



**IPB University**  
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# **SUPER LEARNER**

**Apa dan bagaimana**

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# PENDAHULUAN



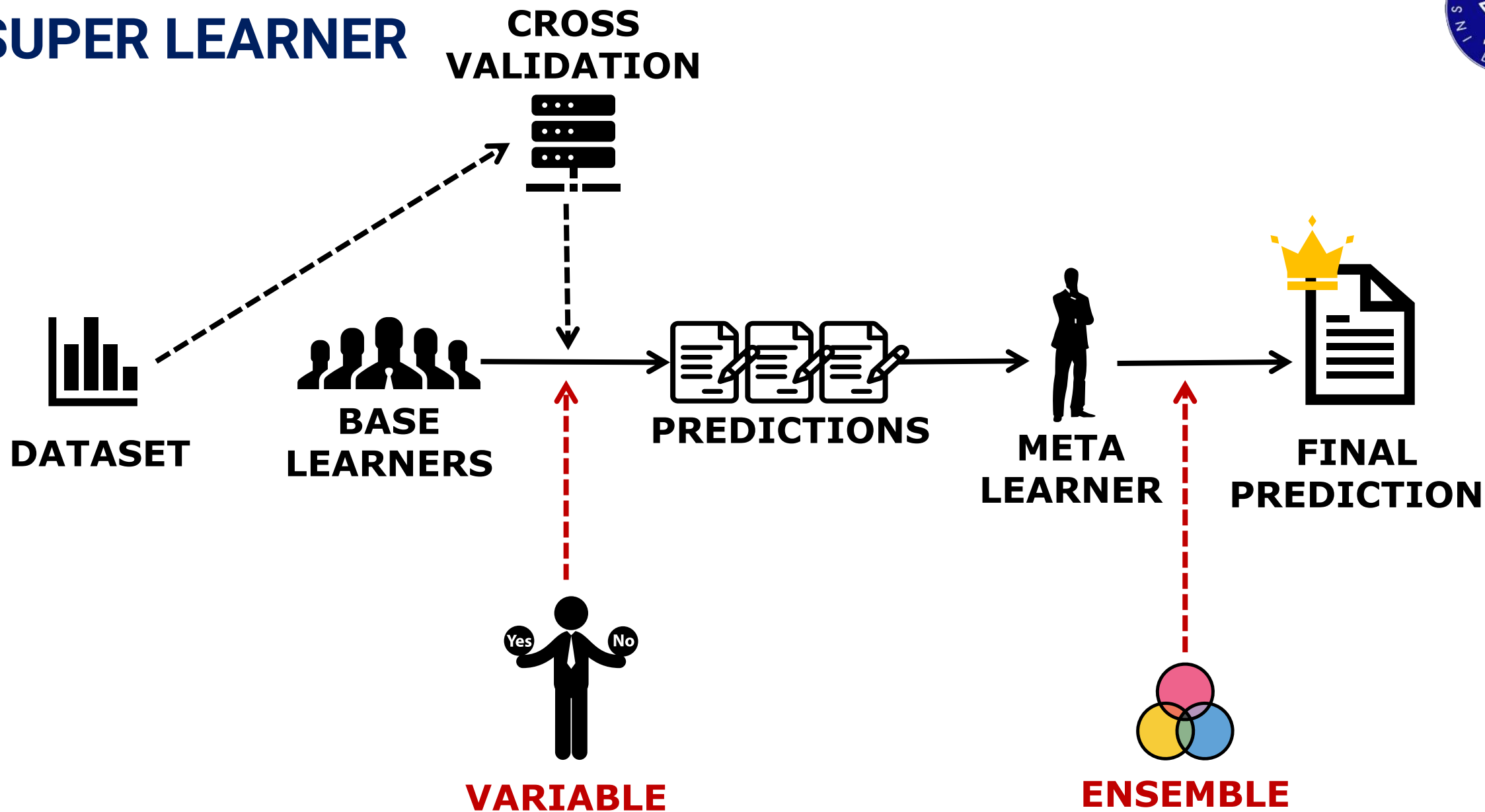
- Super Learner pertama kali diusulkan oleh **Laan, Polley, dan Hubbard (2007)**
- Super Learner merupakan model ensemble yang menggabungkan prediksi beberapa model tunggal (**base learners**) dengan model tunggal (**meta-learner**)
- Super Learner mengatasi **overfitting** dengan **cross-validation**

