criteria

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Lab 5 Evaluation Criteria: Text Classification

Part 1: Implementation (50%)

- ☐ **Task 1: Scikit-learn `TextClassifier`**
  - ☐ Successfully implement the `TextClassifier` class in `src/models/text_classifier.py`.
  - ☐ The `fit` method correctly trains a `LogisticRegression` model.
  - ☐ The `predict` method correctly generates predictions.
  - ☐ The `evaluate` method correctly computes metrics.
- ☐ **Task 2: Basic Test Case**
  - ☐ Create `test/lab5_test.py`.
  - ☐ The test case correctly splits data, trains the model, makes predictions, and evaluates the results.
- ☐ **Task 3: Running the Spark Example**
  - ☐ Successfully run the `test/lab5_spark_sentiment_analysis.py` script.
  - ☐ Understand the components of the Spark ML pipeline.
- ☐ **Task 4: Model Improvement Experiment**
  - ☐ Implement at least one of the suggested model improvement techniques (e.g., advanced preprocessing, Word2Vec features, or a different classification model like Naive Bayes).
  - ☐ Create a new test file (e.g., `test/lab5_improvement_test.py`) to demonstrate the experiment.

Example: 0 / 10 items completed.

Part 2: Report and Analysis (50%)

- ☐ **Explain the implementation steps:** Clearly and concisely describe the steps taken.
- ☐ **Code execution guide:** Explain how to run your notebooks/scripts and see the results.
- ☐ **Result analysis (Important):**
  - ☐ Report the performance metrics (Accuracy, F1-score) of the baseline `LogisticRegression` model.
  - ☐ Report the performance of your improved model.
  - ☐ Compare the results and analyze why the improvement technique was (or was not) effective.
- ☐ **Challenges and solutions:** Document any issues encountered and how you solved them.
- ☐ **Cite references:** Clearly list any external resources (if any) used.

Example: 0 / 5 items completed.

Scoring Formula

The final score is calculated as follows:

$$Score = \left(0.5 \times \frac{\text{CodeTasks}}{10} + 0.5 \times \frac{\text{ReportTasks}}{5}\right) \times 10$$

Where: - `CodeTasks` is the number of completed items in Part 1. - `ReportTasks` is the number of completed items in Part 2.

The score will be rounded to the nearest 0.25.

Note: - The above criteria are mandatory. - Late submissions will be penalized. - You must cite any external sources, models, libraries, or tools used.