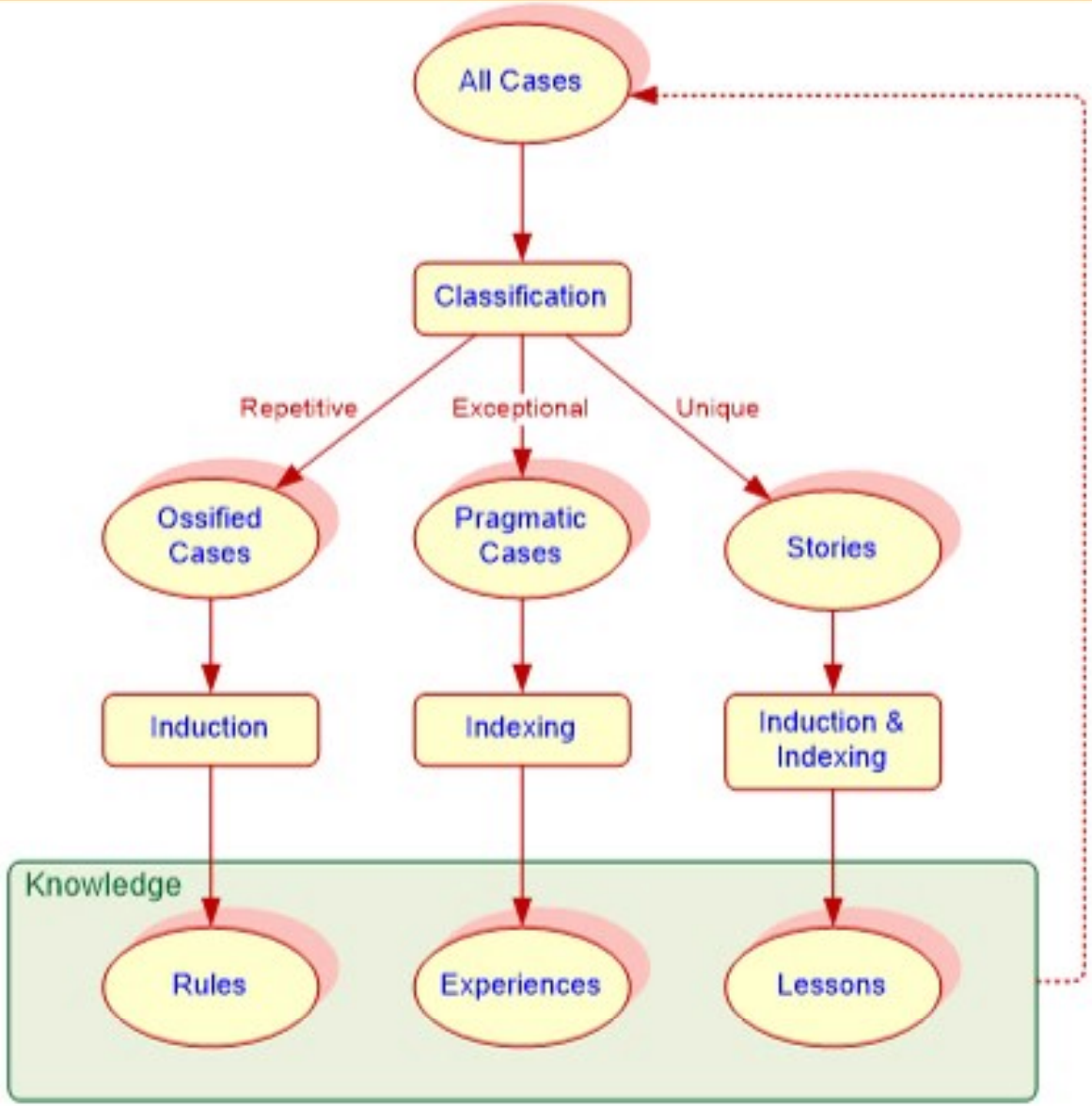
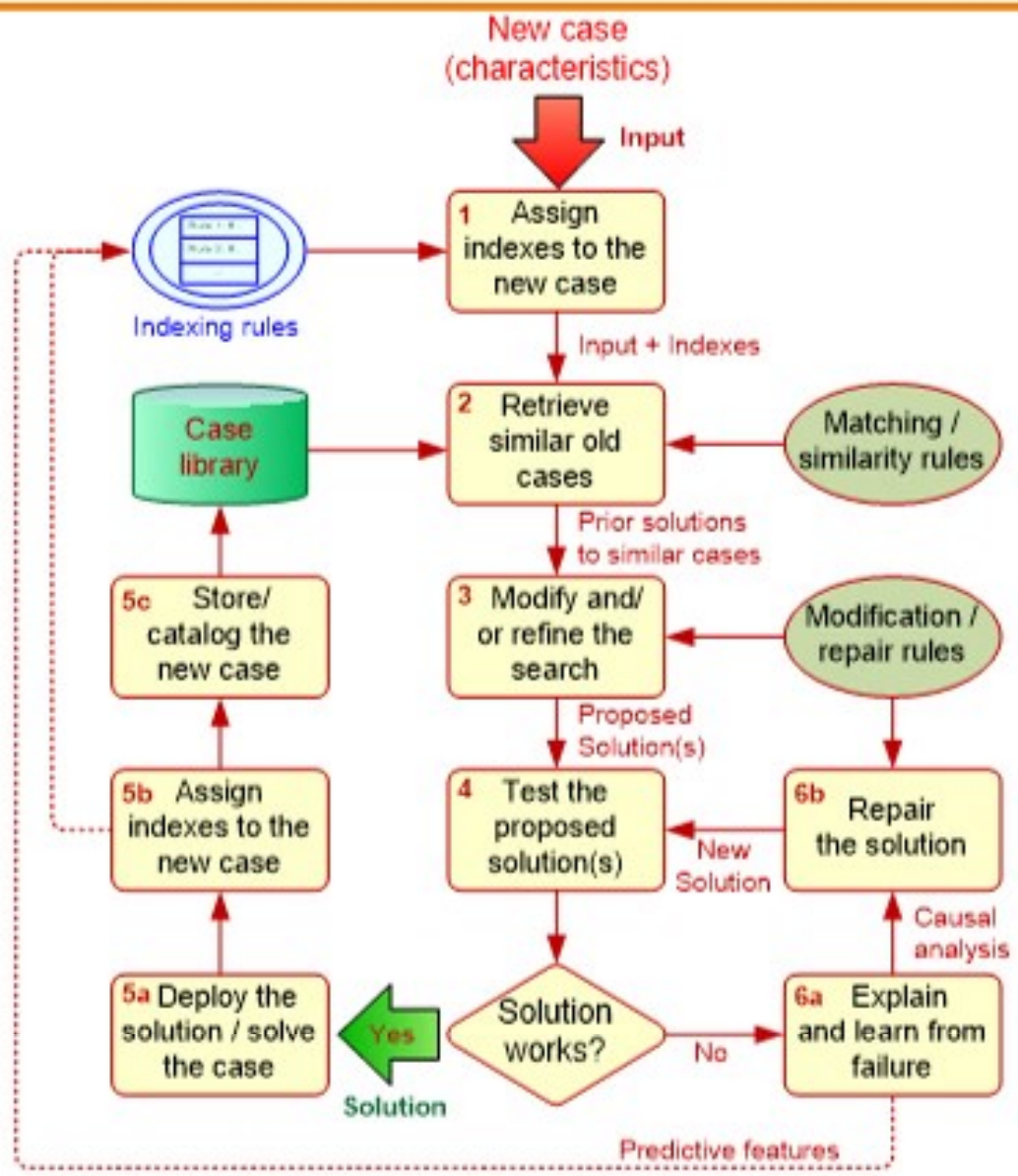
Case-Based Reasoning (CBR)

