Machine Learning Classification Methods

- **Bayesian Classifier**
  - Applies Bayes' theorem to compute posterior probabilities.
  - Often assumes feature independence (Naive Bayes).
- **Support Vector Machines & Optimal Hyperplane**
  - Finds the maximum margin hyperplane that separates classes.
  - Uses kernel functions to handle non-linearity.
- **Perceptron**
  - Iterative algorithm for linearly separable data.
  - Updates weights based on misclassifications.
- **Logistic Regression**
  - Models class probabilities via the sigmoid function.
  - Optimized using maximum likelihood estimation.
- **Linear Classification**
  - General approach using linear decision boundaries.
  - Underpins several models including perceptron and logistic regression.
- **k-Nearest Neighbors (kNN)**
  - Instance-based, non-parametric classifier using local neighbor voting.
  - Simple and effective for many tasks.
- **Machine Learning Fundamentals**
  - Overview of learning paradigms, model training, and evaluation.
  - Sets the stage for understanding various classifiers.