

# 3 The big picture



# Problem definition

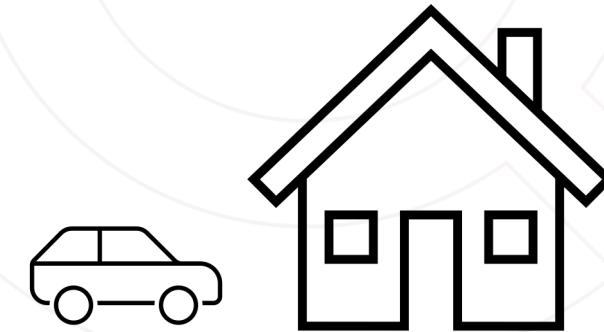
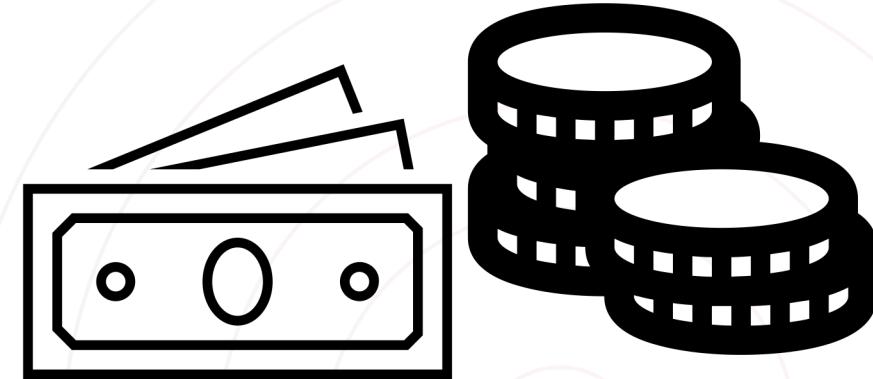
- Automatic feeding system for chickens
- Deciding how much each chicken should get?
- Problem
  - ✓ Roosters and hens look almost the same
  - ✓ Roosters are bigger and require more nutrition





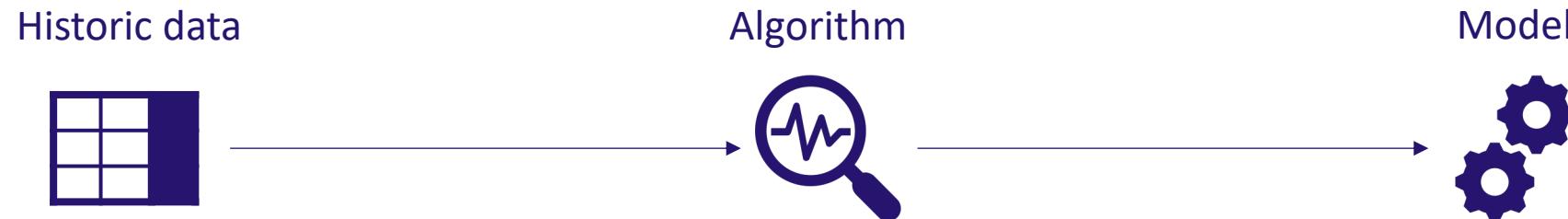
# Problem definition

- Default prediction for bank loans
- Who will be able to repay the loan amount?
- Problem
  - ✓ Default causes big losses for the bank
  - ✓ Find good profiles to grant a loan and avoid risky profiles





