Core Libraries for Data Handling and Analysis

- Pandas: A powerful library for data manipulation and analysis, essential for handling the wine quality dataset.

- NumPy: The fundamental package for scientific computing in Python, used for efficient numerical operations.

- Scikit-learn: The primary machine learning library for Python. This project utilizes it for building and evaluating models, including `RandomForestClassifier` and `GridSearchCV`.

- Scipy: A library used for scientific and technical computing. It's often a dependency for other data science libraries.

Data Preprocessing and Optimization

- Imbalanced-learn: This library is used to address the class imbalance problem with `SMOTE`, ensuring the model is not biased towards the majority class.

- Matplotlib: The foundational plotting library for Python. It provides the low-level tools needed for data visualization.

- Seaborn: A high-level data visualization library based on Matplotlib, used for creating informative and attractive statistical graphics.