

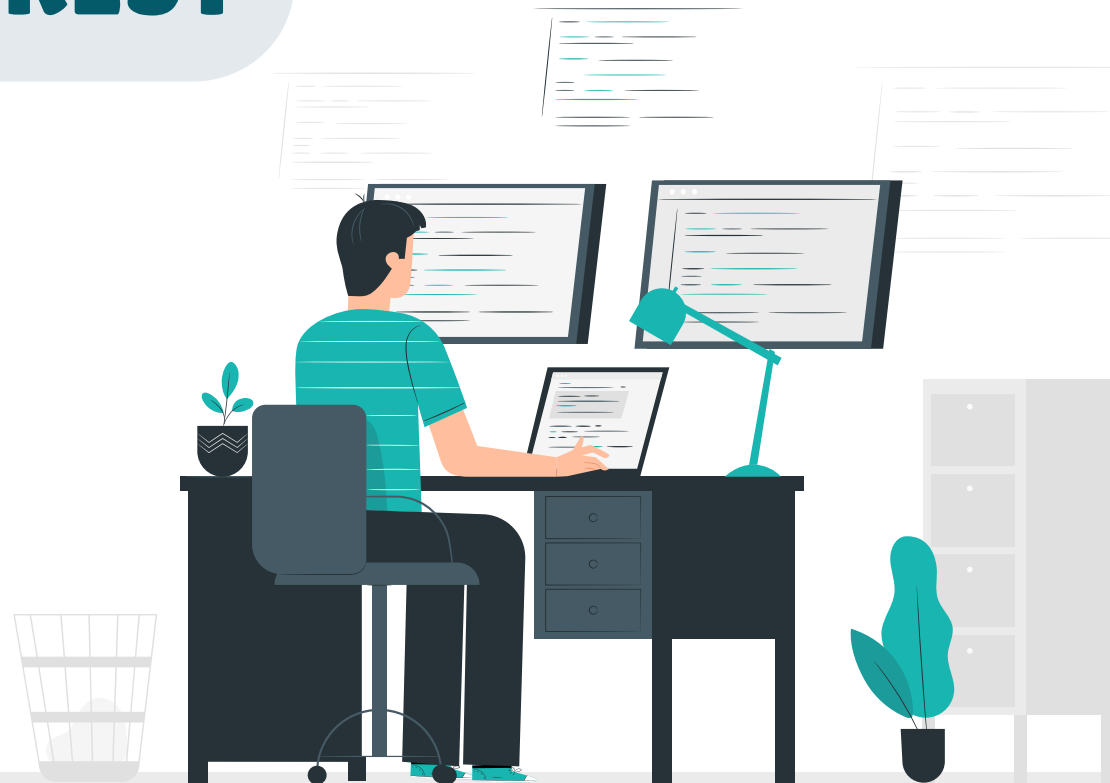


ROTATION FOREST

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Staf Pengajar
Prodi Statistika dan Sains Data
IPB University



METHODS DEVELOPMENT

Classification Tree

Leo Breiman, Friedman, Olshen, Stone
(1988)

Random Forest

Leo Breiman
(2001)

(1996)

