Supervised Learning Models

Model	Library	How to Create an Object
Linear Regression	`scikit-learn`	`from sklearn.linear_model import LinearRegression` `model = LinearRegression()`
Logistic Regression	`scikit-learn`	`from sklearn.linear_model import LogisticRegression` `model = LogisticRegression()`
Decision Tree (Classifier)	`scikit-learn`	`from sklearn.tree import DecisionTreeClassifier` `model = DecisionTreeClassifier()`
Decision Tree (Regressor)	`scikit-learn`	`from sklearn.tree import DecisionTreeRegressor` `model = DecisionTreeRegressor()`
Random Forest (Classifier)	`scikit-learn`	`from sklearn.ensemble import RandomForestClassifier` `model = RandomForestClassifier()`
Random Forest (Regressor)	`scikit-learn`	`from sklearn.ensemble import RandomForestRegressor` `model = RandomForestRegressor()`
Gradient Boosting (Classifier)	`scikit-learn`	`from sklearn.ensemble import GradientBoostingClassifier` `model = GradientBoostingClassifier()`
XGBoost (Classifier)	`xgboost`	`from xgboost import XGBClassifier` `model = XGBClassifier()`
XGBoost (Regressor)	`xgboost`	`from xgboost import XGBRegressor` `model = XGBRegressor()`
LightGBM (Classifier)	`lightgbm`	`from lightgbm import LGBMClassifier` `model = LGBMClassifier()`
LightGBM (Regressor)	`lightgbm`	`from lightgbm import LGBMRegressor` `model = LGBMRegressor()`
Support Vector Machine (SVC)	`scikit-learn`	`from sklearn.svm import SVC` `model = SVC()`
Support Vector Regressor (SVR)	`scikit-learn`	`from sklearn.svm import SVR` `model = SVR()`
K-Nearest Neighbors (Classifier)	`scikit-learn`	`from sklearn.neighbors import KNeighborsClassifier` `model = KNeighborsClassifier()`

K-Nearest Neighbors (Regressor)	`scikit-learn`	`from sklearn.neighbors import KNeighborsRegressor` `model = KNeighborsRegressor()`
Naive Bayes (Gaussian)	`scikit-learn`	`from sklearn.naive_bayes import GaussianNB` `model = GaussianNB()`
Multilayer Perceptron (Classifier)	`scikit-learn`	`from sklearn.neural_network import MLPClassifier` `model = MLPClassifier()`
MLP (Regressor)	`scikit-learn`	`from sklearn.neural_network import MLPRegressor` `model = MLPRegressor()`

Unsupervised Learning Models

Model	Library	How to Create an Object
K-Means Clustering	`scikit-learn`	`from sklearn.cluster import KMeans` `model = KMeans(n_clusters=3)`
DBSCAN	`scikit-learn`	`from sklearn.cluster import DBSCAN` `model = DBSCAN()`
Hierarchical Clustering (Agglomerative)	`scikit-learn`	`from sklearn.cluster import AgglomerativeClustering` `model = AgglomerativeClustering(n_clusters=3)`
Gaussian Mixture Model (GMM)	`scikit-learn`	`from sklearn.mixture import GaussianMixture` `model = GaussianMixture(n_components=3)`
PCA (Principal Component Analysis)	`scikit-learn`	`from sklearn.decomposition import PCA` `model = PCA(n_components=2)`
t-SNE (Visualization)	`scikit-learn`	`from sklearn.manifold import TSNE` `model = TSNE(n_components=2)`
UMAP (Visualization)	`umap-learn`	`import umap` `model = umap.UMAP(n_components=2)`
Autoencoder (Custom)	`TensorFlow` / `PyTorch`	Example in TensorFlow: `model = tf.keras.Sequential([...])`
Self-Organizing Map (SOM)	`MiniSom`	`from minisom import MiniSom` `model = MiniSom(x=10, y=10, input_len=4, sigma=1.0, learning_rate=0.5)`