# KENAPA SUPER?

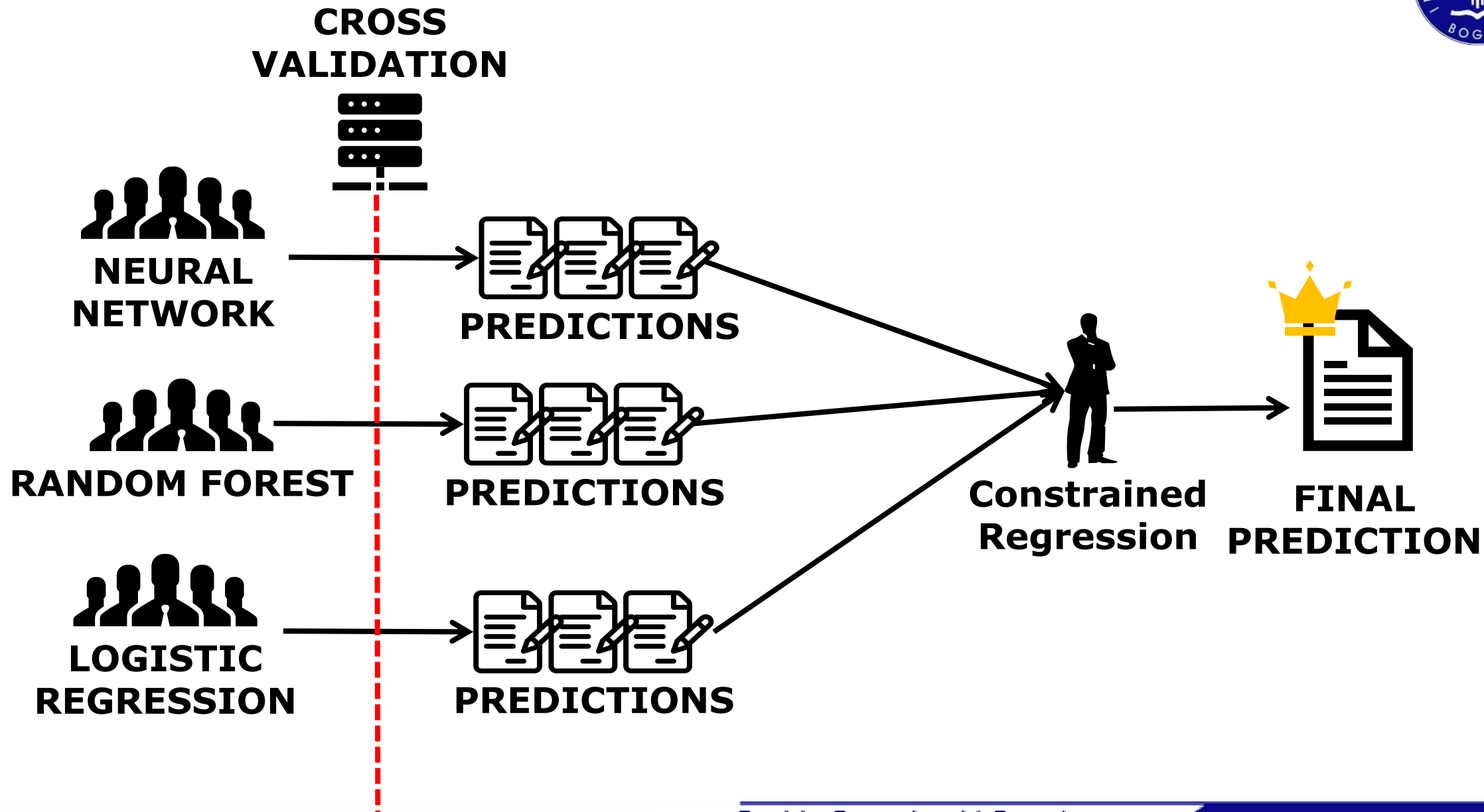


- Model ensemble
- Model selection
- **Super Learner** terbukti (secara matematis) memiliki performa prediksi **paling unggul** dibandingkan **base learners** jika **jumlah amatan besar**

