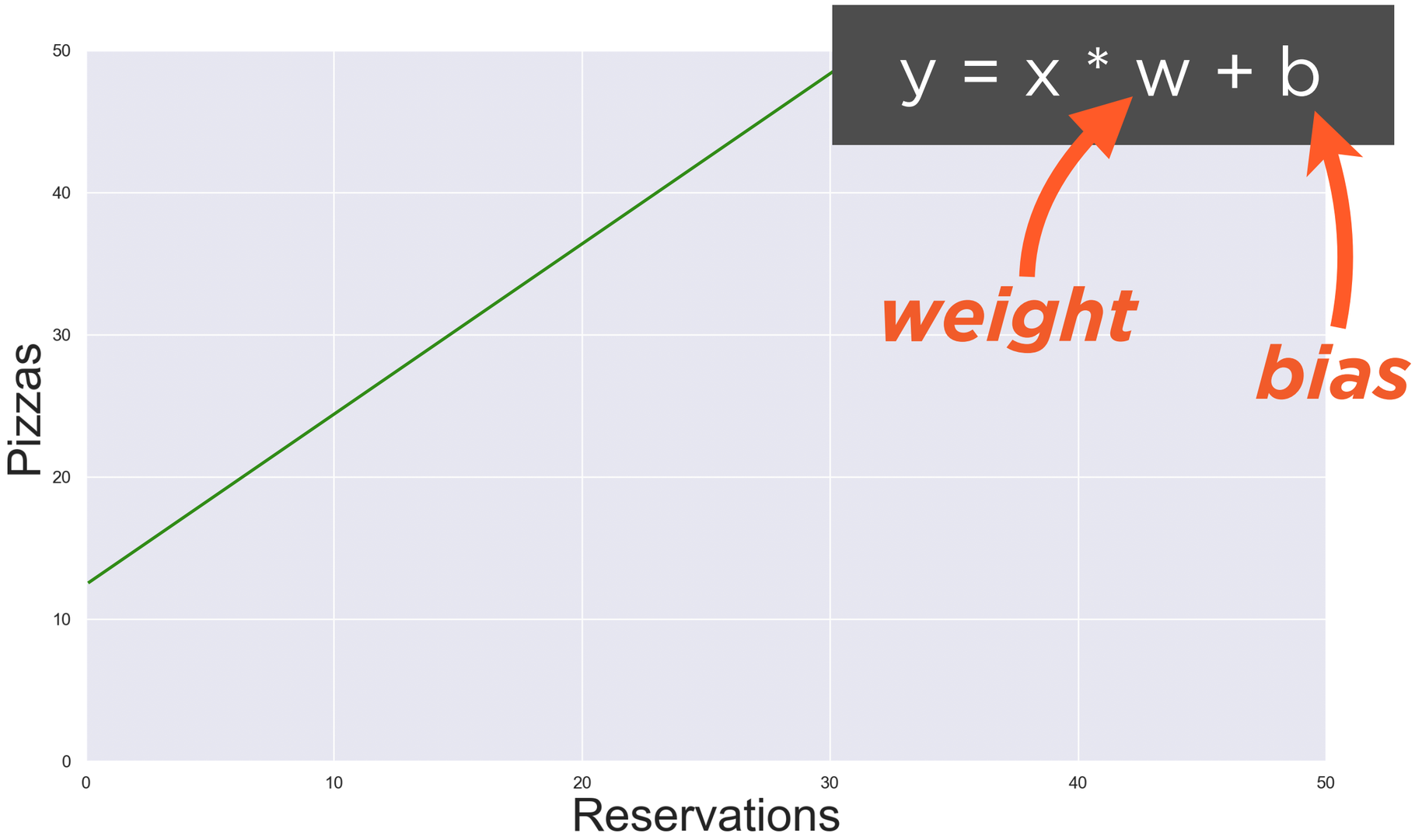
Approximating the Data



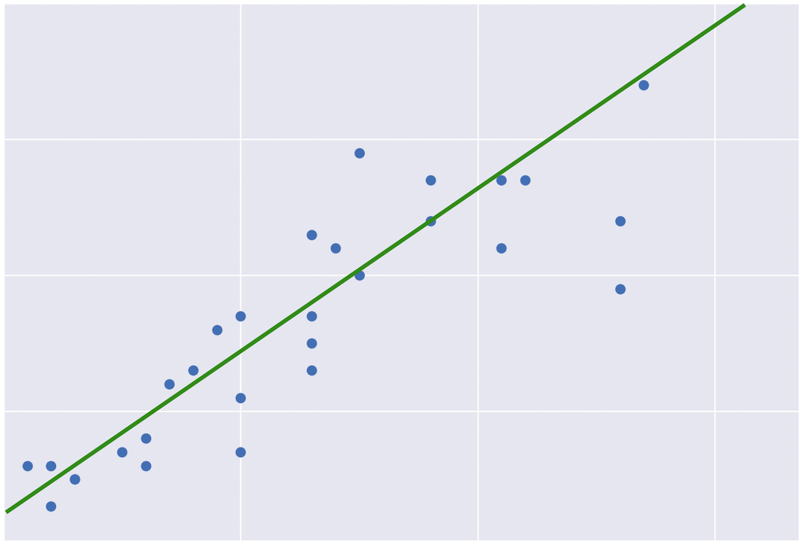
Linear Regression



The Equation of a Line