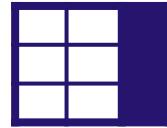
# From data to model





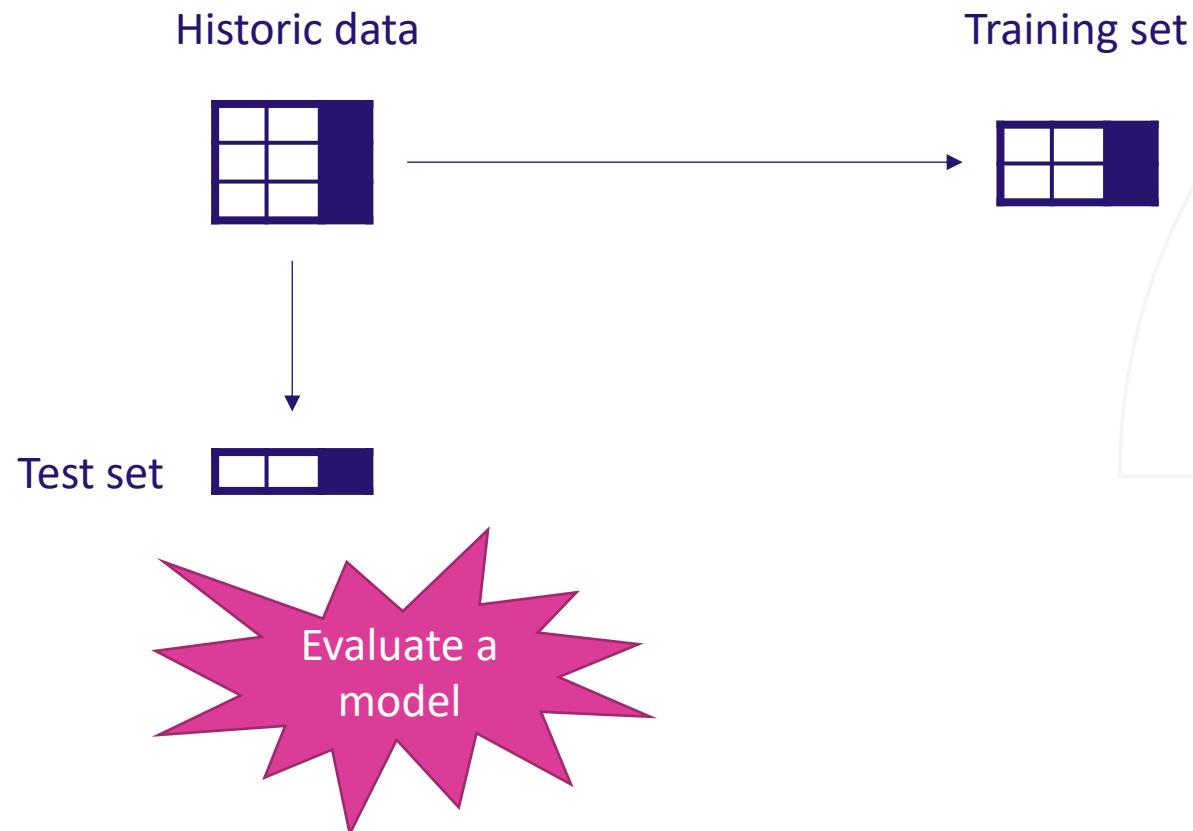
# Complete dataset

Historic data



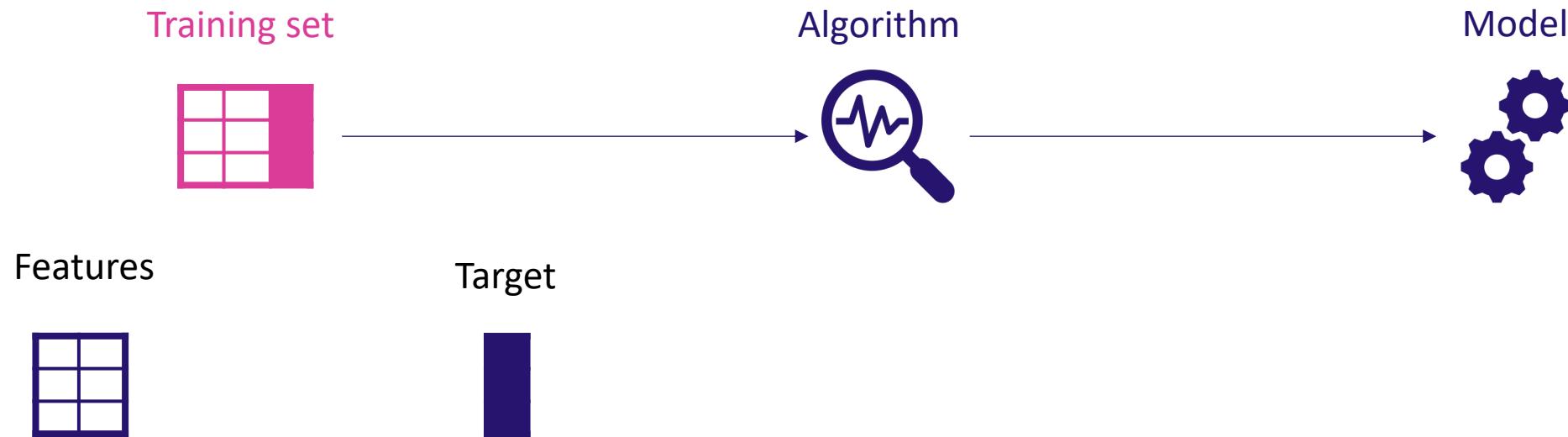


# Data partitioning



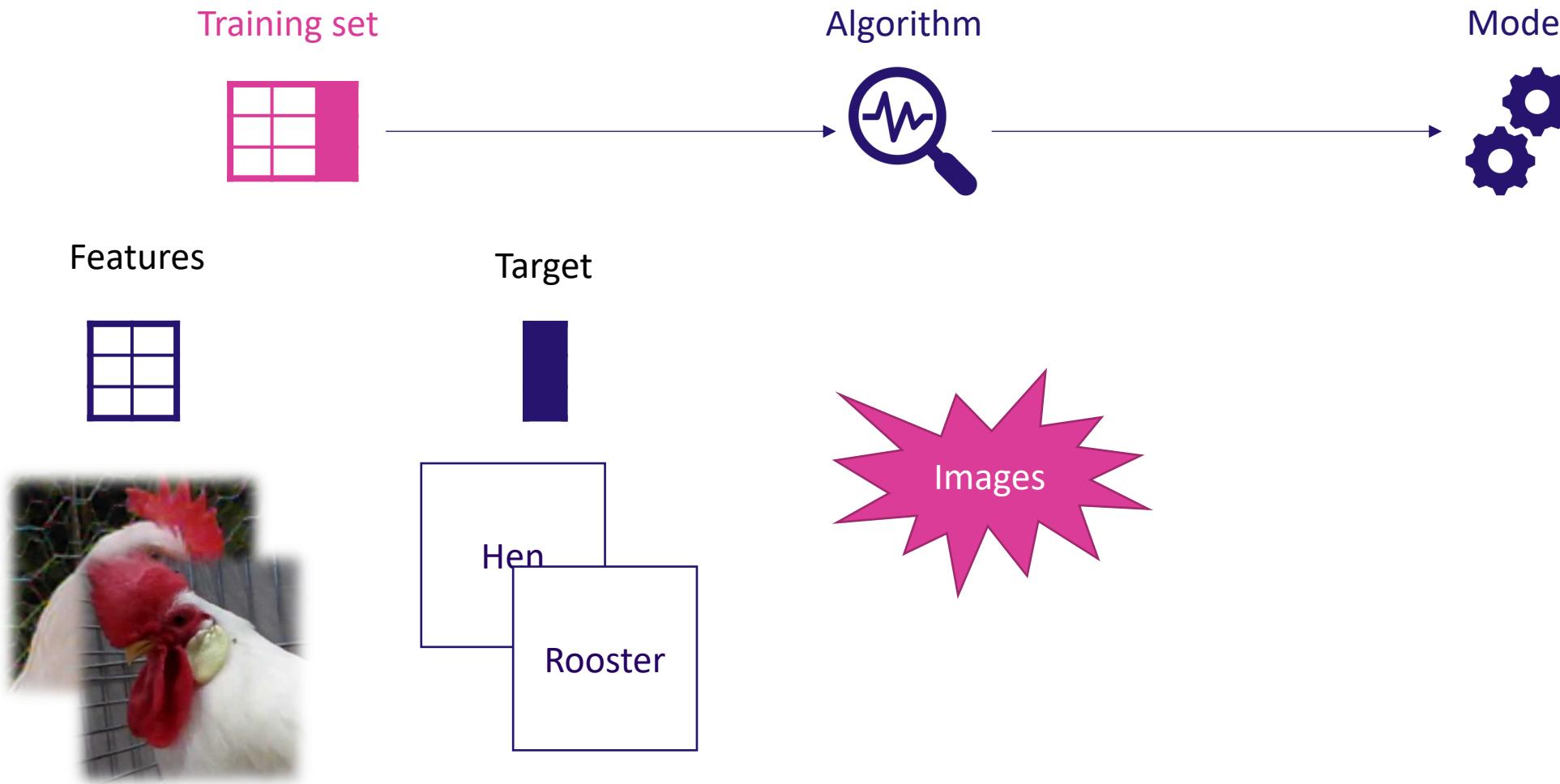


# Training data





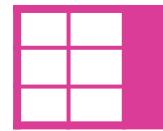
# Unstructured data





# Structured data

Training set



Algorithm



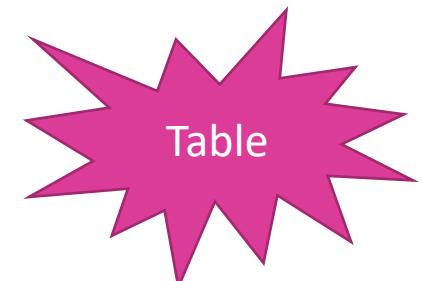
Model



Customer Name	Age	Education	Gender	Default
Joris Maes	62	Low	Male	Yes
Pieter Claes	32	High	Male	No
Nina Peters	25	Low	Female	No

