# Effective Testing For Machine Learning Projects

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# Why bother?

→ Bugs are inevitable

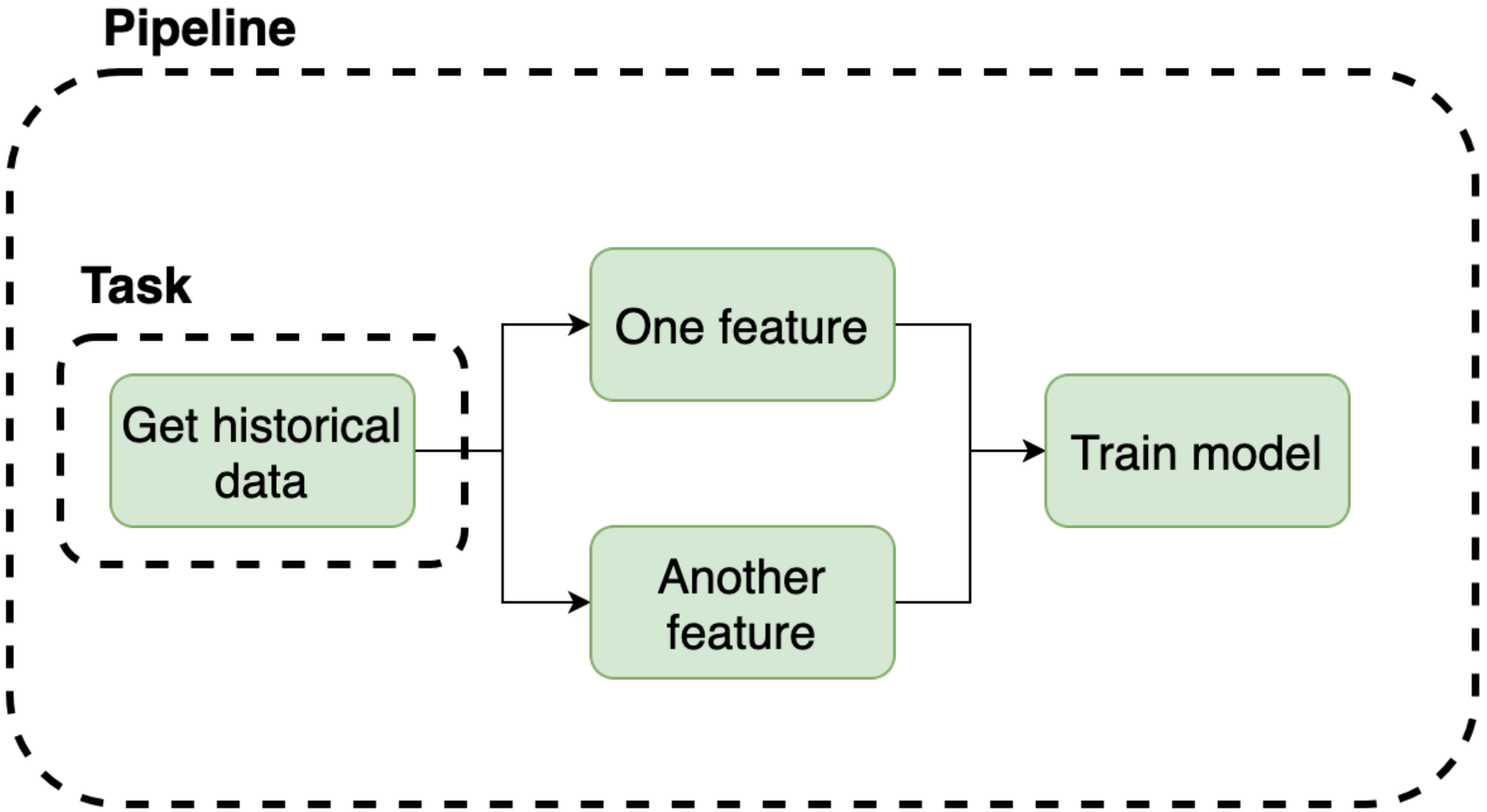
→ You rather catch them during development or in production?

