
STACKING

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What is stacking?

Benefit of stacking

How stacking works

Stacking in bagging's perspective

Stacking with supervised learning

Stacking with reinforcement learning

Meta learning

Code

WHAT IS STACKING?

STACKING IS AN ENSEMBLE LEARNING TECHNIQUE THAT COMBINES MULTIPLE MACHINE LEARNING MODELS TO IMPROVE PREDICTIVE PERFORMANCE. IT WORKS BY TRAINING A "META-MODEL" TO LEARN HOW TO BEST COMBINE THE PREDICTIONS FROM SEVERAL BASE MODELS.

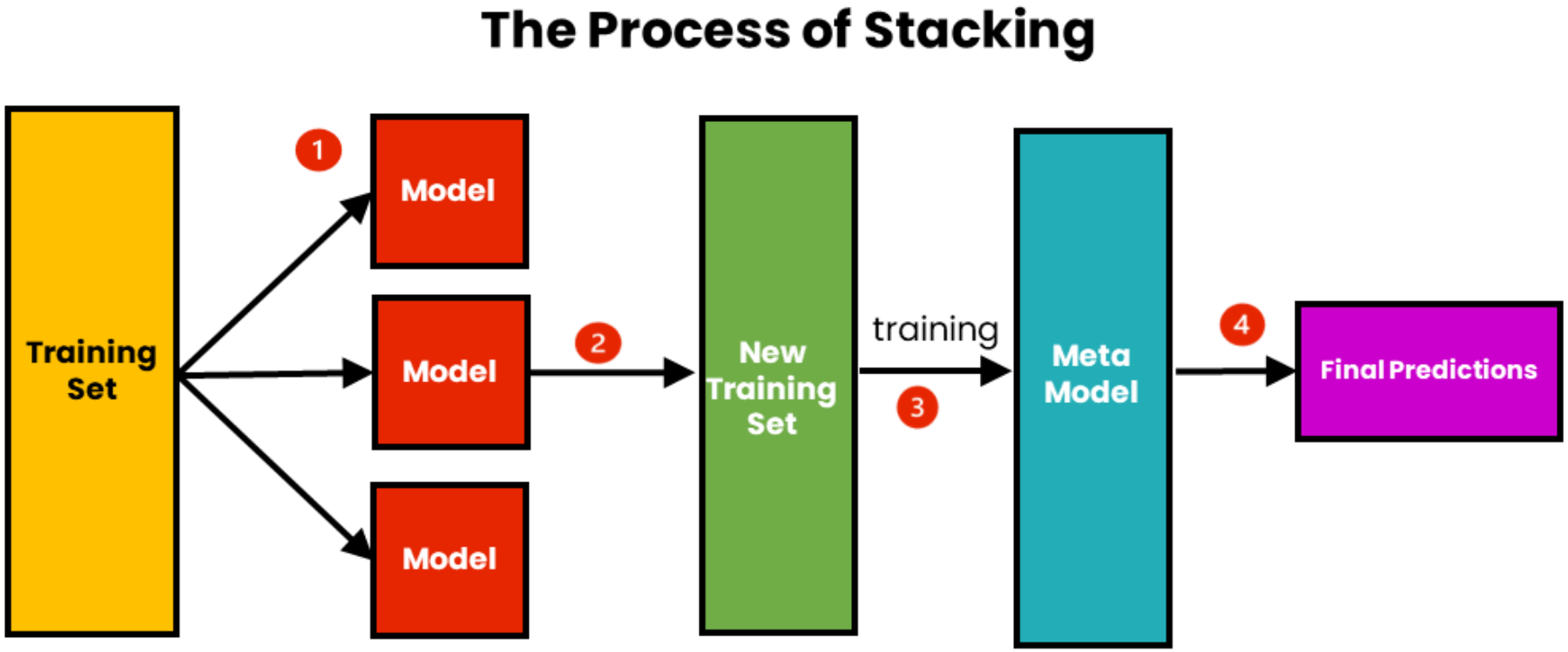
BENEFIT OF STACKING

	Benefit of stacking
Supervised learning	- Improve predictive performance - (Improve generalization) - (Robustness to overfitting) - Adaptability
Reinforcement learning	- Improve policy performance - Adaptability