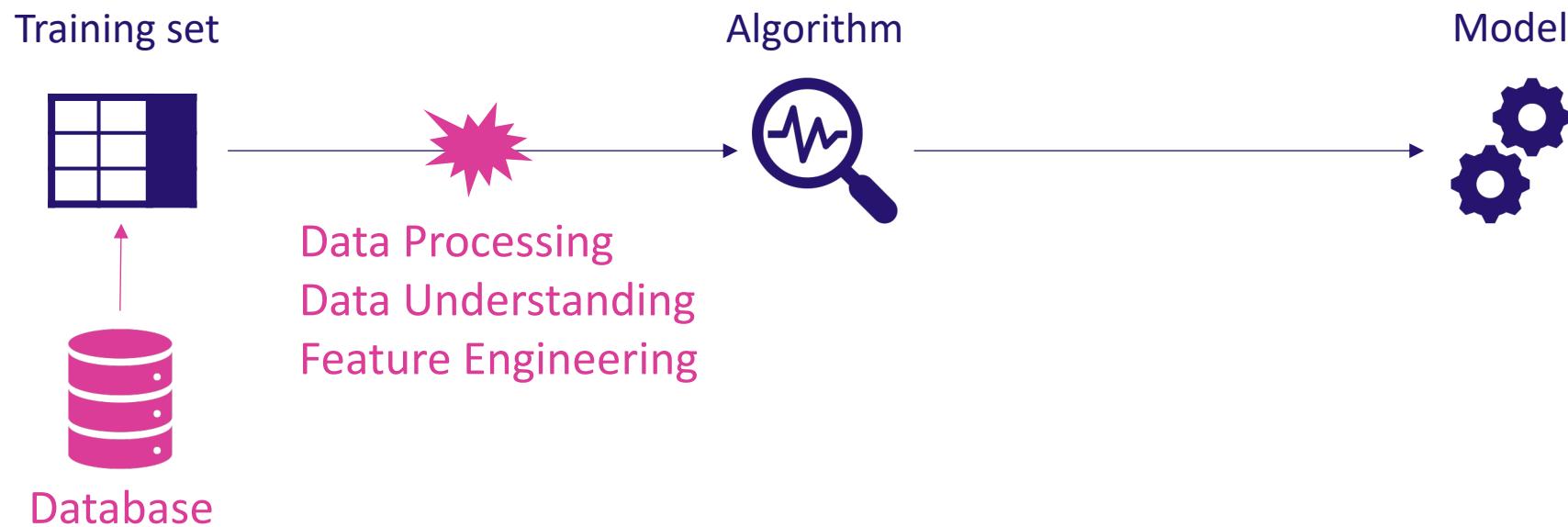
Features

Target



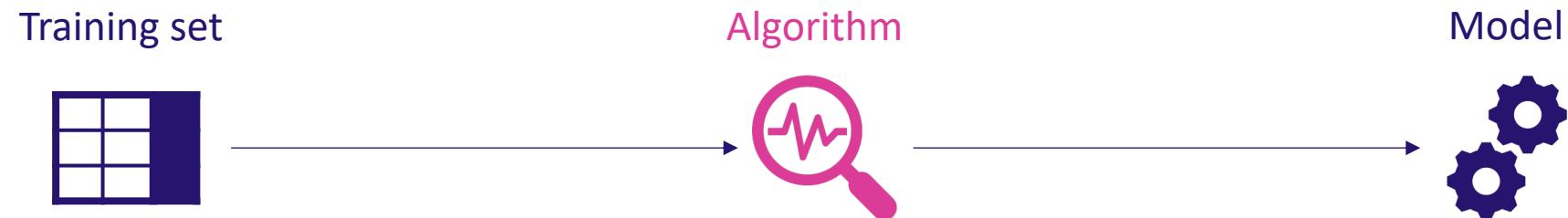


# Data preparation





# Machine learning

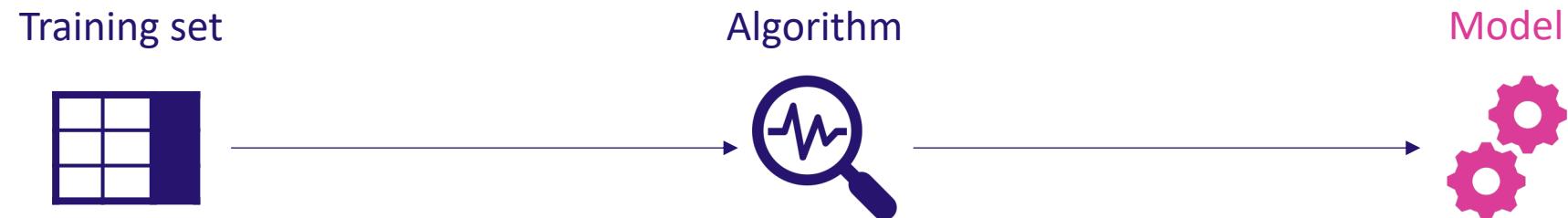


Look for **patterns** that map features to the target

Customer Name	Age	Education	Gender	Default
Joris Maes	62	Low	Male	Yes
Pieter Claes	32	High	Male	No
Nina Peters	25	Low	Female	No
Features				Target



# Model predictions



Customer Name	Age	Education	Gender	Default
Joris Maes	62	Low	Male	Yes
Pieter Claes	32	High	Male	No
Nina Peters	25	Low	Female	No

Erica Maes	27	Low	Female	???
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# Model candidate #1

Training set



Algorithm



Model



Customer Name	Age	Education	Gender	Default
Joris Maes	62	Low	Male	Yes
Pieter Claes	32	High	Male	No
Nina Peters	25	Low	Female	No

IF Customer Young & Female  
Then Default No

Erica Maes	27	Low	Female	No
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# Model candidate #2

Training set



Algorithm



Model



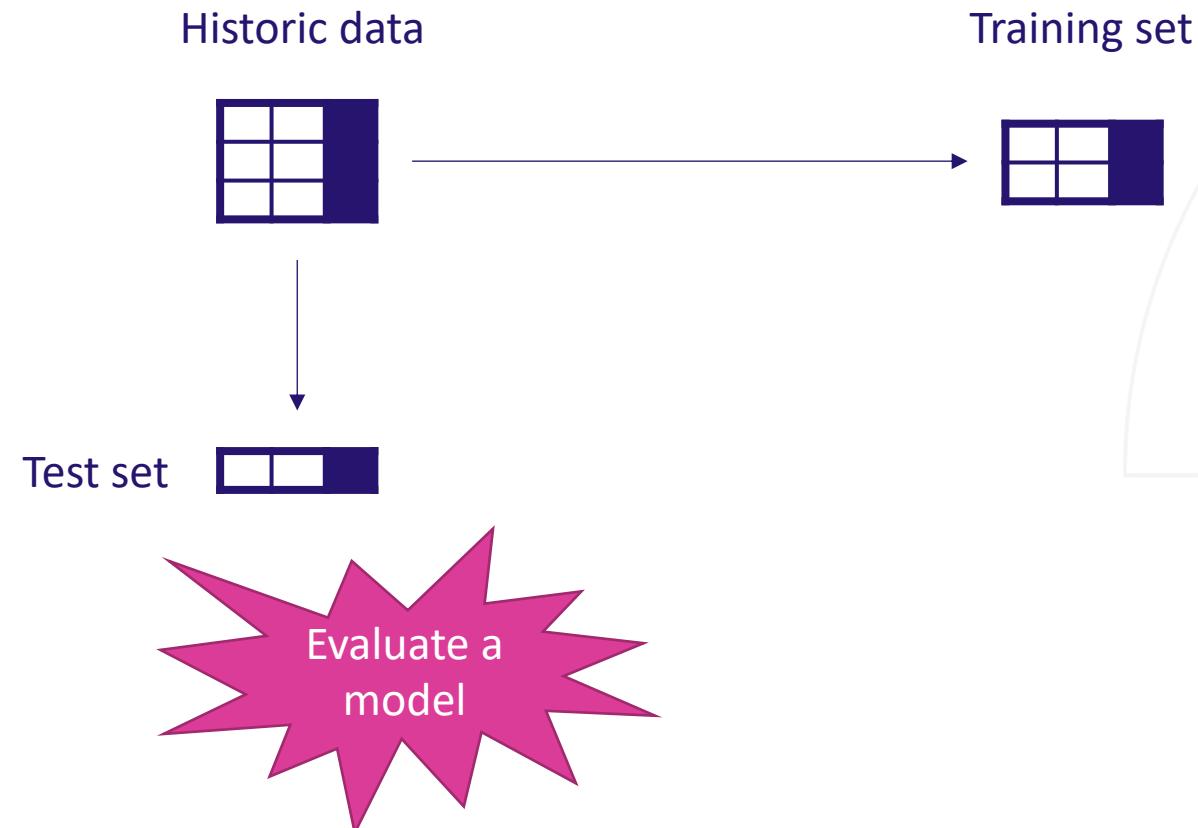
Customer Name	Age	Education	Gender	Default
Joris Maes	62	Low	Male	Yes
Pieter Claes	32	High	Male	No
Nina Peters	25	Low	Female	No

