Resampling Techniques - 101

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Resampling Techniques - 101

Problem of Train / Validation / Test Split

All Data

Data

Best training
→ Max!

Best validation
→ Max!

Resampling Techniques - 101
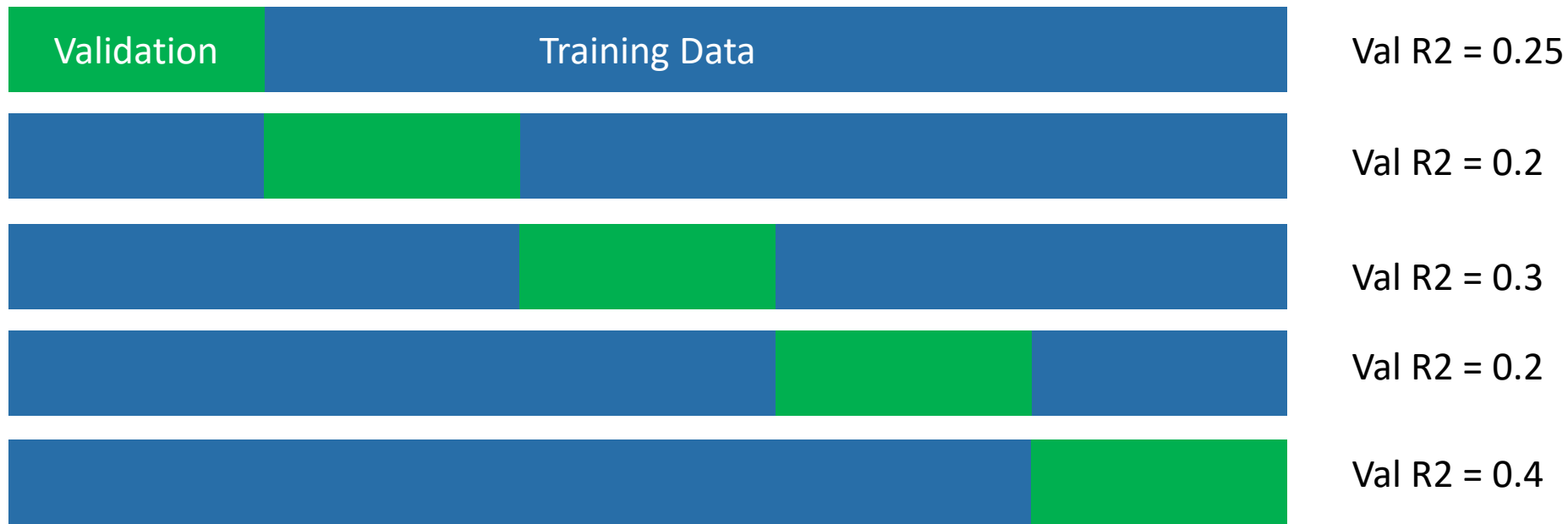
Solution: k-fold Cross-Validation

- Create k different training/validation sets
- Average validation set performance

Resampling Techniques - 101
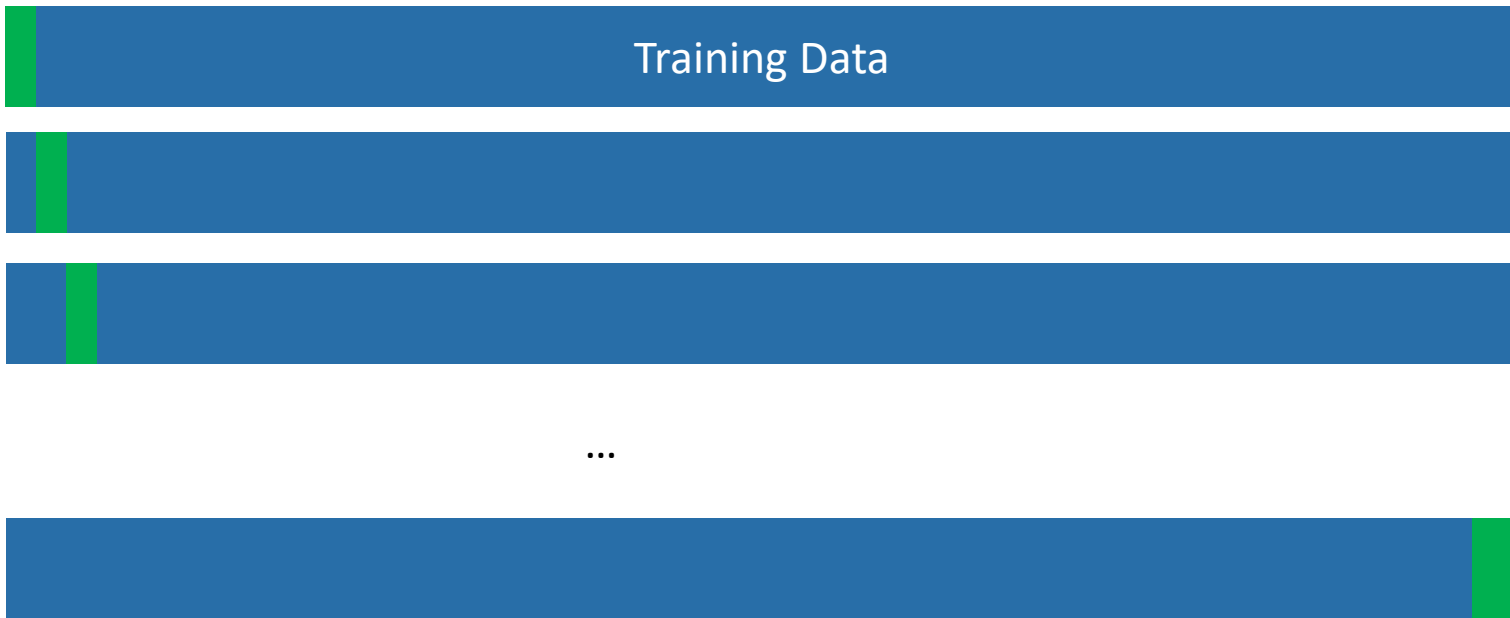
Example: 5-fold Cross Validation

- Averaged Performance = 0.27

Validation	Training Data

Val R2 = 0.25

Val R2 = 0.2

Val R2 = 0.3

Val R2 = 0.2

Val R2 = 0.4

Resampling Techniques - 101

Leave One Out Cross Validation (LOOCV)

- Use all data for training, except one dataset
- One dataset used for validation

Training Data

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Resampling Techniques - 101

Advantages / Disadvantages

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- better / more stable results
- good to compare different ML algorithms
- good for analysing hyperparameter tuning

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- Higher computational effort