→ It speeds up progress in the long run

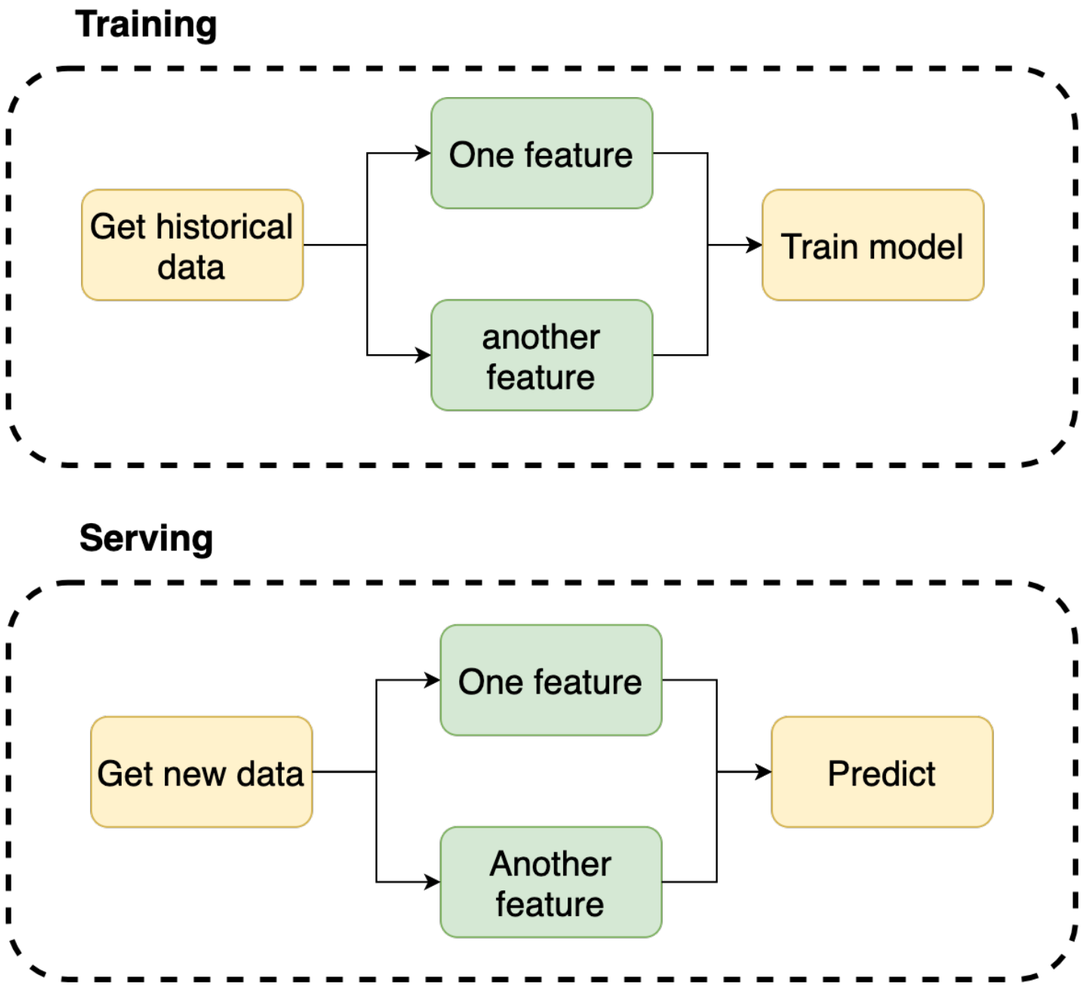
# An Effective Approach

***Strike a good balance that allows you to experiment fast with confidence.***

# Concepts: Pipeline and Task



# Concepts: Training and Serving Pipeline



# Code

```
git clone https://github.com/edublancas/ml-testing
```

# Level 1: Smoke Testing

Objective: Ensure that our code runs.

```