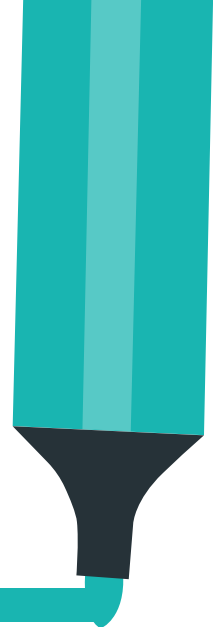
Leo Breiman

Bagging

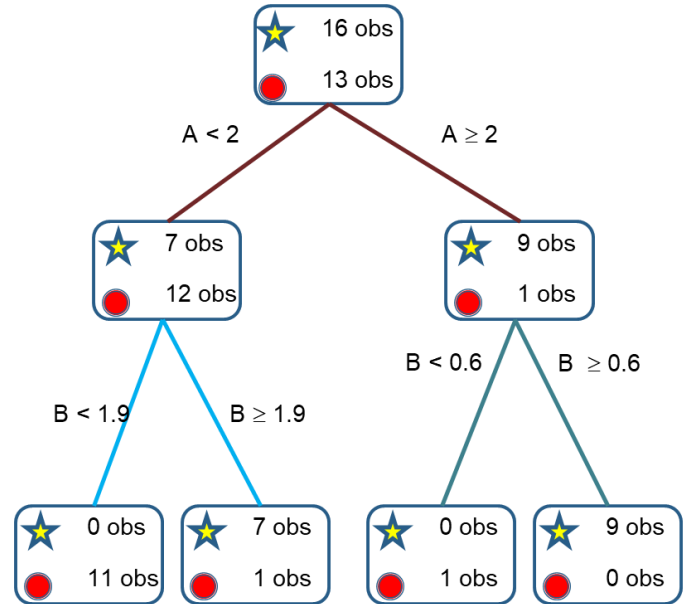
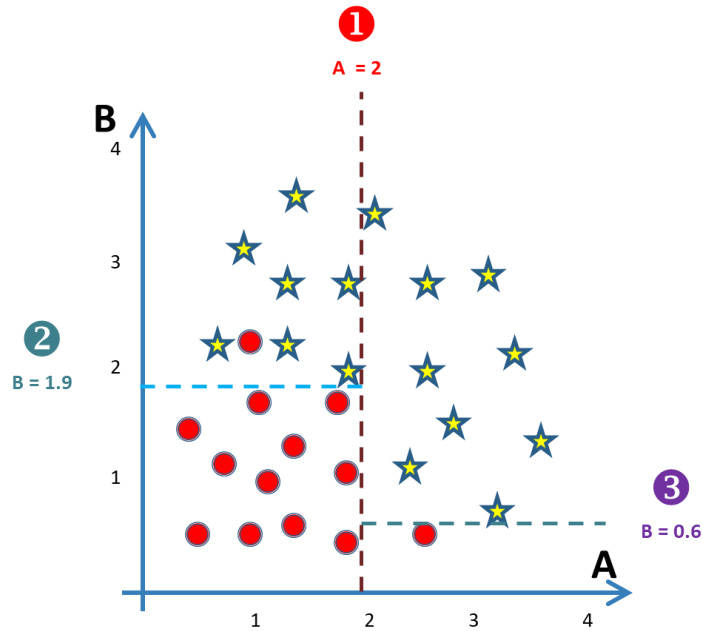
(2006)