- CBR is based on the premise that new problems are often similar to previously encountered problems, and, therefore, past successful solutions may be of use in solving the current situation

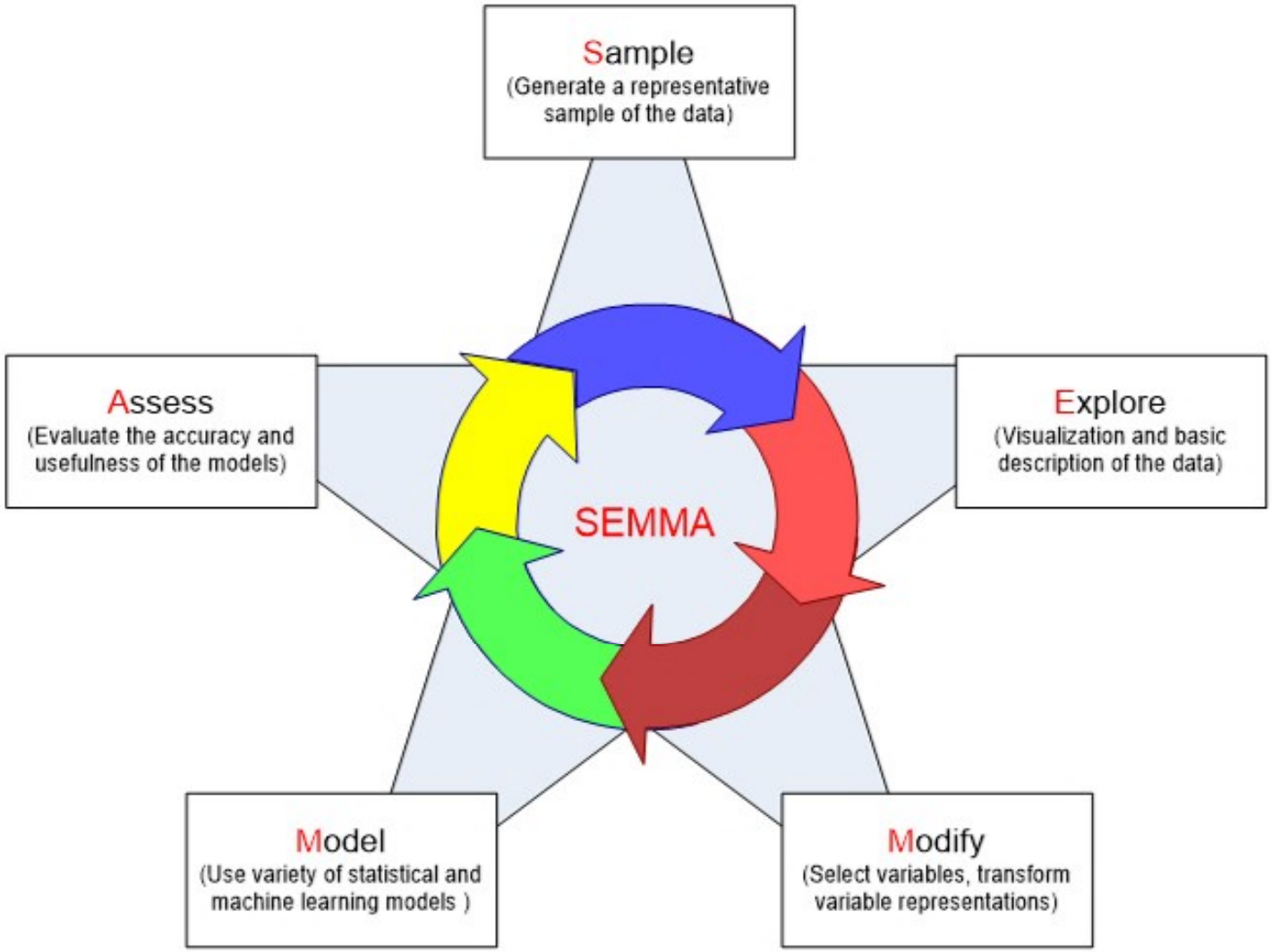


The CBR Process

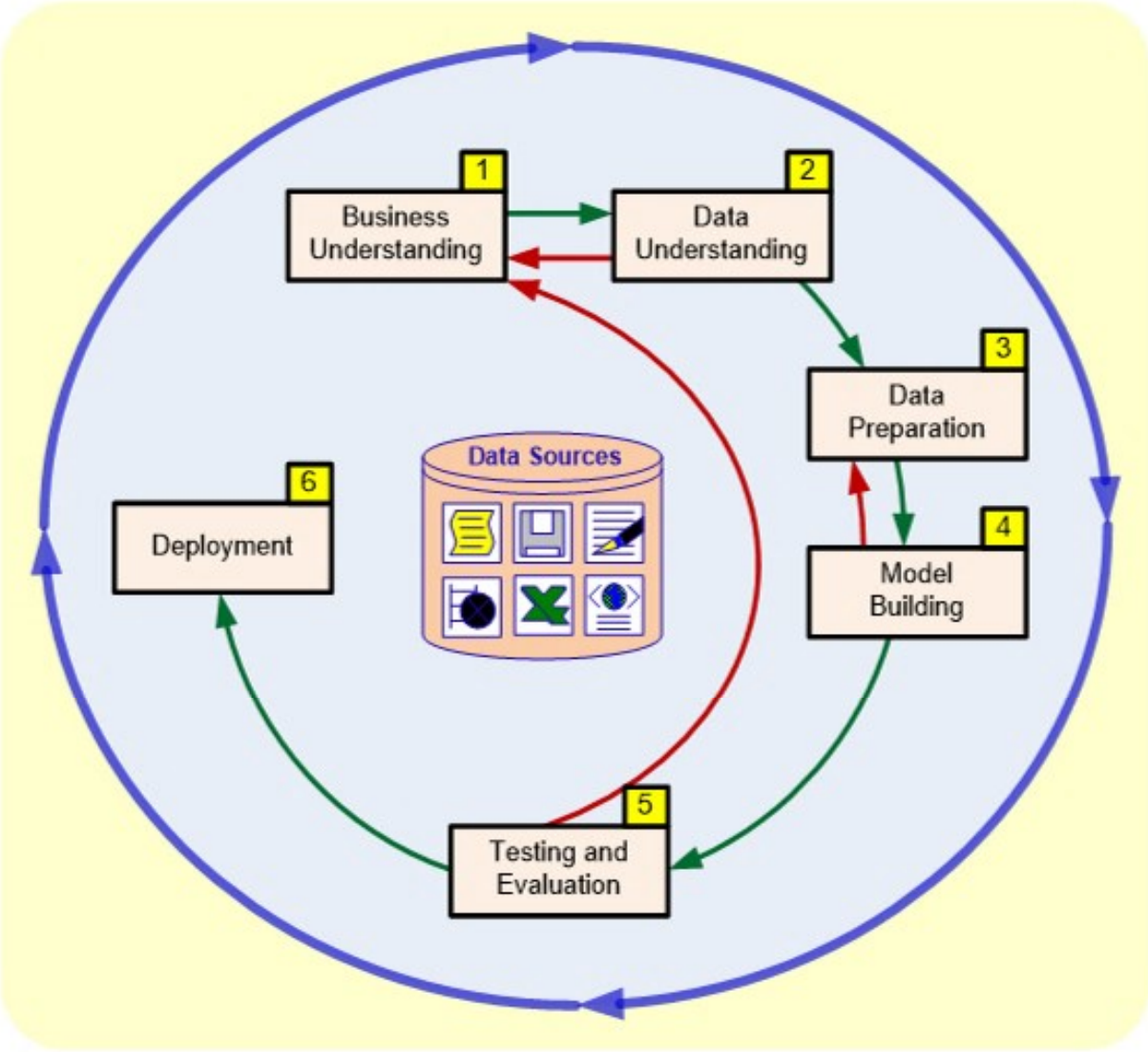
- The CBR Process (4R)
  - Retrieve
  - Reuse
  - Revise
  - Retain (case library)