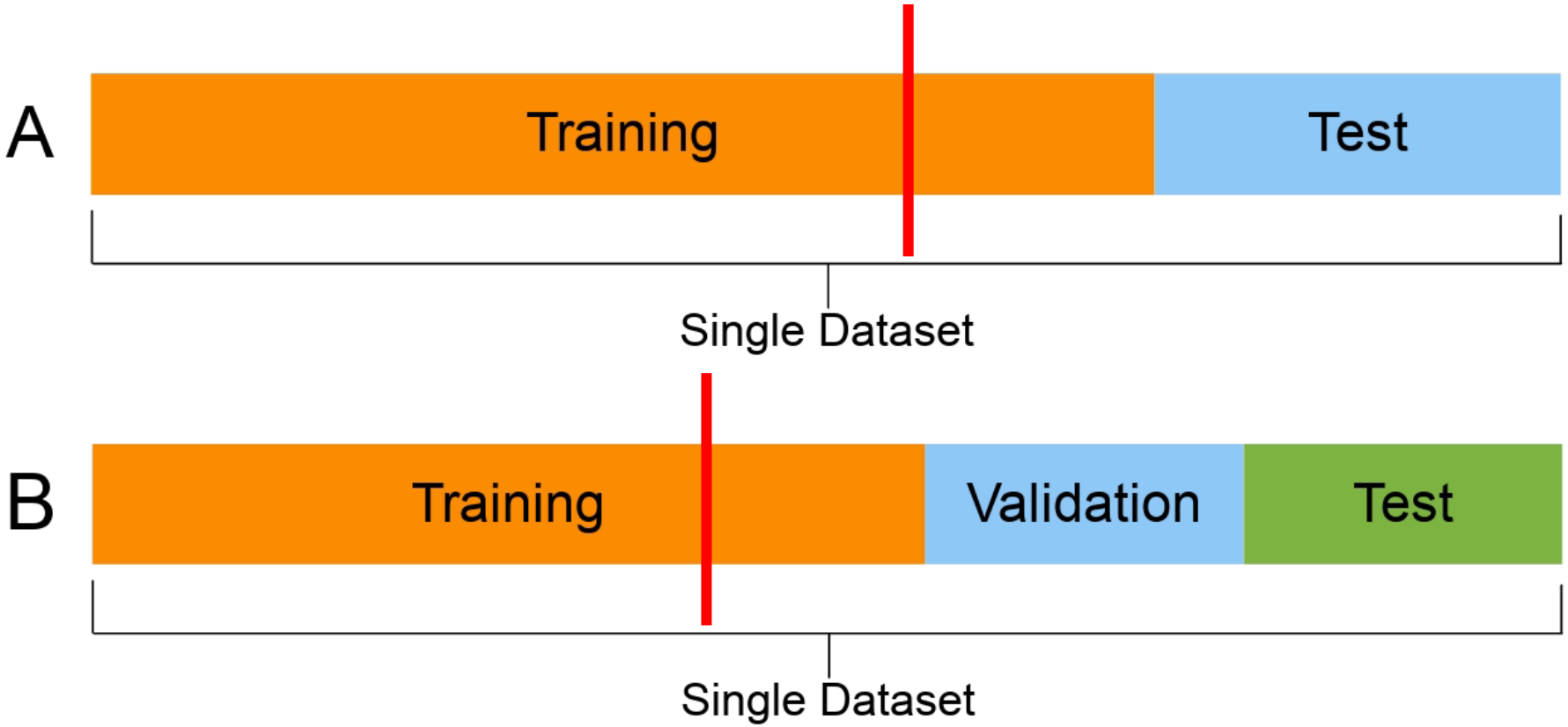
HOW STACKING WORKS

- Boostrapping
- Training multiple models
- Predictions
- Meta-learner
- Final prediction

HOW STACKING WORKS



HOW STACKING WORKS



HOW STACKING WORKS

STACKING IN BAGGING'S PERSPECTIVE

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- More ready to adopt to new concept (new data distribution)
- Stacking mechanism in adoptation is like changing original data distribution of base model to new data distribution.

