**Day 15 — 9 July 2025 (Wednesday)**

**Topic: Logistic Regression for Spam Classification**

The trainer introduced **Logistic Regression**, another popular ML algorithm for spam filtering. We learned how sigmoid function converts text features into binary predictions. Logistic regression works well on linearly separable data, and we compared its behavior with Naïve Bayes. We discussed **overfitting, regularization, and decision boundaries**.

**Key insight:** NB works better when dataset is text-heavy and sparse; Logistic Regression is strong when boundary lines are clearer.

**Code Practiced:**

from sklearn.linear\_model import LogisticRegression

lr\_model = LogisticRegression(max\_iter=3000)

lr\_model.fit(X\_train, y\_train)