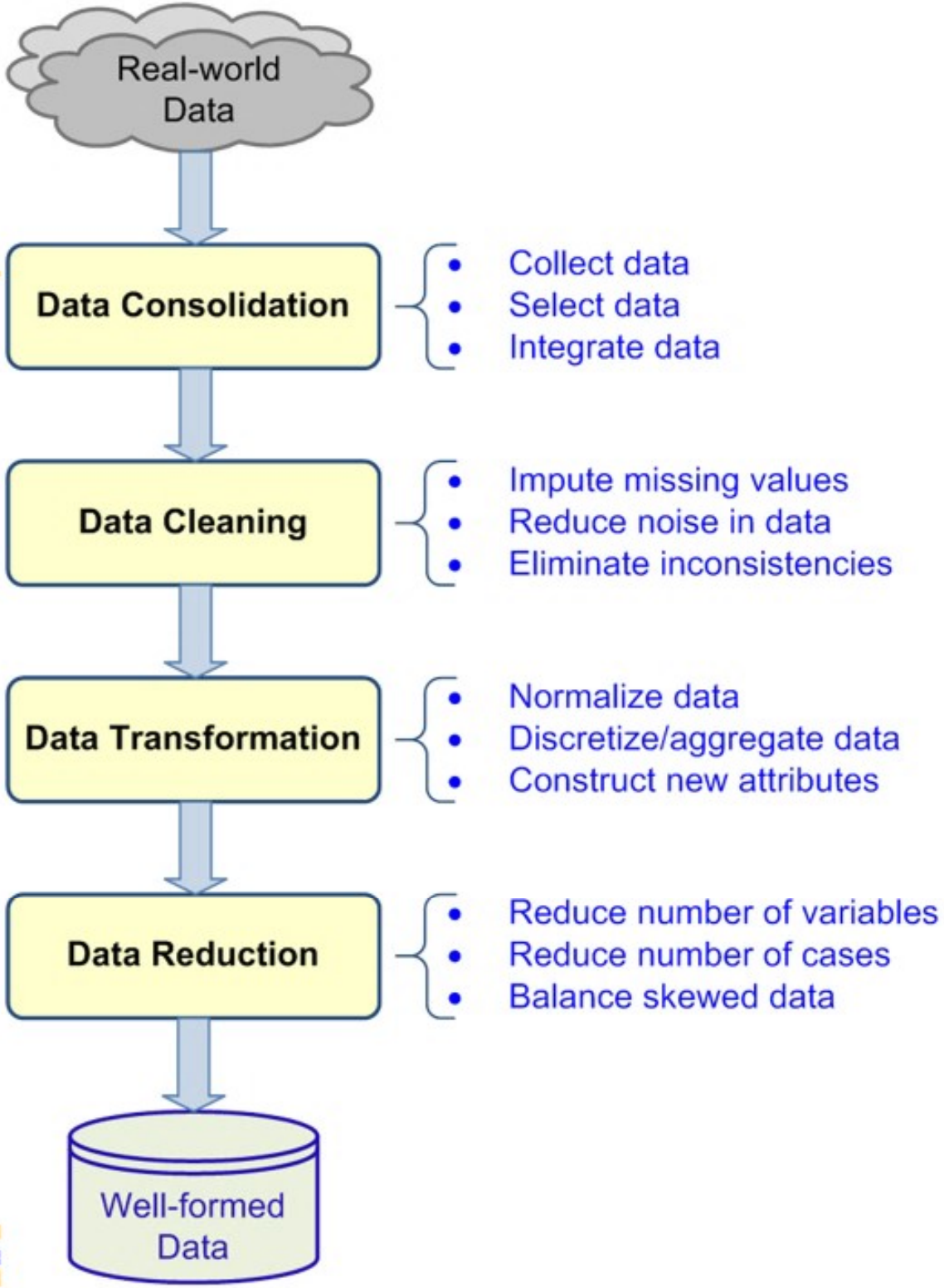
Data Mining Process: SEMMA



Data Mining Process: CRISP-DM