STACKING IN BAGGING'S PERSPECTIVE

STACKING WITH SUPERVISED LEARNING

STACKING WITH SUPERVISED LEARNING

การรวมกันเชิงเส้นจะทำให้ stacking มีคุณสมบัติแบบ bagging ด้วย

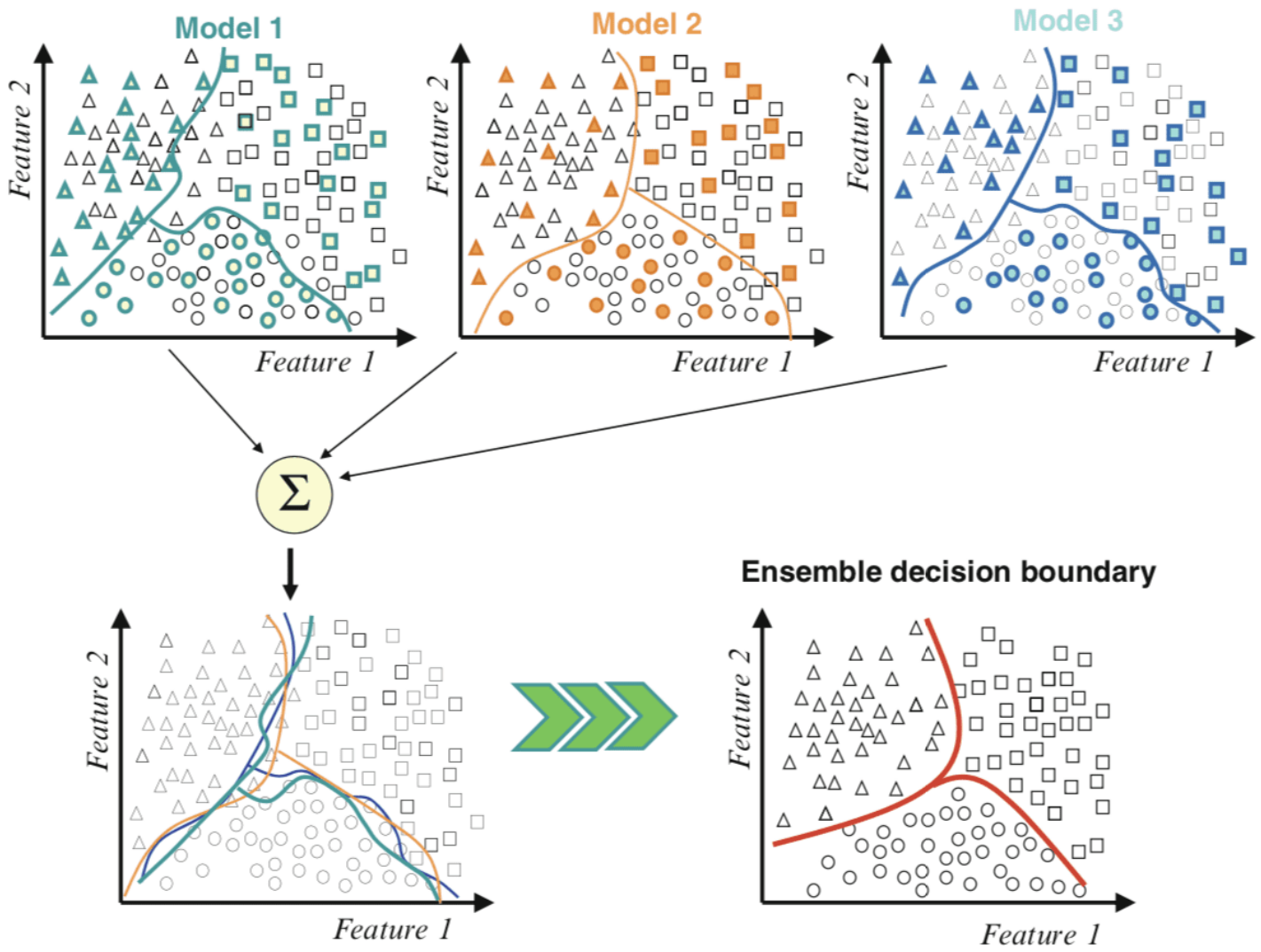
Classification

logistic regression (+ regularization ได้)