Rodriguez, Kuncheva, Alonso

Rotation Forest



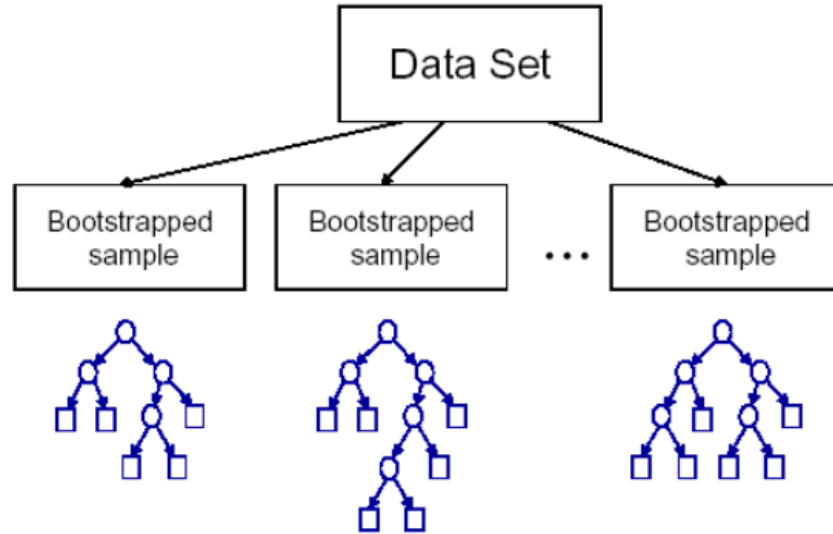
CLASSIFICATION TREE



BAGGING & RANDOM FOREST

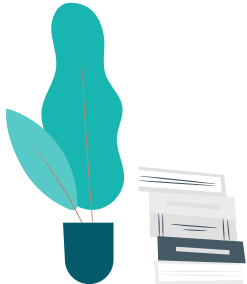
Bagging

- Bootstrap sampling
- Majority vote

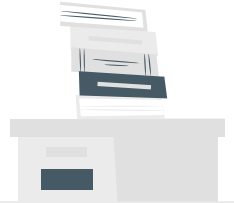
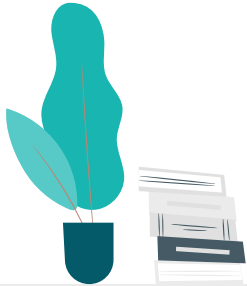
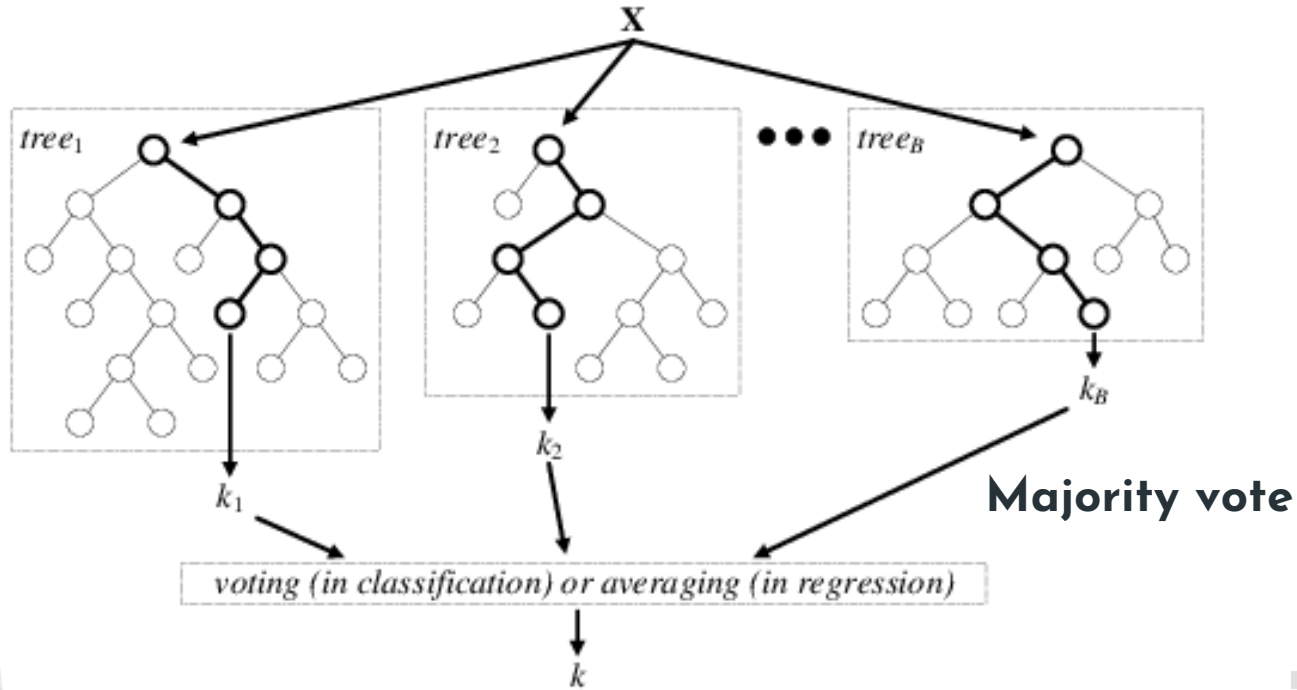


Random Forest

- Bootstrap sampling
- M variabel dipilih acak sebagai splitter node
- Majority vote



BAGGING & RANDOM FOREST



PROBLEM??



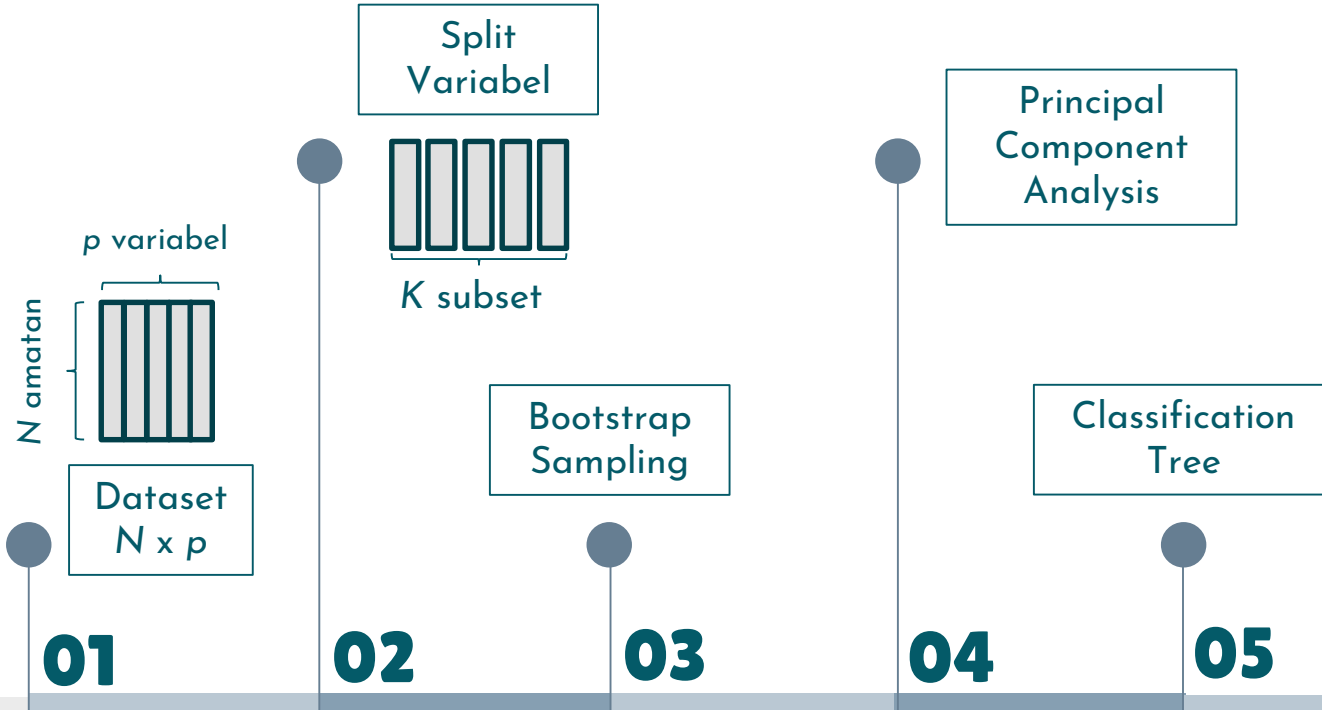
Pohon yang dibuat independen, tapi output-nya tidak independen