IF Customer Name "Maes"  
Then Default Yes

Erica Maes	27	Low	Female	Yes
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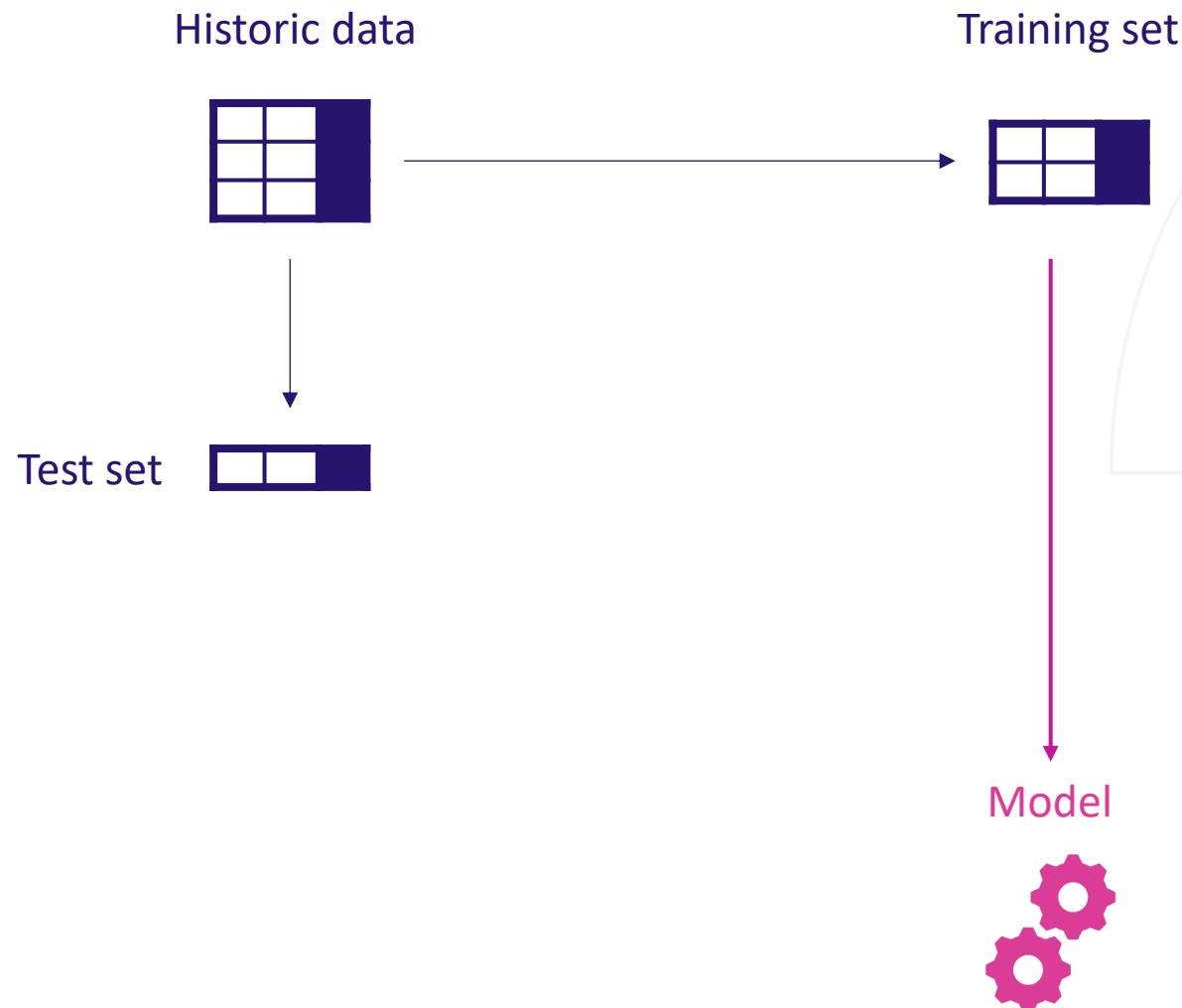