git checkout 1-smoke-testing
```

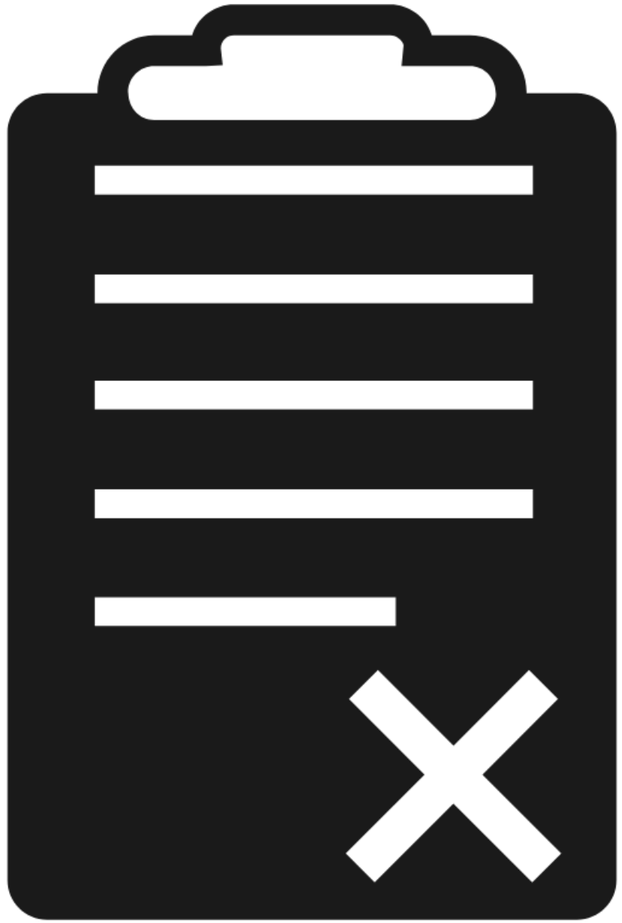
*Tip: test with a random sample*

# Level 2: Integration and Unit Testing

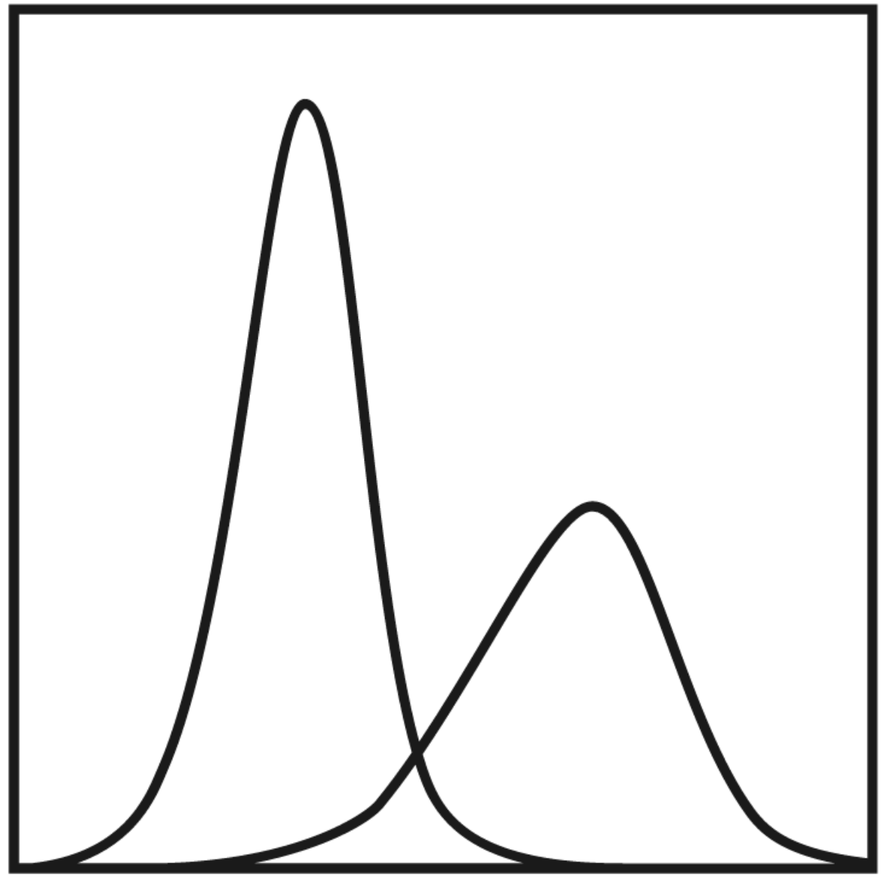
Objectives:

1. Prevent training using low-quality data.
2. Detect bugs in data transformations.

```
git checkout 2-integration-and-unit
```



# Level 3: Distribution Changes and Serving Pipeline



Objectives:

