Feature Selection

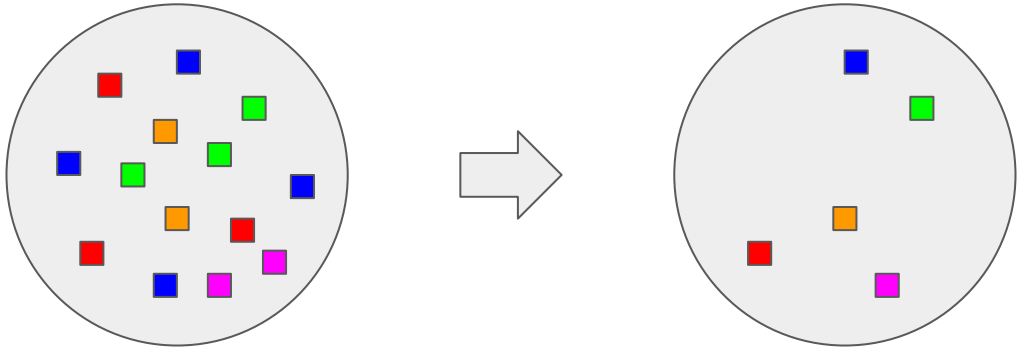
MACHINE LEARNING

Pakarat Musikawan

Feature Selection

Feature selection is the process of identifying and selecting a subset of relevant features from a larger set of features in a dataset.

The goal is to choose the features that contribute the most to the predictive power or performance of a model while reducing redundancy, improving model efficiency, and preventing overfitting.



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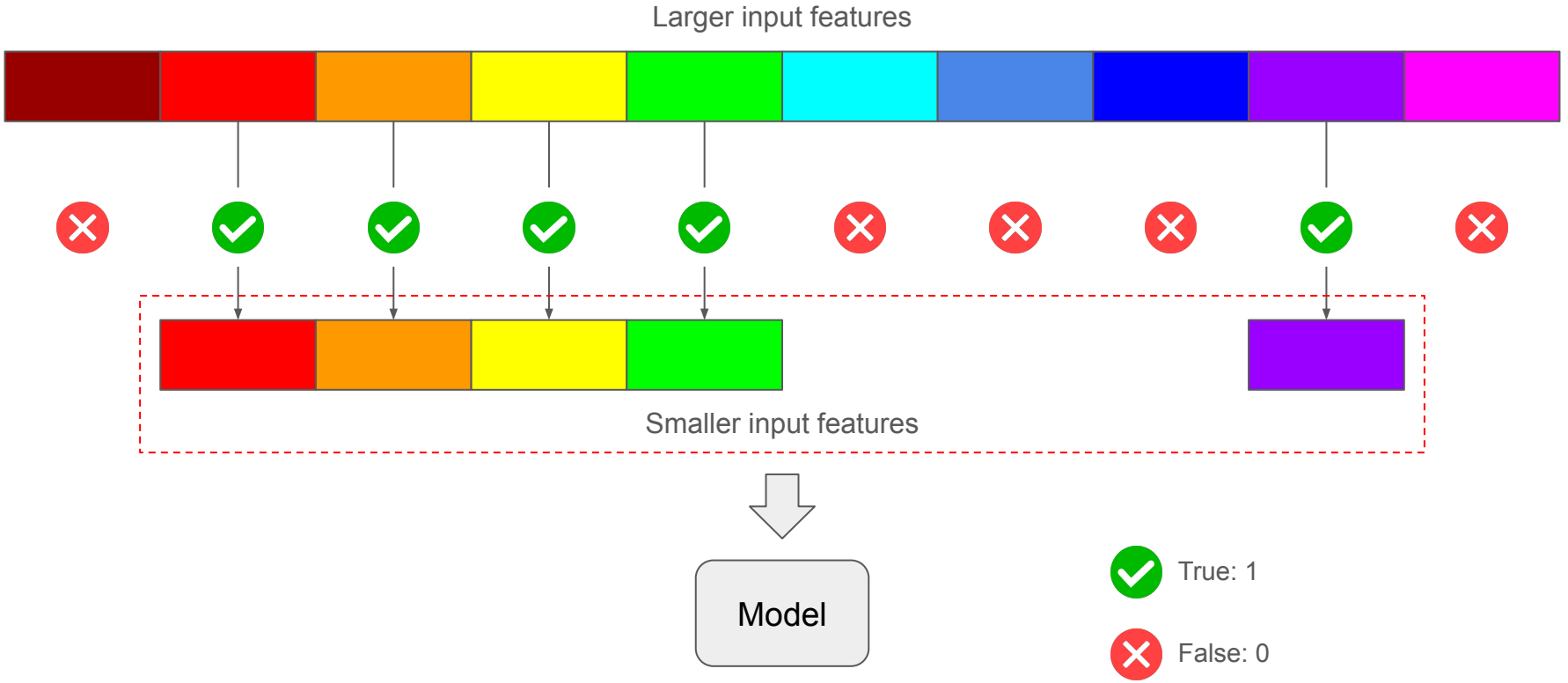

Types of Feature Selection Methods

- **Filter** methods
  - Filter methods are a type of feature selection technique that involves evaluating and ranking each feature in a dataset based on statistical criteria, independently of any machine learning model.
  - These methods are generally fast and simple, making them a common first step in the feature selection process.
- **Wrapper** methods
  - Wrapper methods are a type of feature selection technique that evaluates the combination of features based on their performance in a specific machine learning model.
  - Unlike filter methods, which assess features independently, wrapper methods consider the interaction between features and select the subset that optimizes model performance.
- **Embedded** methods
  - Embedded methods are a type of feature selection technique that integrates the process of feature selection directly into the model training process.
  - Unlike filter methods, which assess features independently of any model, or wrapper methods, which evaluate subsets of features using a specific model, embedded methods select features as part of the model's training procedure.

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