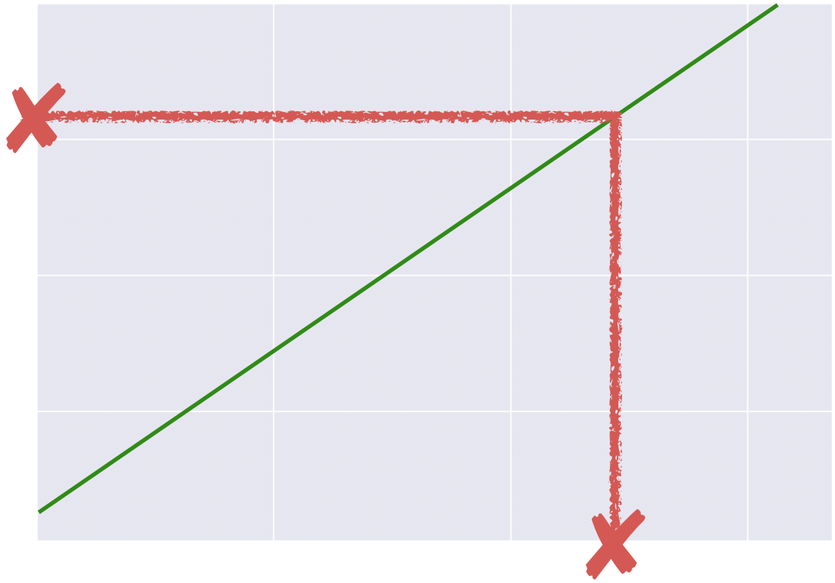


The Two Phases of Supervised Learning



Training Phase

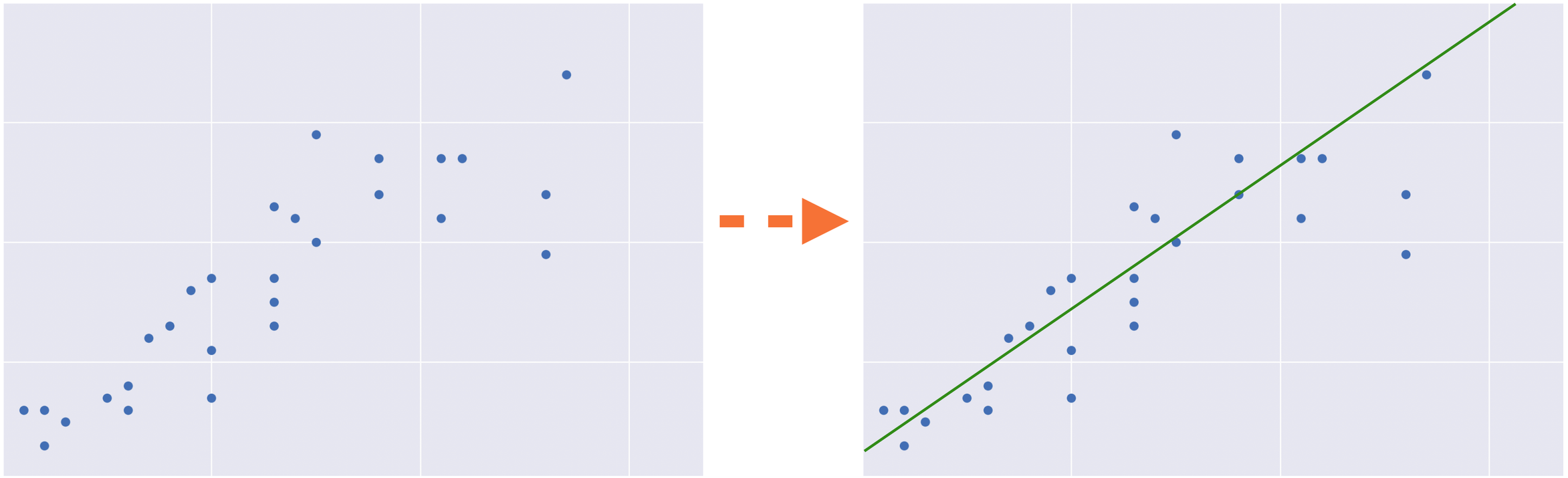