Data Preparation – A Critical DM Task



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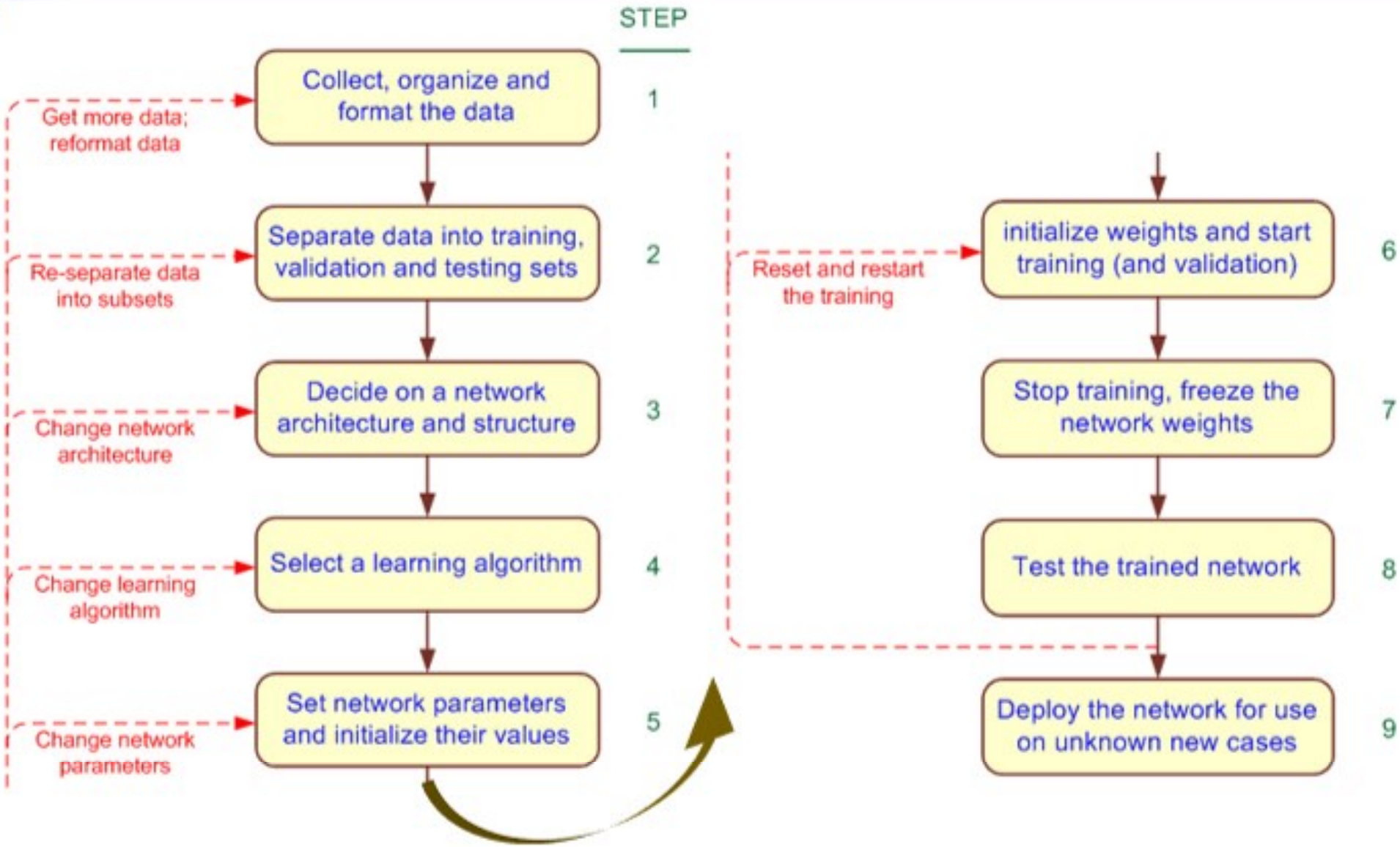