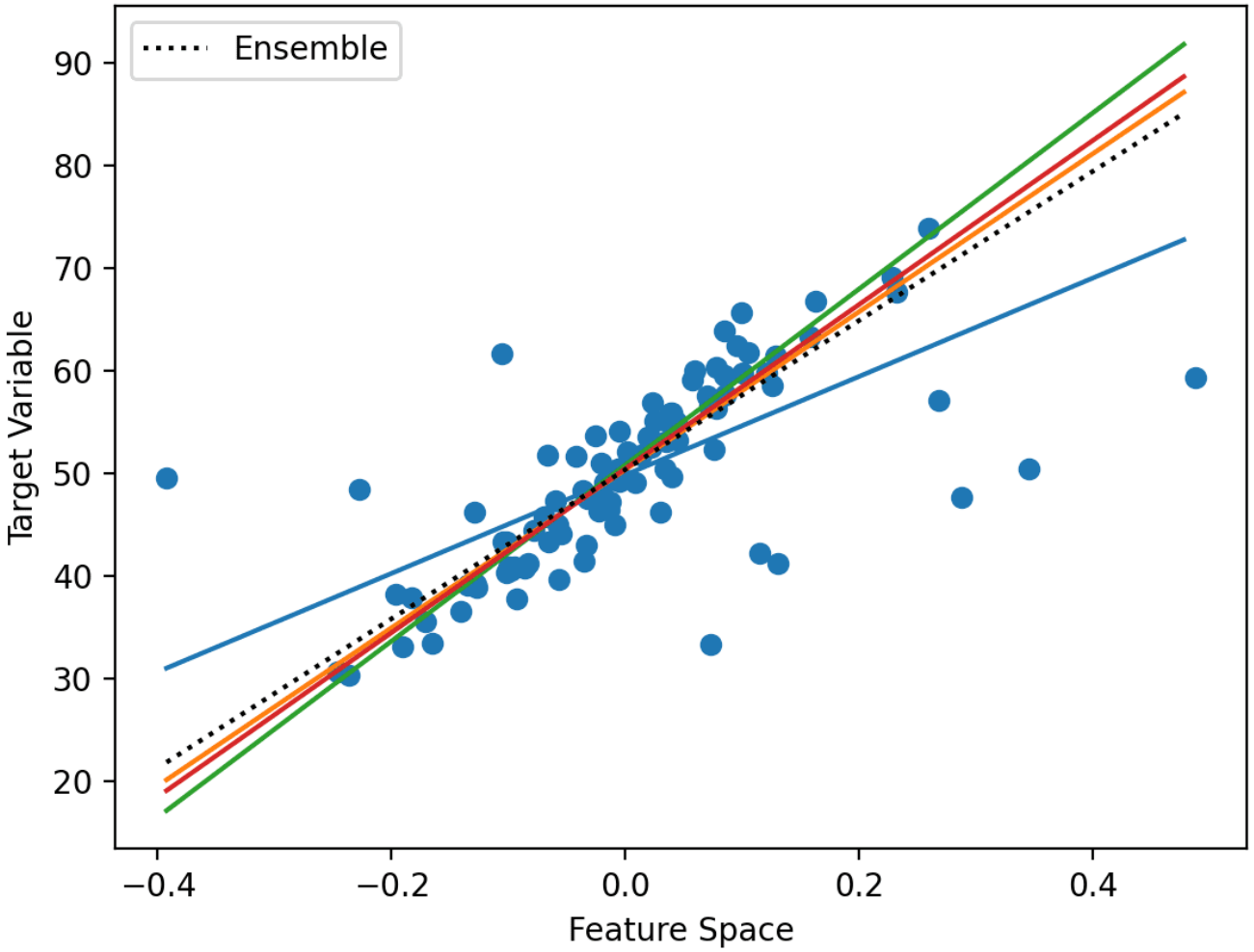
Regression

linear regression (+ regularization ได้)