Approximate labeled data with a model



Prediction Phase

Use the model to predict unlabeled data

The Training Phase

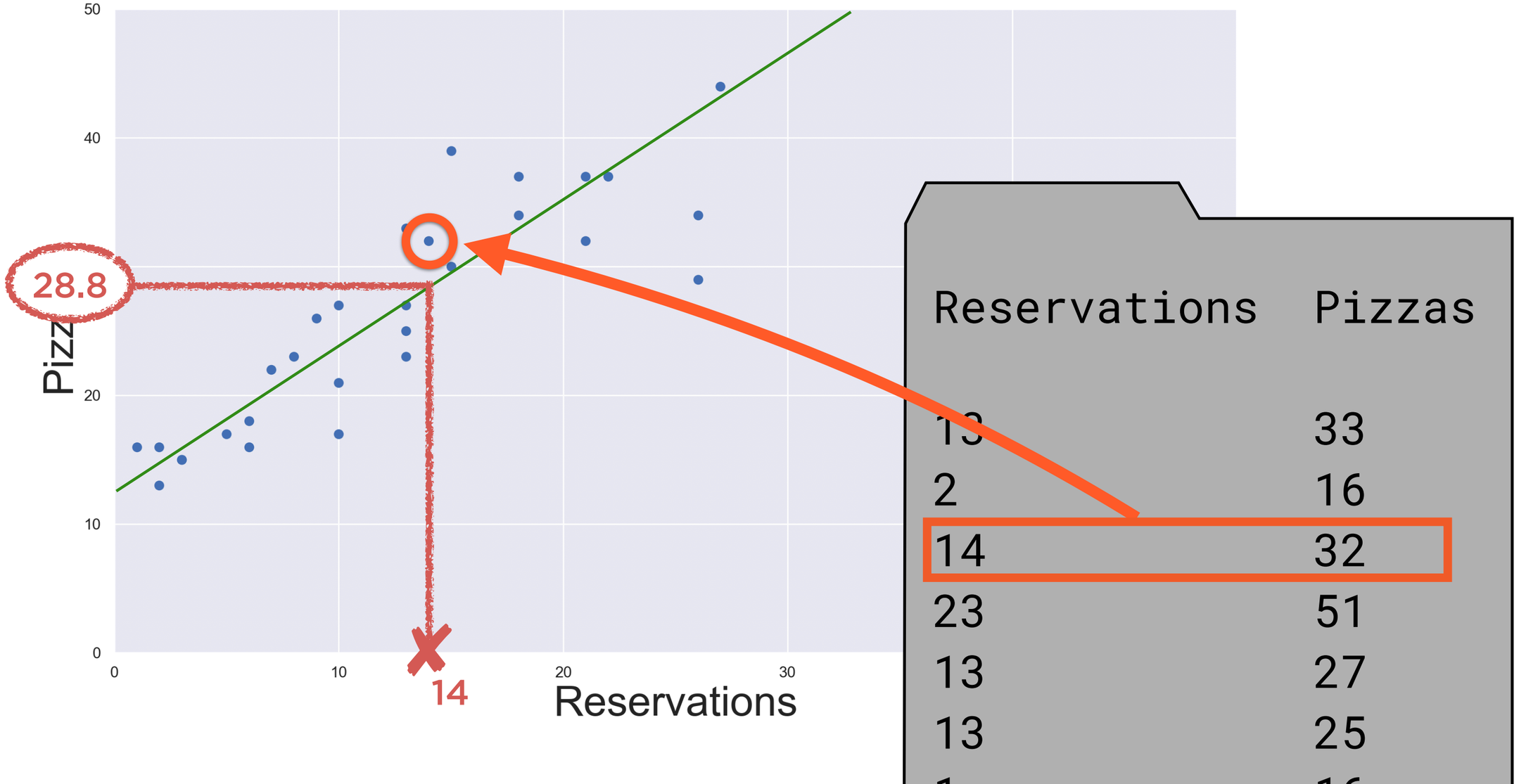