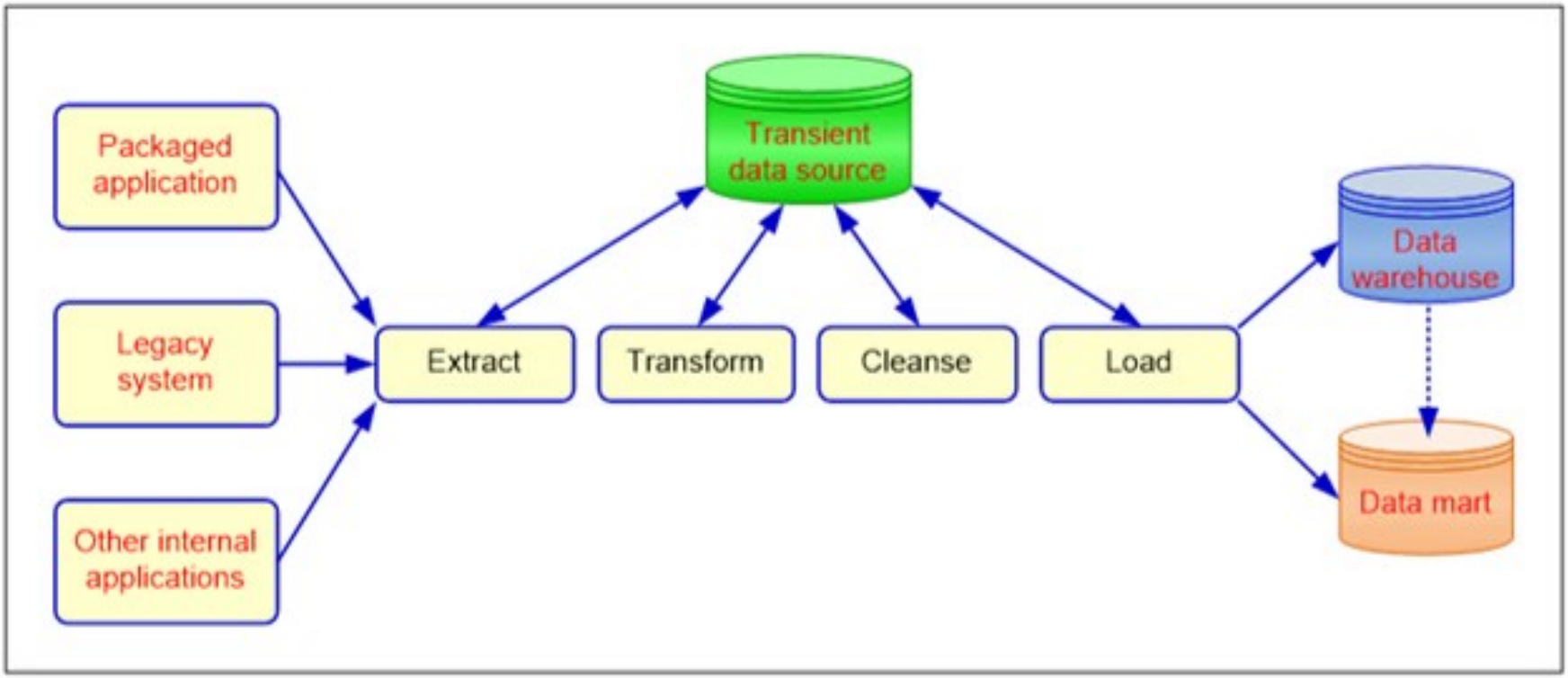
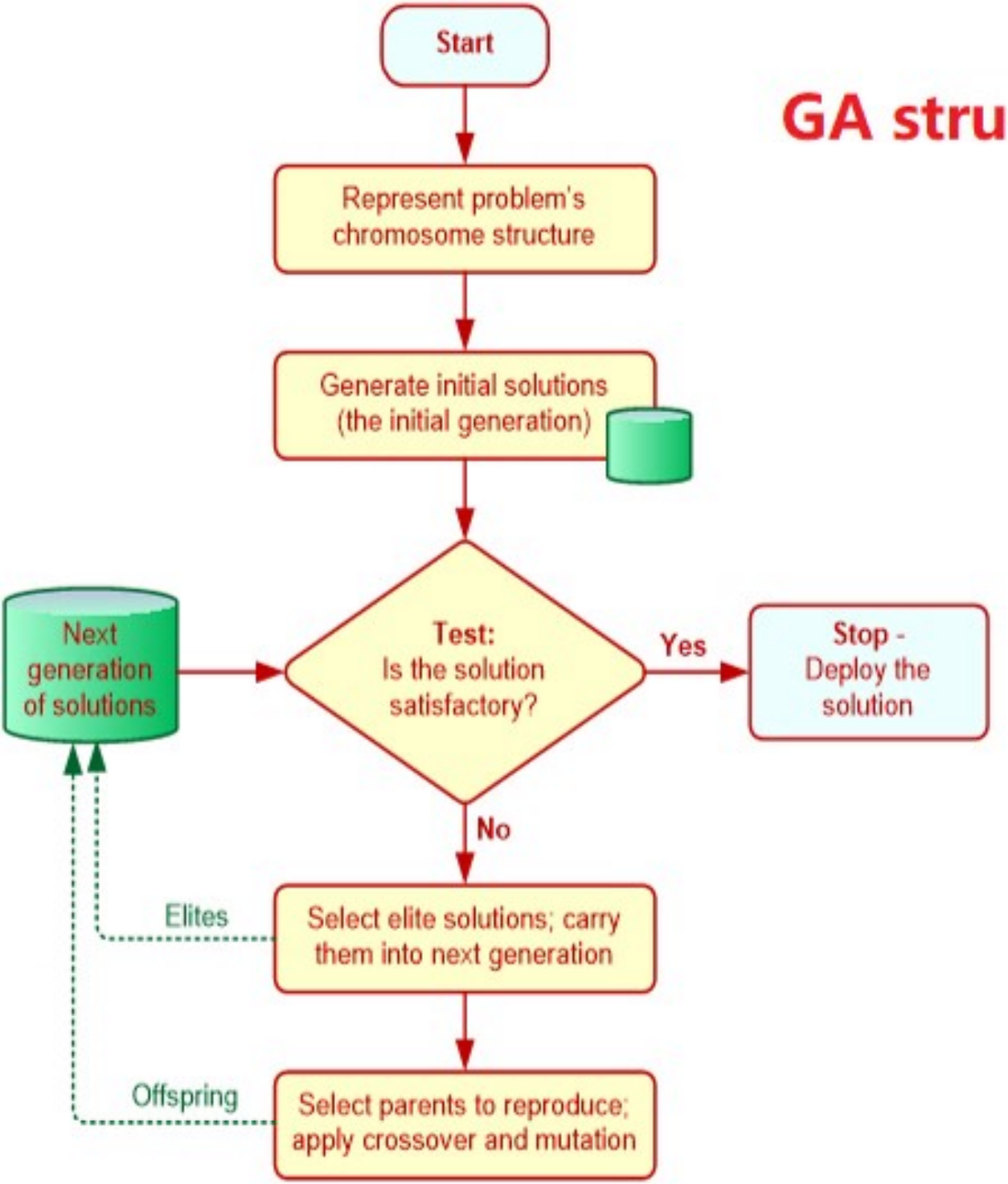
Development Process of an ANN