# Which model to choose?



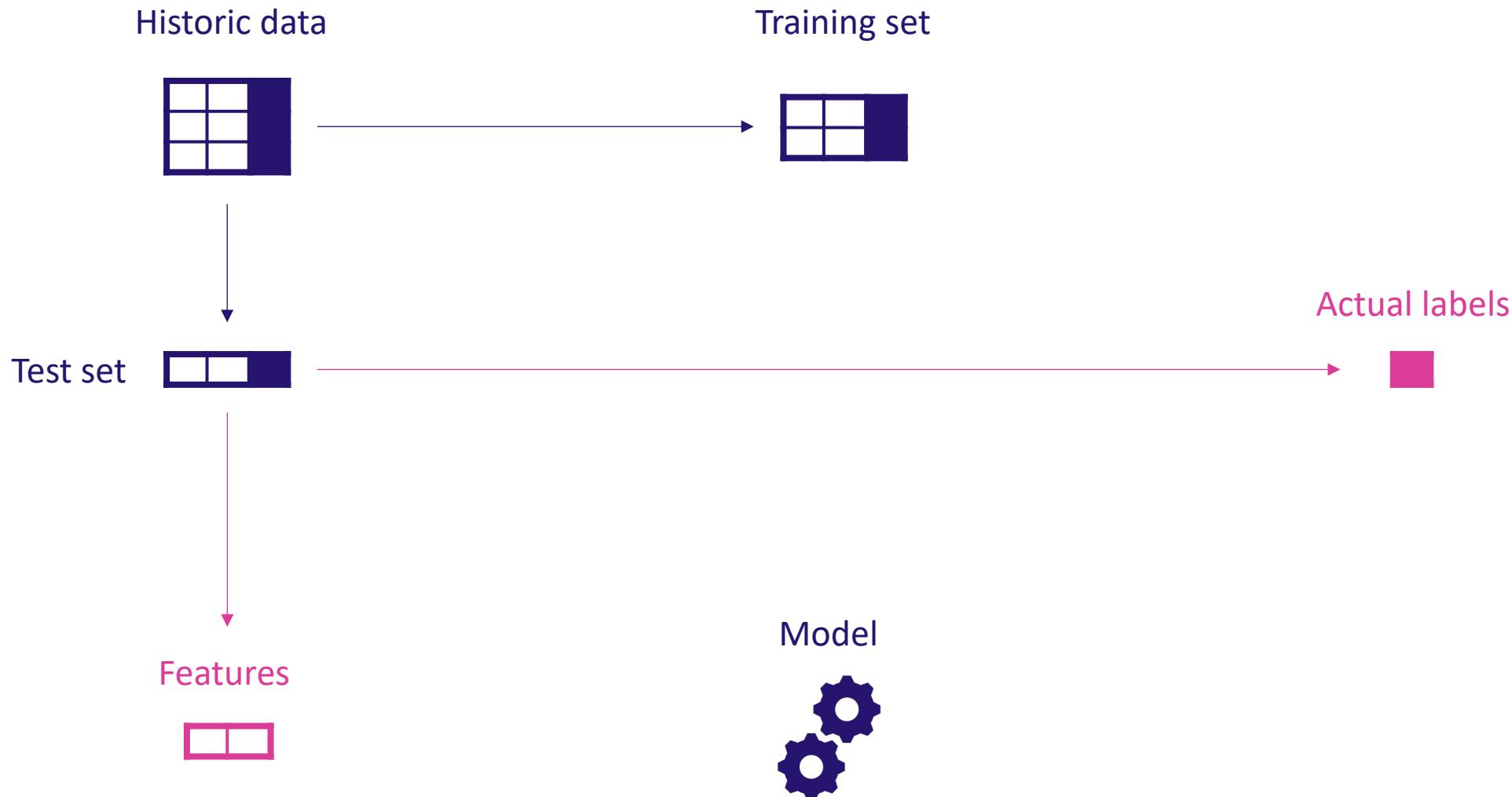


# Trained model



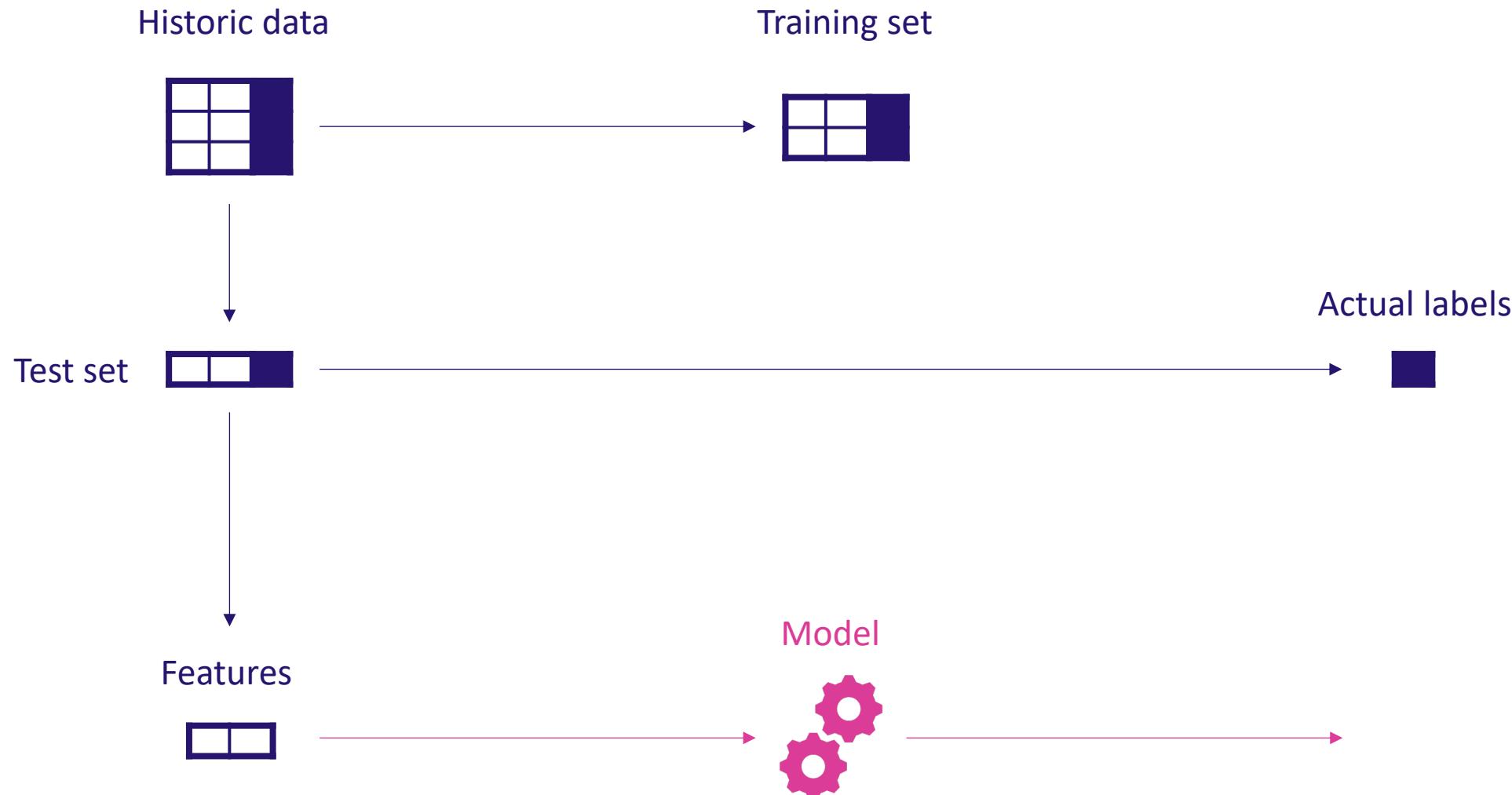