The Training Phase

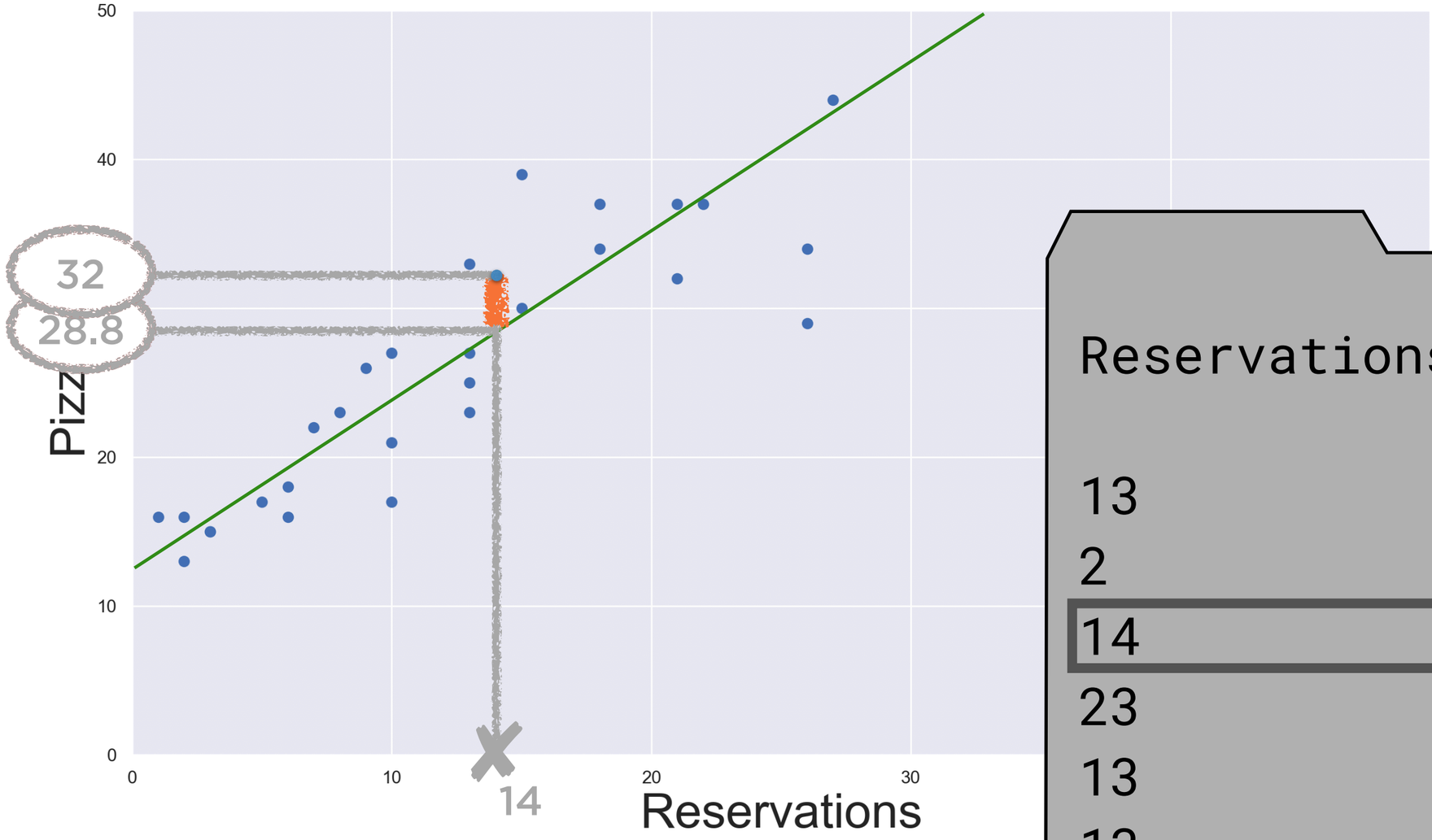
Reservations	Pizzas
13	33
2	16
14	32
23	51
13	27
13	25
1	16
18	34
7	22

