



Data Mining with Weka

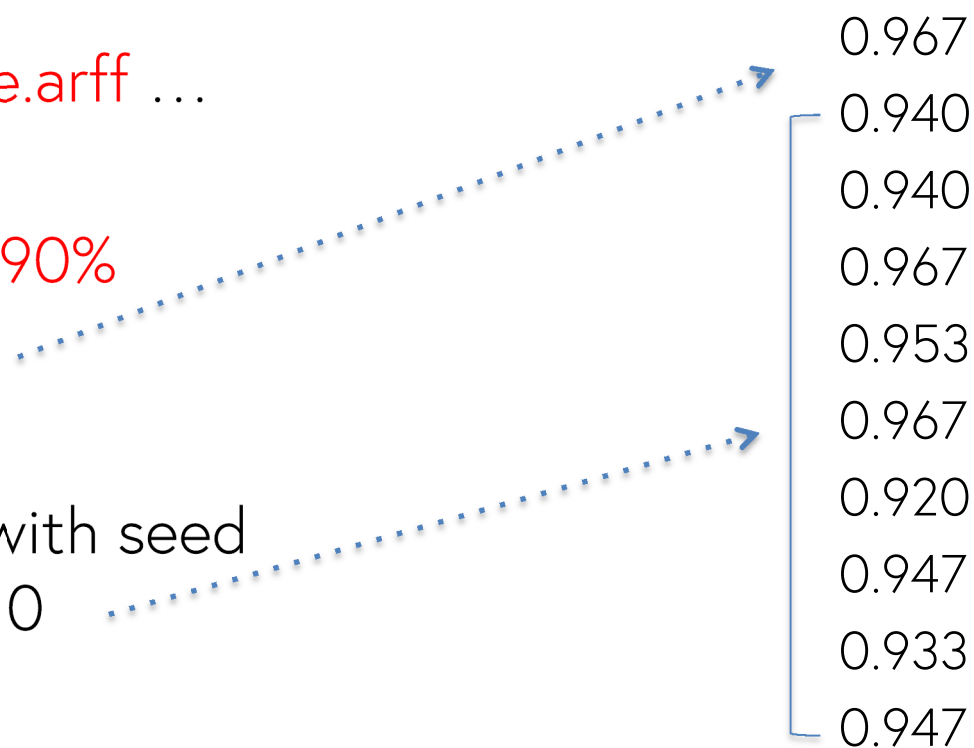
Repeated training and testing

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Repeated training and testing

Evaluate J48 on segment-challenge

- ❖ With `segment-challenge.arff` ...
- ❖ and J48 (`trees>J48`)
- ❖ Set `percentage split` to `90%`
- ❖ Run it: 96.7% accuracy
- ❖ Repeat
- ❖ [`More options`] Repeat with seed
2, 3, 4, 5, 6, 7, 8, 9 10



Repeated training and testing

Evaluate J48 on segment-challenge

| | | |
|--------------------|---|-------|
| Sample mean | $\bar{x} = \frac{\sum x_i}{n}$ | 0.967 |
| | | 0.940 |
| Variance | $\sigma^2 = \frac{\sum (x_i - \bar{x})^2}{n - 1}$ | 0.940 |
| | | 0.967 |
| Standard deviation | σ | 0.953 |
| | | 0.967 |
| | | 0.920 |
| | | 0.947 |
| | | 0.933 |
| | | 0.947 |

$$\bar{x} = 0.949, \sigma = 0.018$$

Repeated training and testing

- ❖ Basic assumption:
training and test sets sampled independently from an infinite population
- ❖ Expect slight variation in results ...
- ❖ ... get it by setting the random-number seed
- ❖ Can calculate mean and standard deviation experimentally