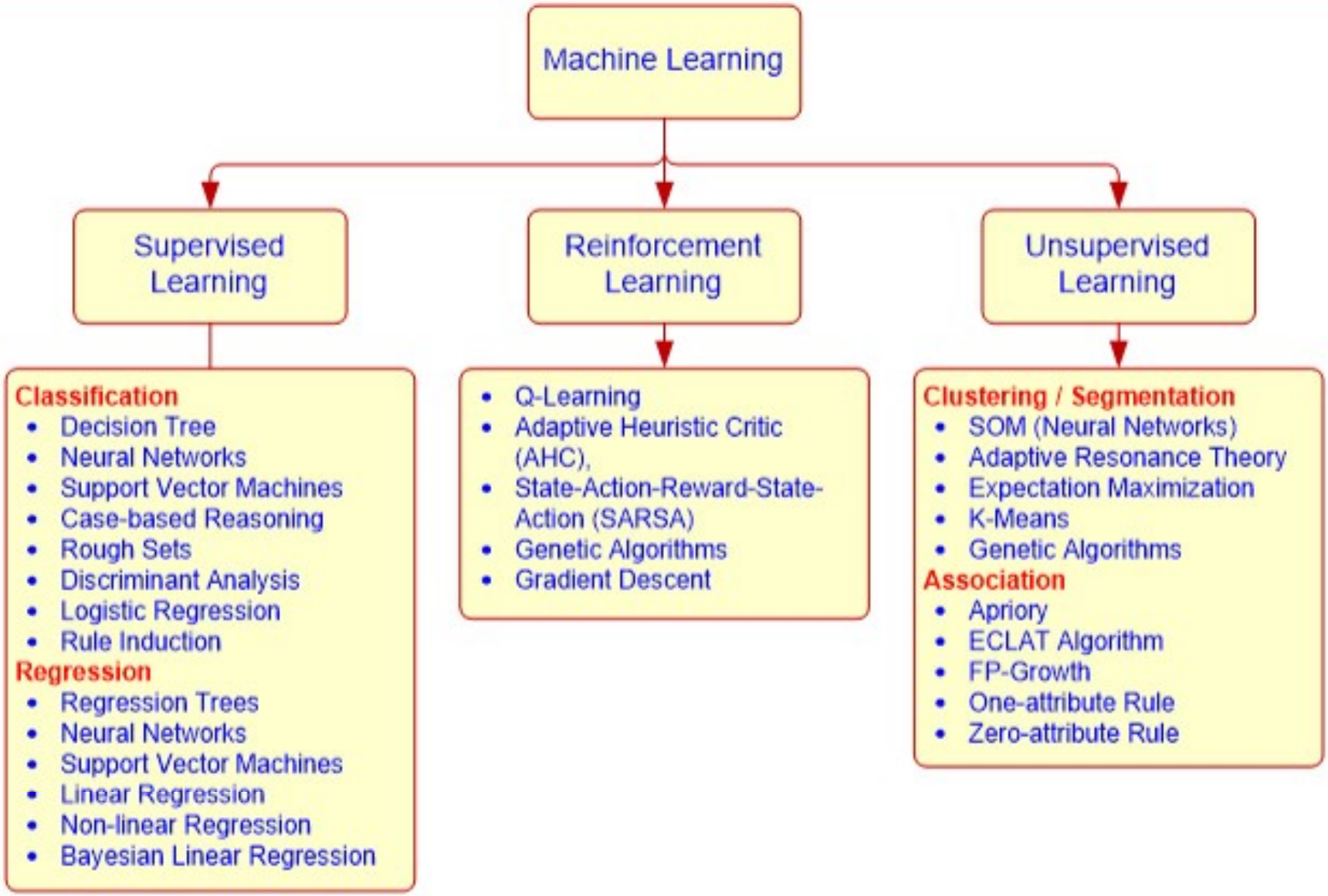
Data Integration and the Extraction, Transformation, and Load Process