w, b

Every Line Has an Error



Every Line Has an Error



Reservations	Pizzas
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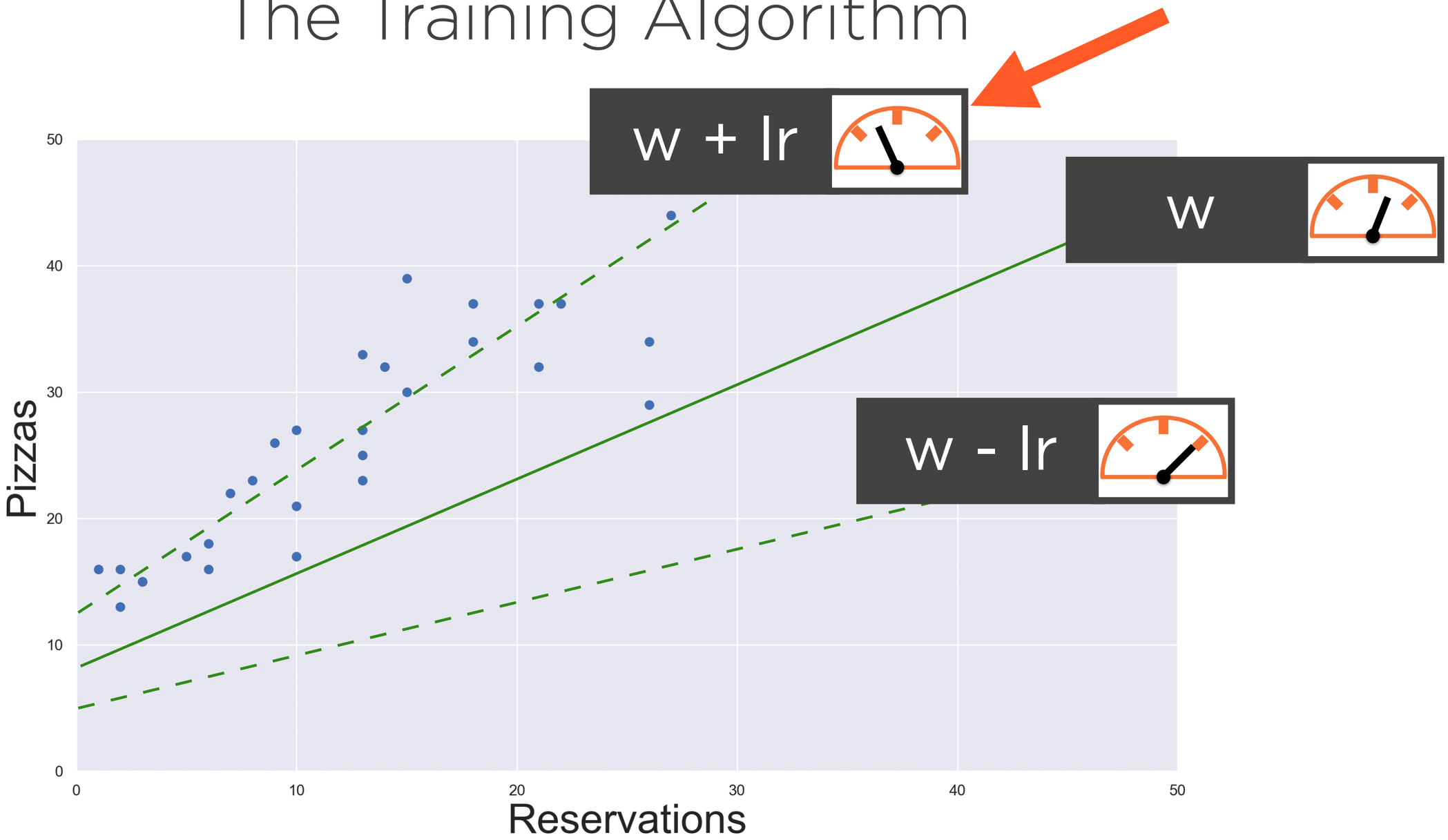