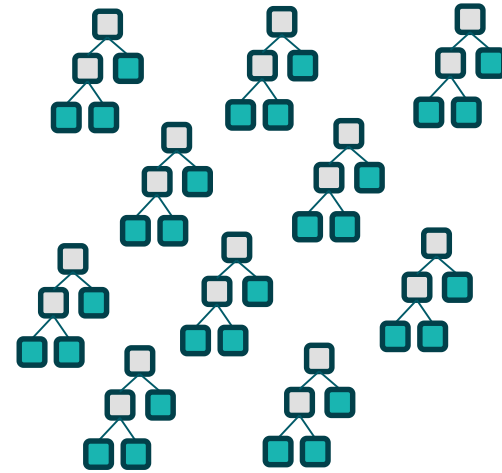
Butuh 100-500 pohon untuk stabil



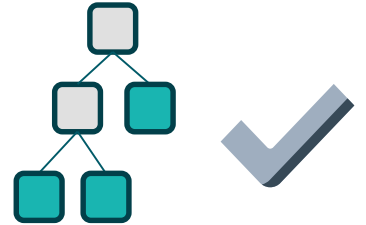
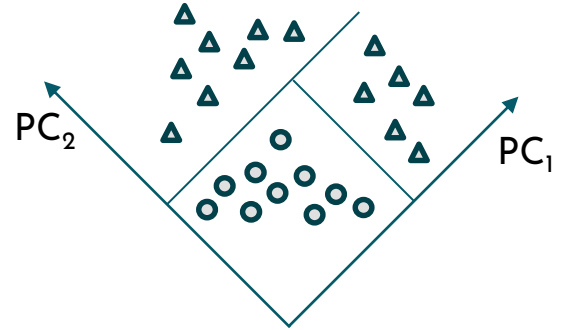
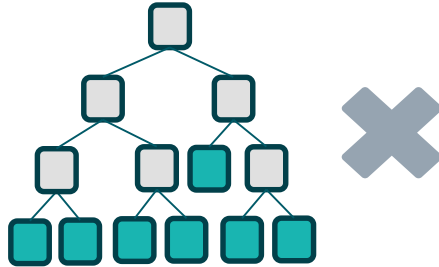
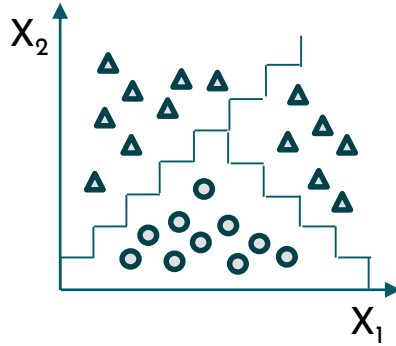
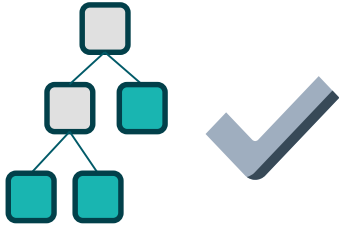
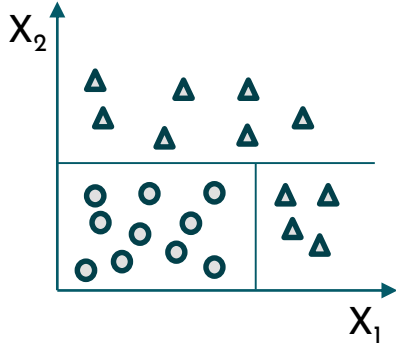
ROTATION FOREST



- Split menjadi K subset
- PCA \rightarrow rotasi variabel, tidak mereduksi
- 10 pohon sudah optimal
- Majority vote



PCA in ROTATION FOREST



thank you!



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CREDITS: [Slidesgo](#), [Flaticon](#), [Freepik](#), [Bagus Sartono](#)