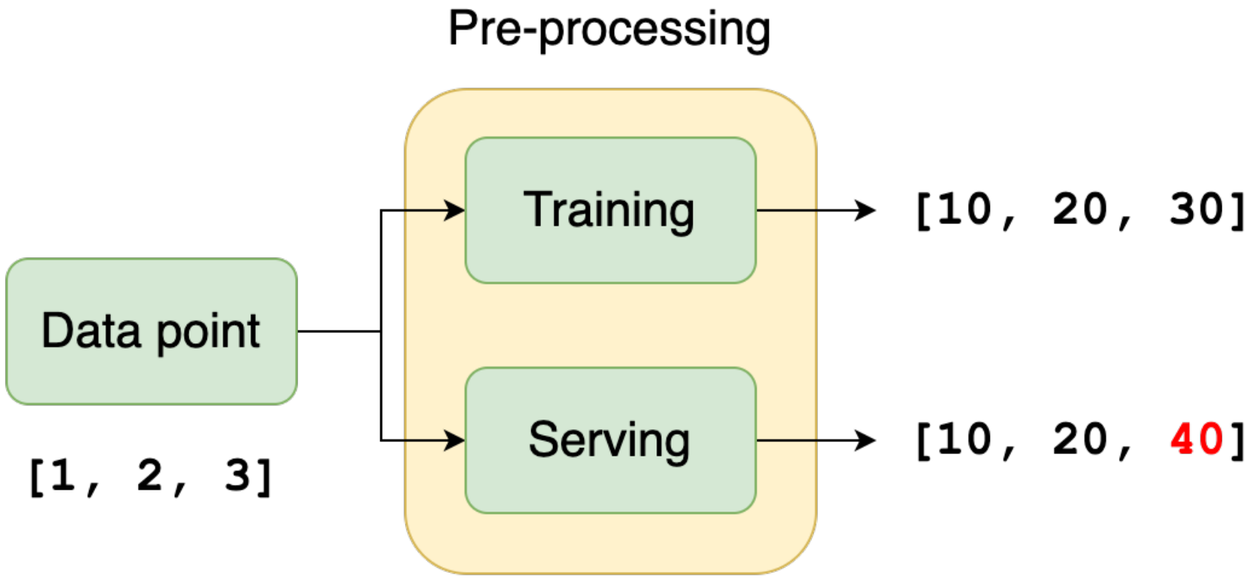
1. Detect changes in data distributions.
2. Ensure we can use our model to predict.

```
git checkout 3-distribution-and-inference
```

# Level 4: Training-Serving Skew

Objective: Ensure processing consistency at training and serving time.

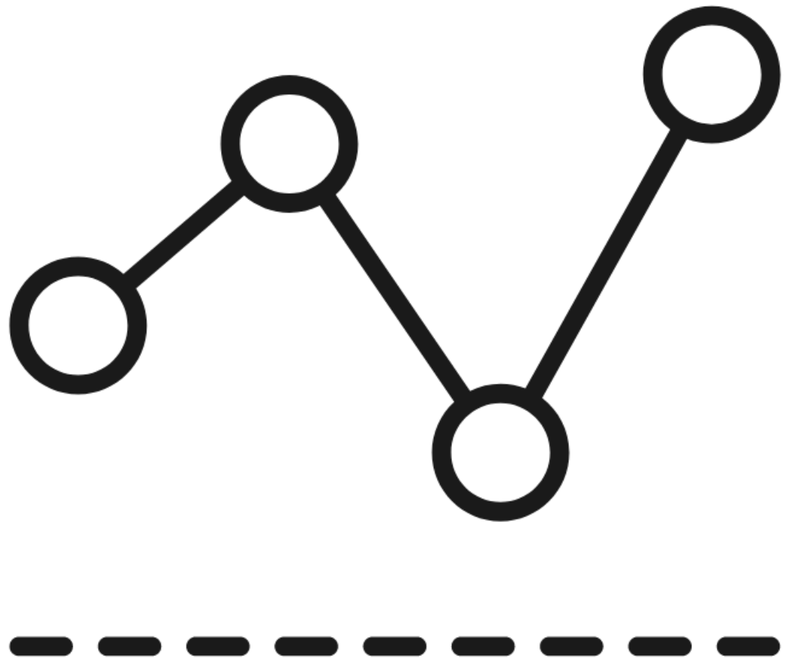
```
git checkout 4-train-serve-skew
```



# Level 5: Model Quality

Objective: Ensure quality of the training pipeline.

```
git checkout 5-model-quality
```



# Resources

→ Get the code: github.com/edublancas/ml-testing

→ Blog post coming out soon: ploomber.io/blog

→ Ploomber: github.com/ploomber/ploomber

→ Questions? Reach out on Twitter: @edublancas