Things ML Interns should master :

1. Linear Regression
2. Logistic Regression
3. KNN
4. K-Means
5. Decision Trees
6. Random Forest
7. SVM
8. Gradient Boosting
9. PCA
10. Neural Networks (basics)

SUPERVISED LEARNING MODELS

Classification Models

Model	Supervised	Uses Accuracy	Output Type	When to Use
Logistic Regression	✅	✅	Class (0/1)	Binary classification
K-Nearest Neighbors (KNN)	✅	✅	Class	Simple, small datasets
Decision Tree (Classifier)	✅	✅	Class	Interpretability
Random Forest (Classifier)	✅	✅	Class	Strong baseline
Support Vector Machine (SVM)	✅	✅	Class	High-dimensional data
Naive Bayes	✅	✅	Class	Text, spam detection
Gradient Boosting	✅	✅	Class	High performance
XGBoost / LightGBM	✅	✅	Class	Competitions, real-world
Neural Networks (Classifier)	✅	✅	Class	Complex patterns

Accuracy to Use :

- Accuracy
- Precision
- Recall
- F1-score
- ROC-AUC

Regression Models

Model	Supervised	Accuracy	Output Type	Evaluation Metrics
Linear Regression	✅	❌	Continuous	MAE, MSE, RMSE, R^2
Polynomial Regression	✅	❌	Continuous	MAE, RMSE
Ridge Regression	✅	❌	Continuous	RMSE, R^2
Lasso Regression	✅	❌	Continuous	RMSE, R^2
ElasticNet	✅	❌	Continuous	RMSE
Decision Tree (Regressor)	✅	❌	Continuous	RMSE
Random Forest (Regressor)	✅	❌	Continuous	RMSE
Gradient Boosting (Regressor)	✅	❌	Continuous	RMSE
SVR (Support Vector Regression)	✅	❌	Continuous	MAE
Neural Networks (Regressor)	✅	❌	Continuous	MAE, RMSE

UNSUPERVISED LEARNING MODELS

Clustering

Model	Supervised	Accuracy	Output	Evaluation
K-Means	❌	❌	Cluster ID	Inertia, Silhouette
Hierarchical Clustering	❌	❌	Cluster Tree	Dendrogram
DBSCAN	❌	❌	Cluster / Noise	Silhouette
Mean Shift	❌	❌	Cluster	Visual inspection
Gaussian Mixture Model (GMM)	❌	❌	Probabilistic clusters	AIC, BIC

Dimensionality Reduction

Model	Supervised	Accuracy	Purpose
PCA	❌	❌	Feature reduction
LDA	✅	❌	Class separation
t-SNE	❌	❌	Visualization
UMAP	❌	❌	Visualization

SEMI-SUPERVISED

Model	Learning Type	Accuracy?	Use Case
K-Means + Labels	Semi-supervised	⚠️ Pseudo	Analysis only
Autoencoders	Unsupervised	❌	Feature learning
Isolation Forest	Unsupervised	❌	Anomaly detection
One-Class SVM	Unsupervised	❌	Fraud detection