# CARA KERJA SUPER LEARNER



# ILUSTRASI



# SUCCESS STORY



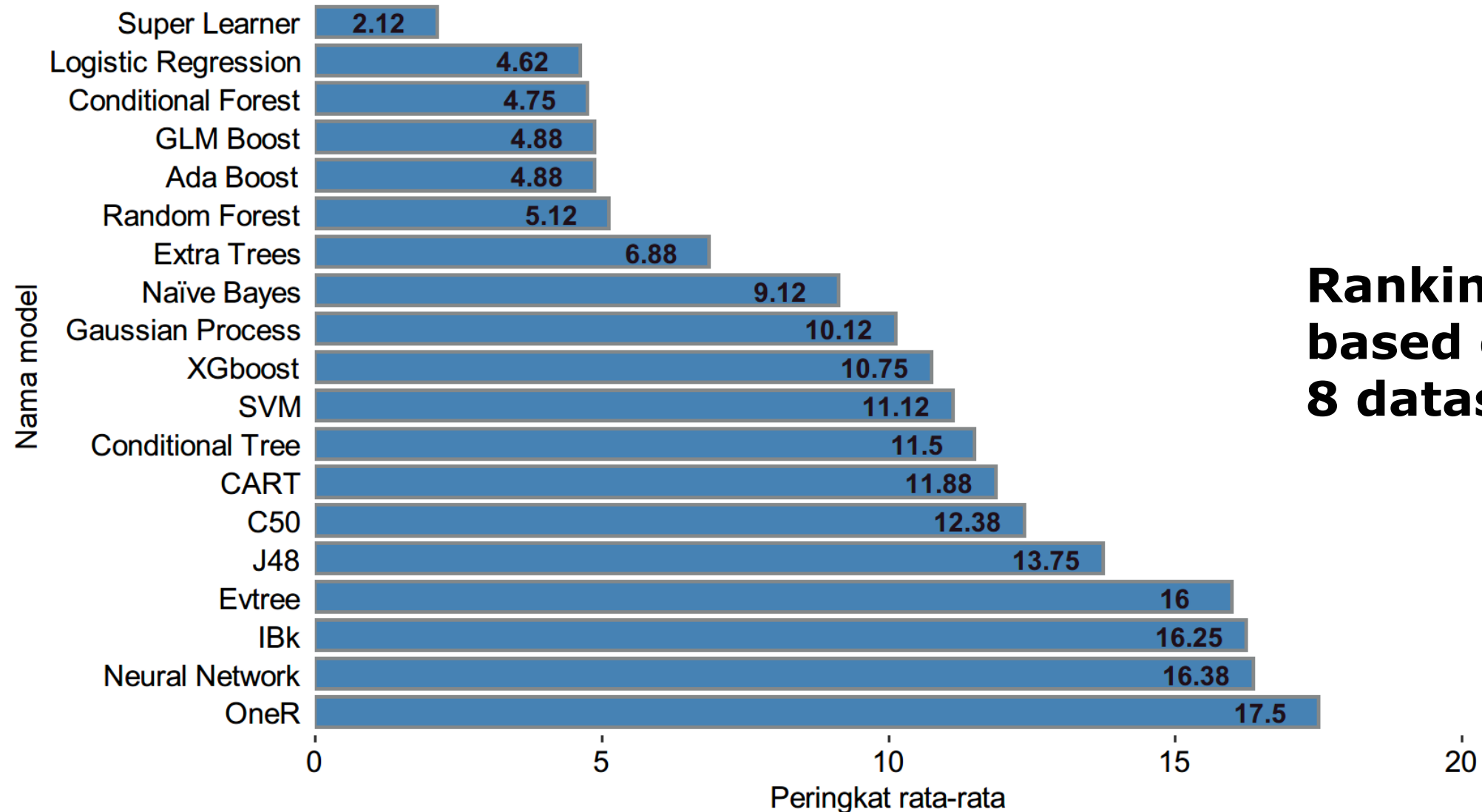
## BASE LEARNERS

- CONDITIONAL TREE
- C50
- J48
- CART
- NAÏVE BAYES
- NEURAL NETWORK
- LOGISTIC REGRESSION
- OneR
- IBk
- RANDOM FOREST
- XGBOOST
- ADABOOST
- CONDITIONAL FOREST
- GAUSSIAN PROCESS
- GLM BOOST
- CART
- SVM
- EXTRATREE

## META LEARNER

- CONSTRAINED REGRESSION

# SUCCESS STORY



**Ranking  
based on  
8 datasets**

# SUCCESS STORY



Base Learners	Coefficient
Conditional Tree	0.0084726
C50	0.000479851
J48	0.005946829
CART	0
Naïve Bayes	0.161368011
Neural Network	0
Logistic Regression	0.14449027
OneR	0
IBk	0.002533528
Random Forest	0.153138626
XGboost	0.018253245
Ada Boost	0.096268617
Conditional Forest	0.082291033
Gaussian Process	0.055009166
GLM Boost	0.031893478
SVM	0.117856157
Extra Trees	0.065969601
Evtree	0.056028986





**TERIMA KASIH**