# Evaluating a Model



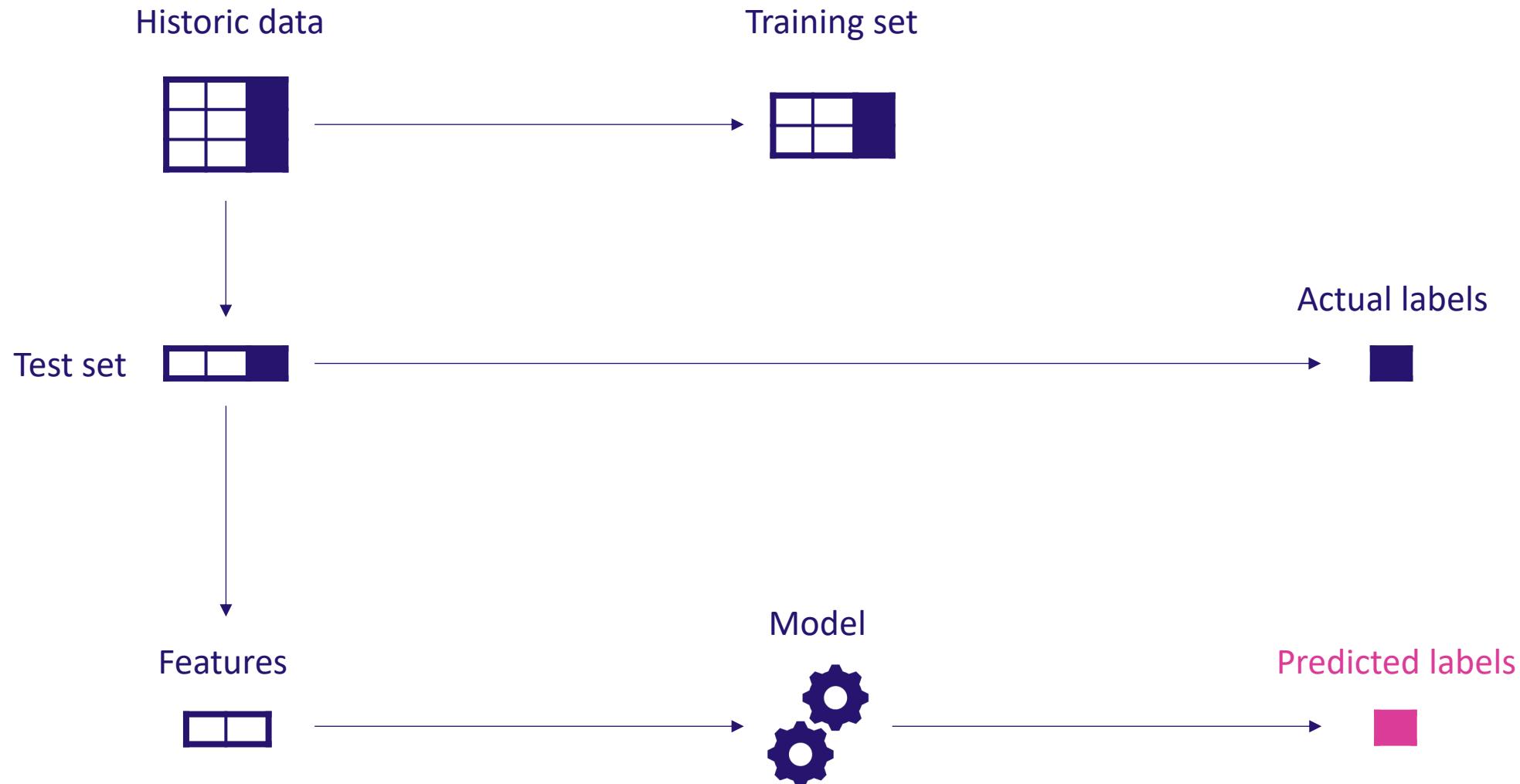


# Evaluating a Model



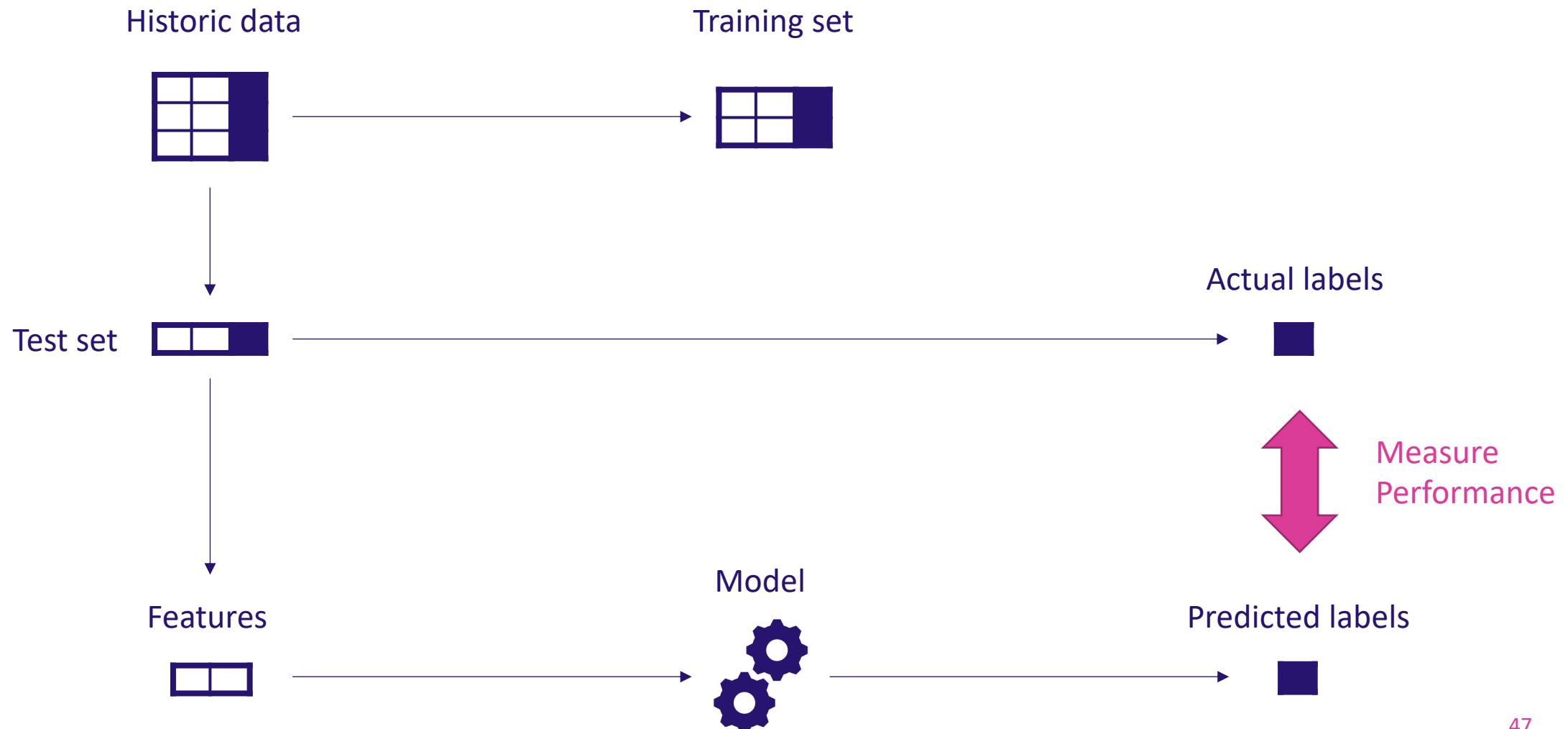