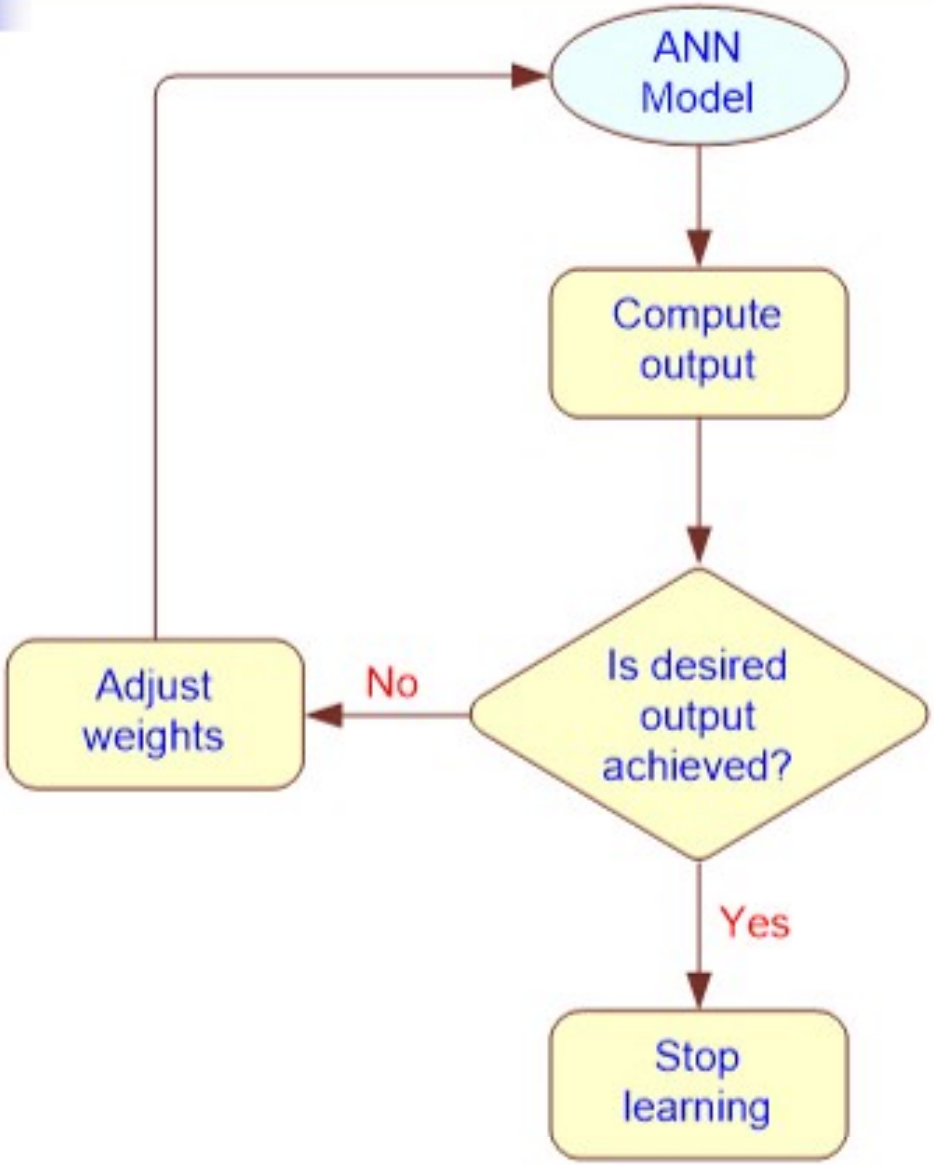
GA structure and GA operators



Machine Learning Methods



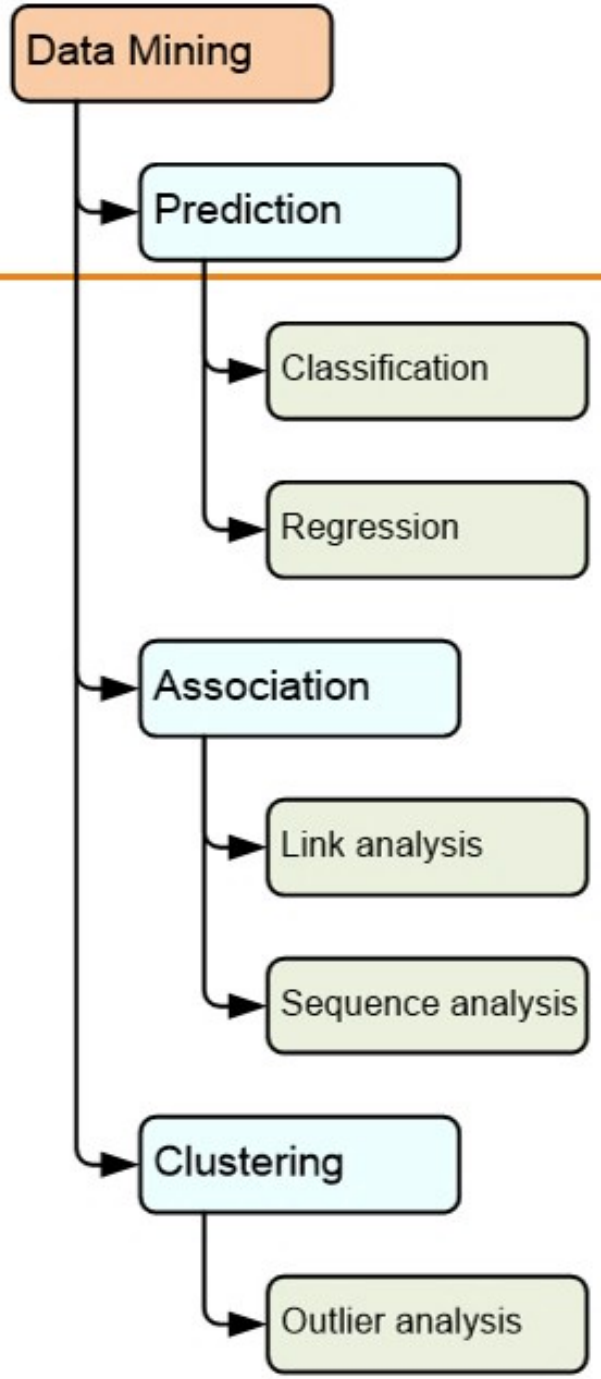
A Supervised Learning Process

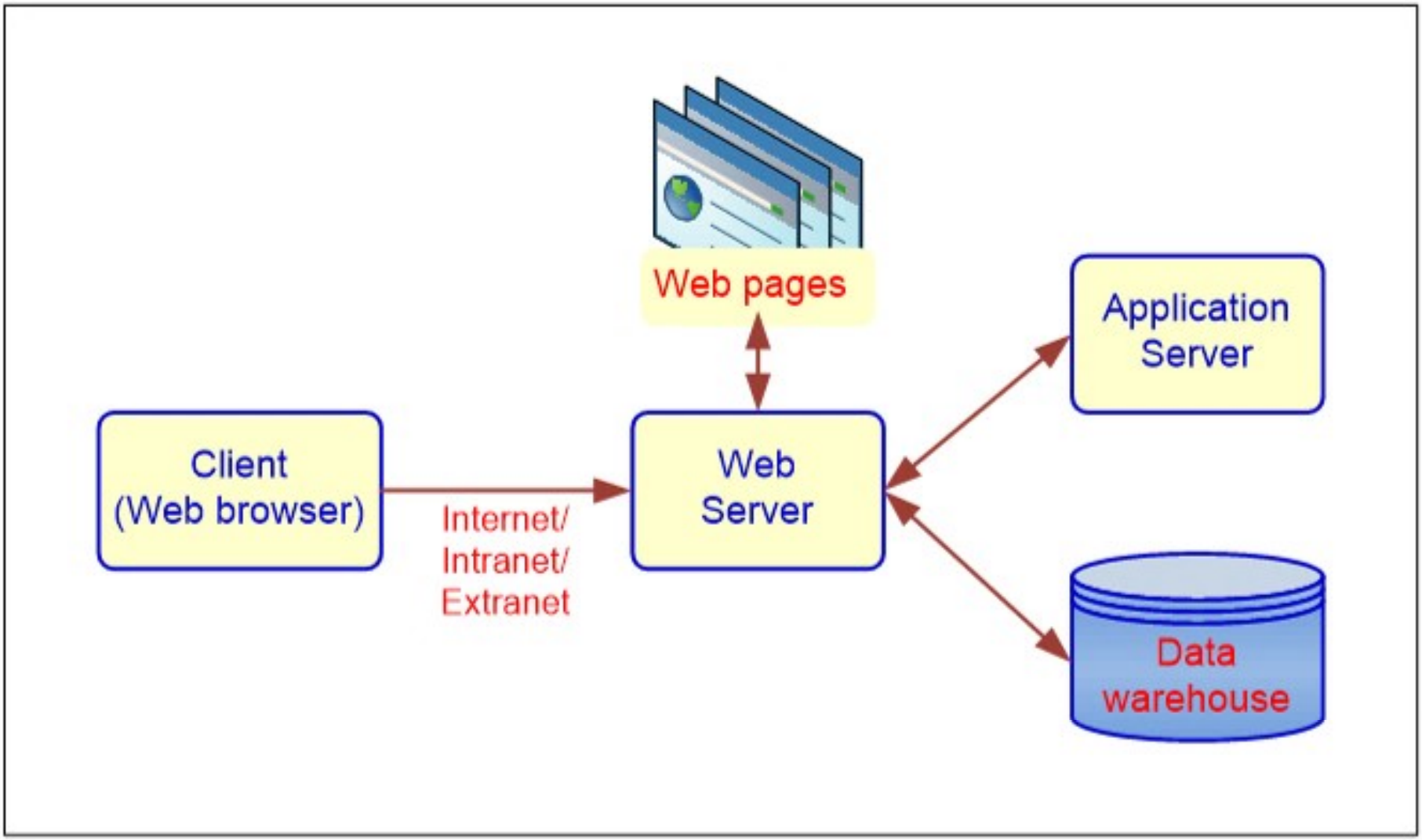


Three-step process:

1. Compute temporary outputs
2. Compare outputs with desired targets
3. Adjust the weights and repeat the process

A Taxonomy for Data Mining Tasks



Learning Method	Popular Algorithms
Supervised	Classification and Regression Trees, ANN, SVM, Genetic Algorithms
Supervised	Decision trees, ANN/MLP, SVM, Rough sets, Genetic Algorithms
Supervised	Linear/Nonlinear Regression, Regression trees, ANN/MLP, SVM
Unsupervised	Apriory, OneR, ZeroR, Eclat
Unsupervised	Expectation Maximization, Apriory Algorithm, Graph-based Matching
Unsupervised	Apriory Algorithm, FP-Growth technique
Unsupervised	K-means, ANN/SOM
Unsupervised	K-means, Expectation Maximization (EM)

A Web-Based DW Architecture