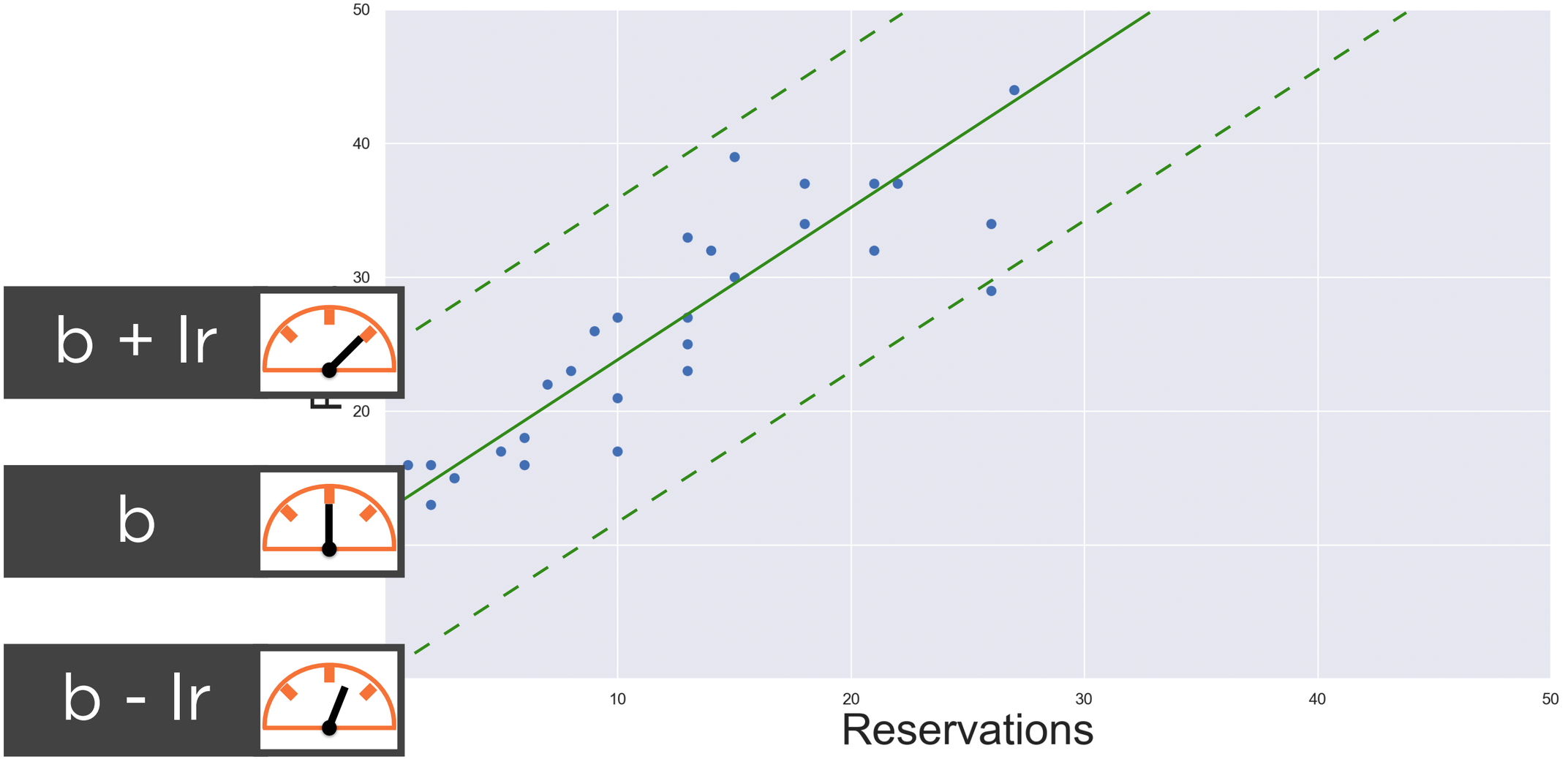
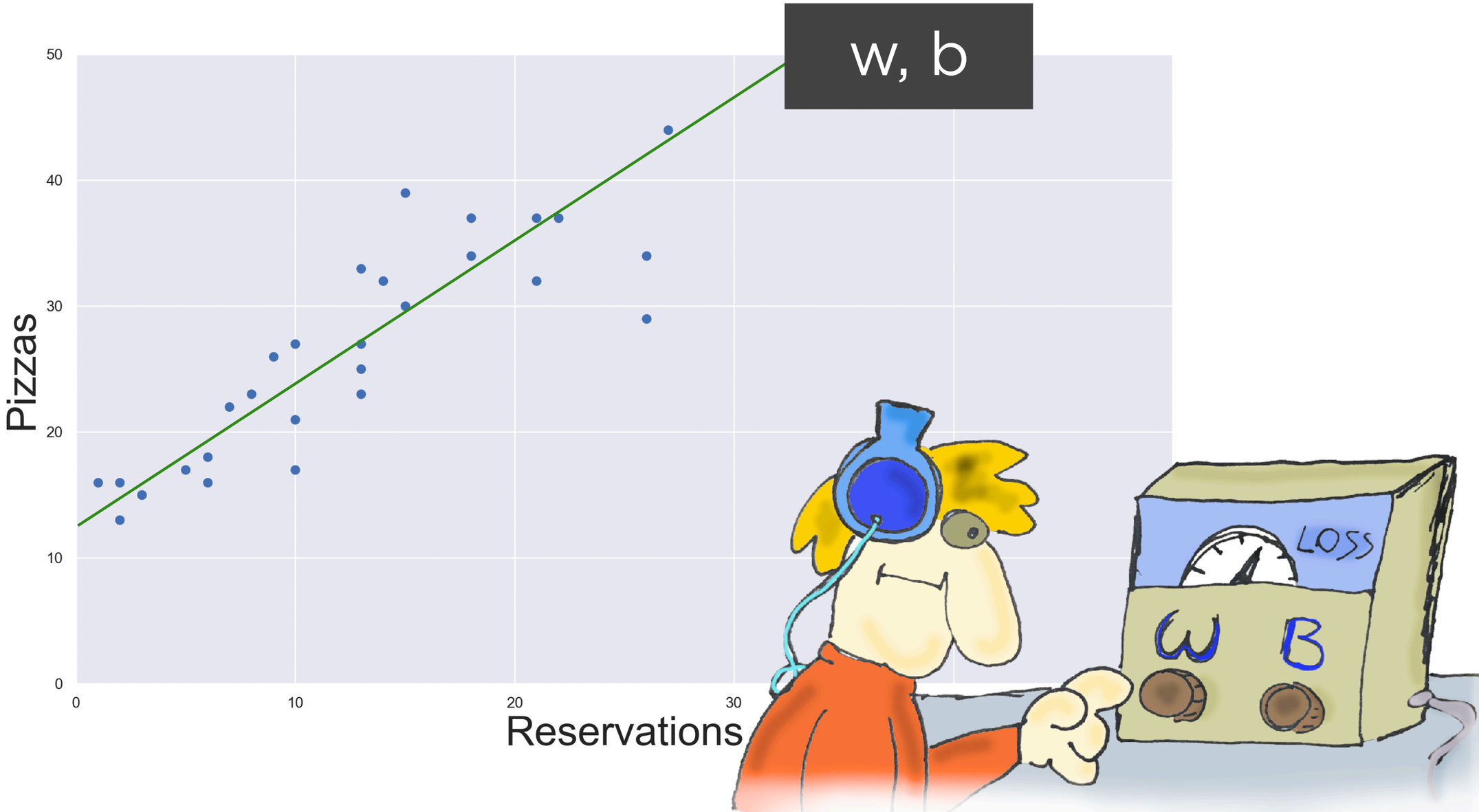
The Training Algorithm



The Training Algorithm



The Training Algorithm



Summary

We looked at the data

We decided to use linear regression

We wrote a supervised learning program

- loss()
- train()
- predict()