# Evaluating a Model



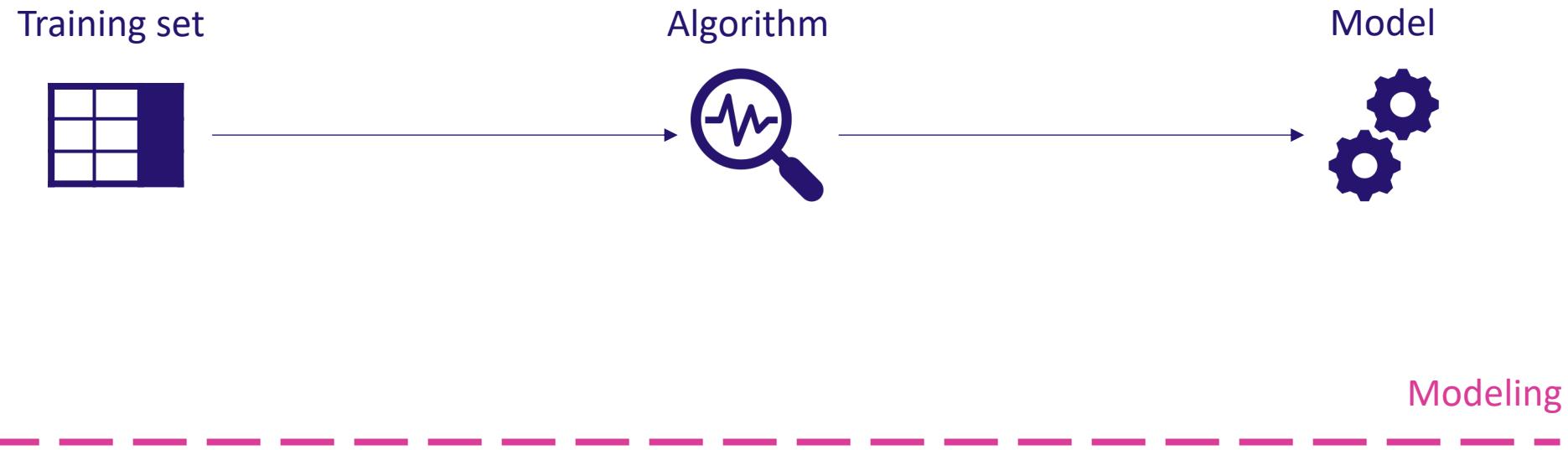


# Evaluating a Model



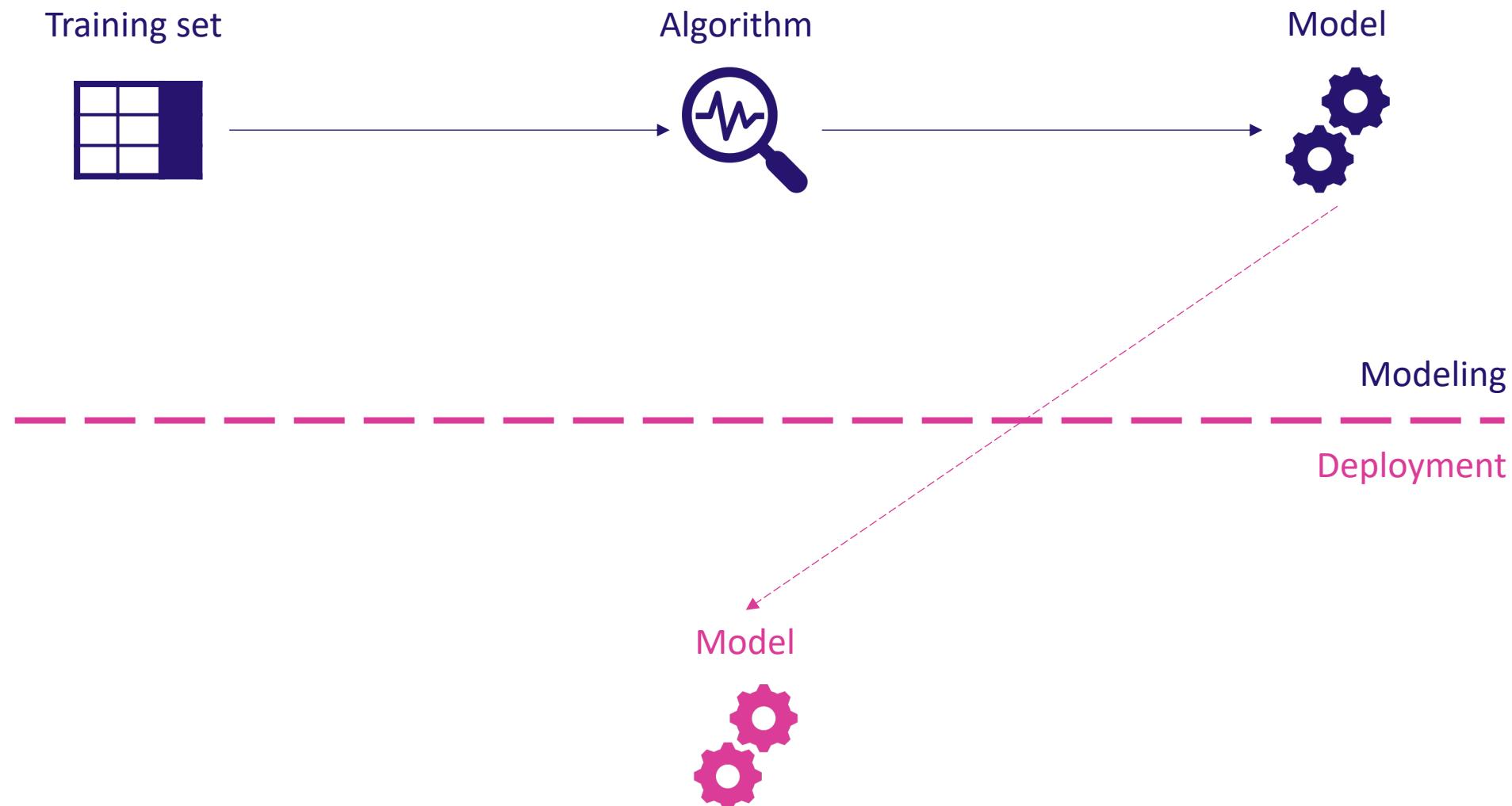


# Modeling



