

Lab 5: Building a Baseline Model (Penguin Dataset)

Objectives:

- Build a baseline classification model using **Logistic Regression**.
 - Evaluate the model using **accuracy** and a **confusion matrix**.
 - Calculate the **baseline accuracy** (by predicting the majority class).
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Tasks

- Import required libraries (LogisticRegression, train_test_split, metrics, etc.).
- Load the **Iris dataset** from sklearn.datasets.
- Split the dataset into **training (70%)** and **testing (30%)** sets.
- Train a **Logistic Regression model** on the training set.
- Predict the labels for the test set.
- Calculate and print the **accuracy** of the model.
- Generate and print the **confusion matrix**.
- Print the **classification report** (precision, recall, f1-score for each class).
- Compute the **baseline accuracy** by predicting the majority class for all test samples.
- Compare the baseline accuracy with your logistic regression model accuracy.
- From the confusion matrix, identify **False Positives (FP)** for any one class.
- Analyze **precision values**:
 - Which class has the highest precision?
 - What does this indicate about the model's performance?