```
                    ┌─────────────────────────┐
                    │   feature   selection   │
                    └─────────────────────────┘
                   /            |              \
```
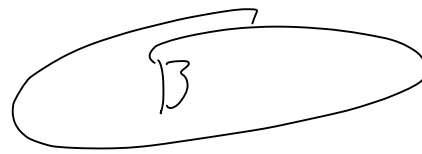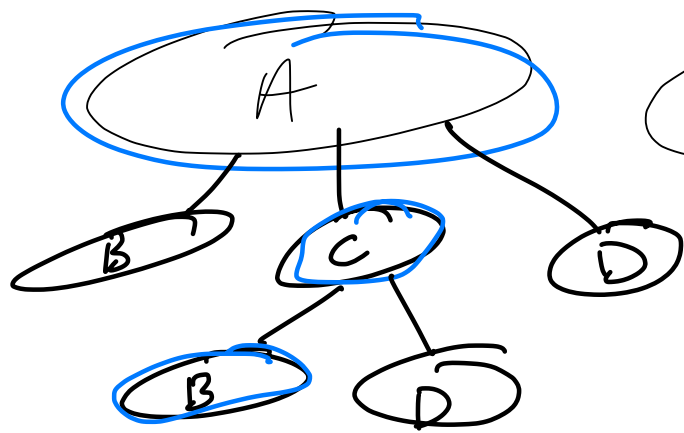
filter-based

- features ranked prior to ML model

wrapper-based

- feature subset determined by using ML model to score

embedded method

- predictor builds using subset of features selected by model
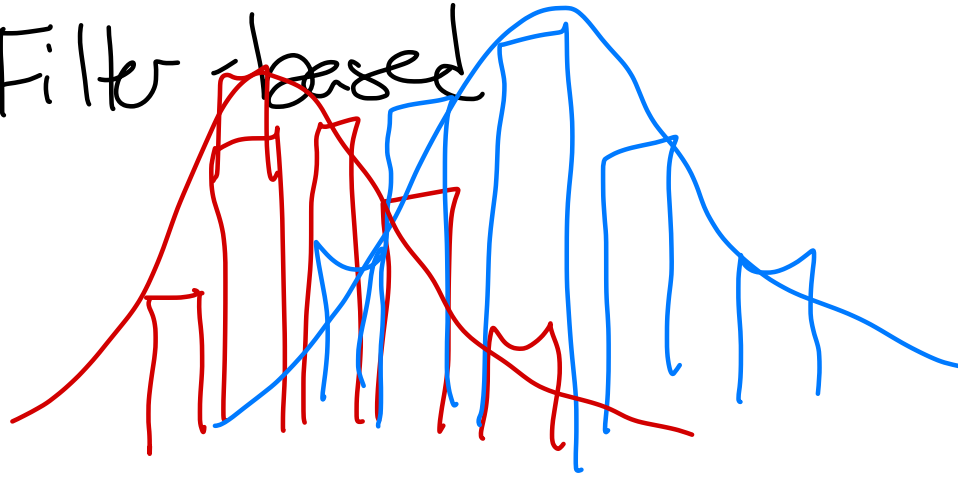
A
B
C
D
AB
AC
AD
BC
BD
CD

ABC
ABD
ACD
BCD
ABCD

$$2^P - 1$$

Filter-based

	survived	died
male		
female		

$$\chi^2$$

$$\chi^2 = \sum_{v \in Fvals} \sum_{c \in Classes} \frac{(O_{vc} - E_{vc})^2}{E_{vc}}$$

- permutation feature importance

  train model on all feats

  evaluate on validation

  repeat:

  shuffle values across all samples of 1 feature

  predict and evaluate model