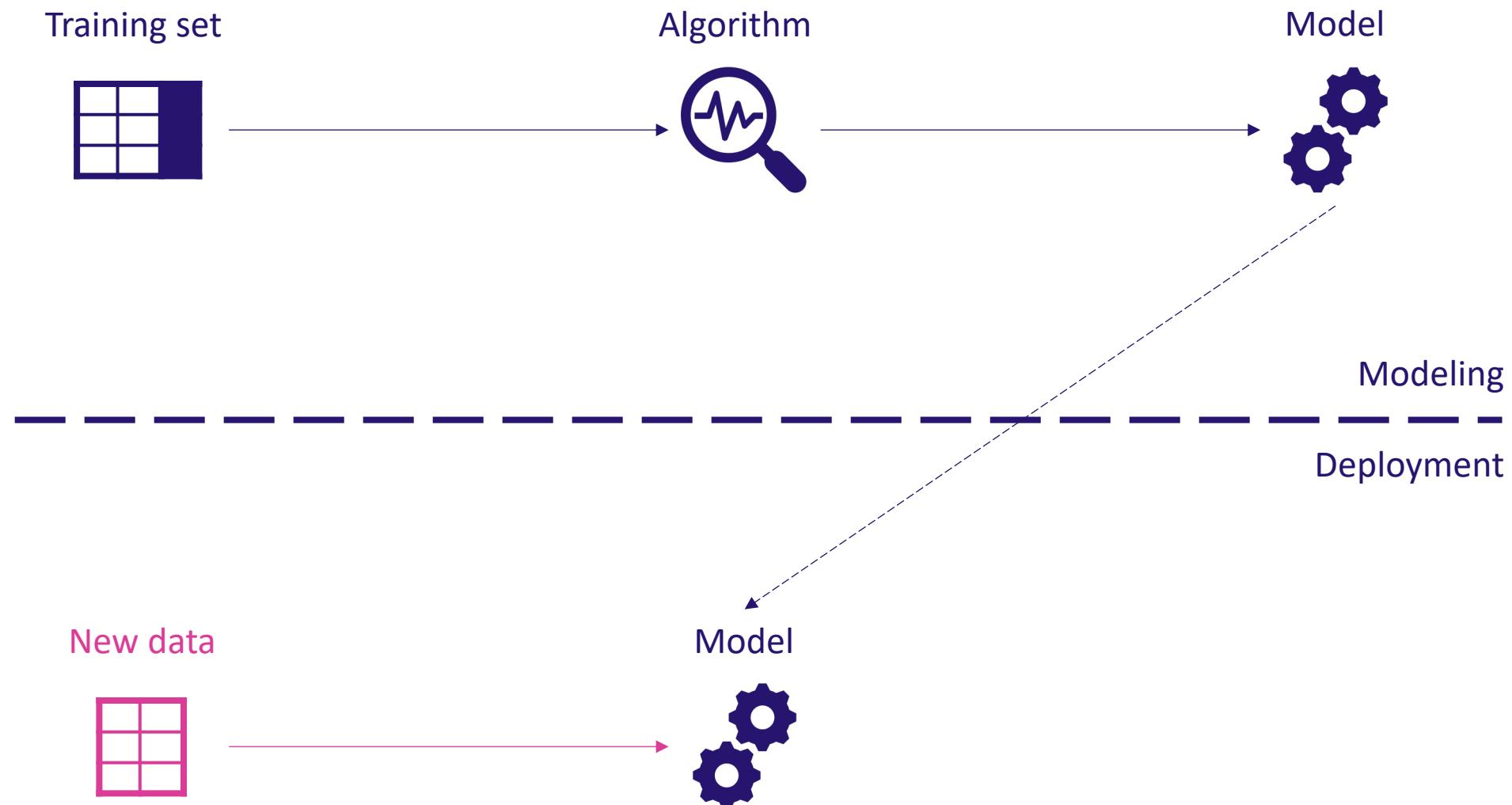


# Deployment



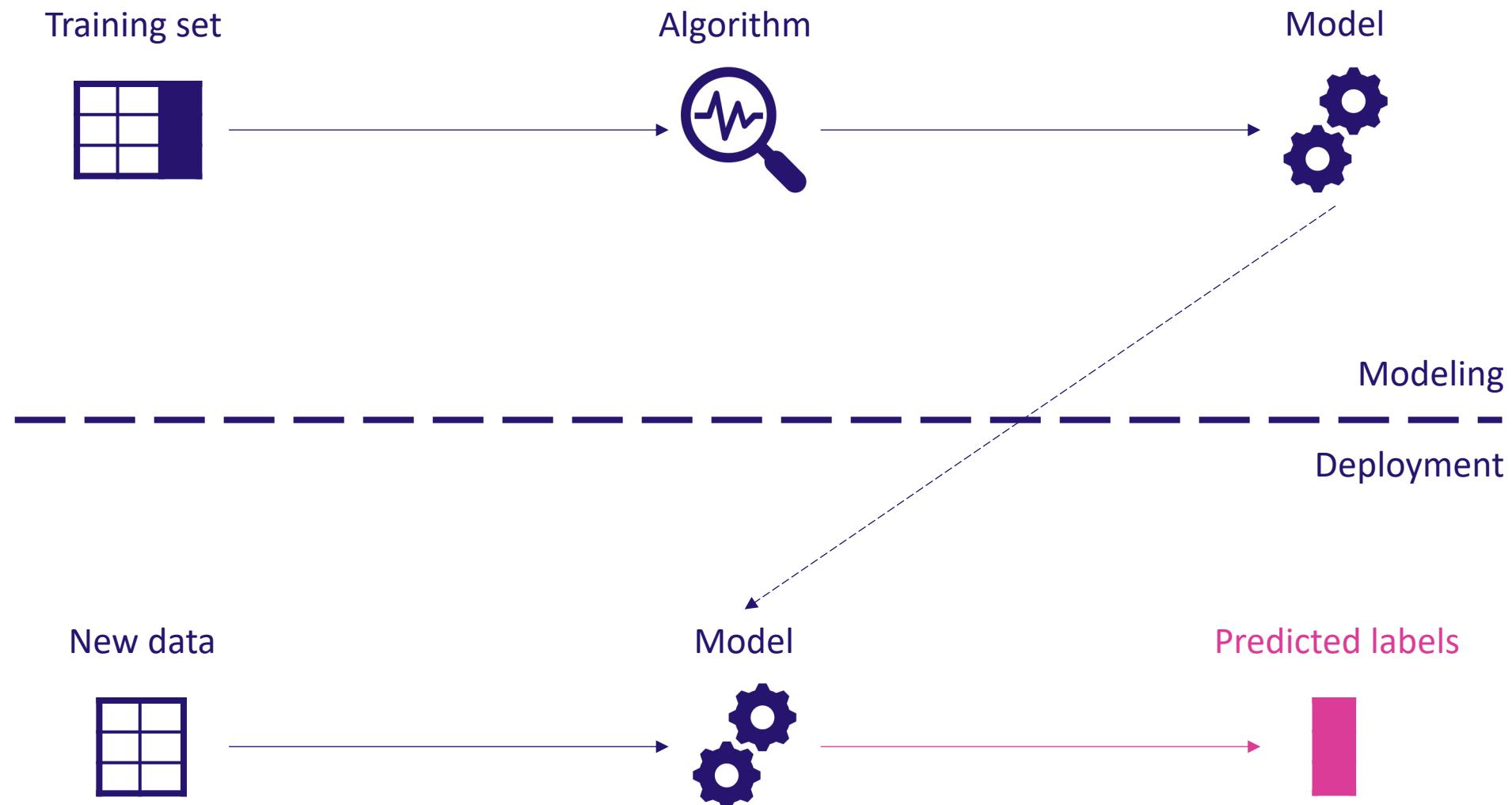


# Deployment





# Deployment





# Deployment