ใช้ algorithm อื่น ๆ นอกจาก 2 ตัวนี้ได้ไหม ==> ใช้ได้แหละ



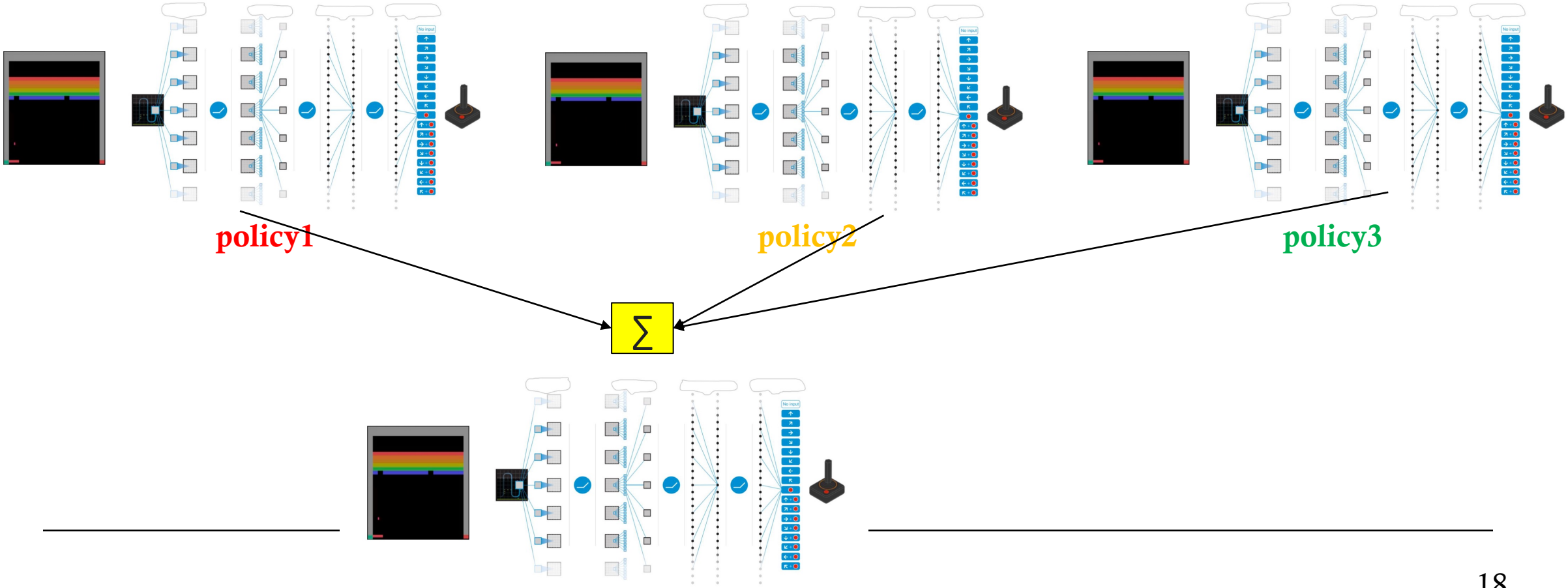
STACKING WITH SL - CLASSIFICATION

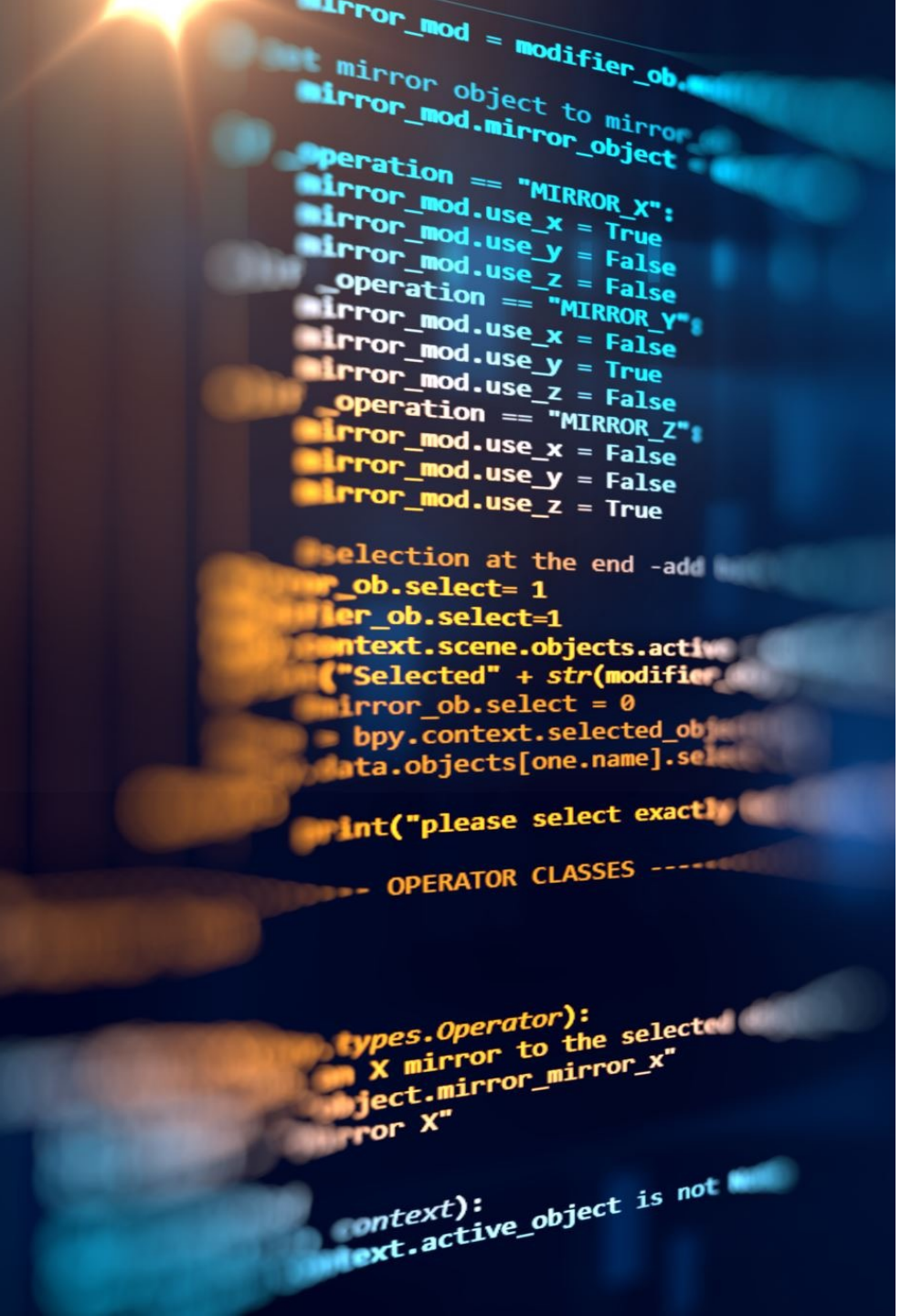


STACKING WITH SL - REGRESSION

STACKING WITH REINFORCEMENT LEARNING

STACKING WITH REINFORCEMENT LEARNING





CODE

- Stacking – SL.ipynb

QUESTION & ANSWER

REFERENCE

- https://www.analyticsvidhya.com/blog/2023/01/ensemble-learning-methods-bagging-boosting-and-stacking/
- https://machinelearningmastery.com/meta-learning-in-machine-learning/
- https://commons.wikimedia.org/wiki/File:ML_dataset_training_validation_test_sets.png