Exercise: Evaluating a Sentiment Analysis Model

A sentiment analysis model was tested on a small dataset of movie reviews. The model predicts whether a review is Positive or Negative.

Testing Dataset

Review ID	Actual Label	Predicted Label
R1	Negative	Negative
R2	Negative	Negative
R3	Negative	Negative
R4	Negative	Negative
R5	Negative	Negative
R6	Negative	Negative
R7	Negative	Negative
R8	Positive	Positive
R9	Negative	Positive
R10	Positive	Negative

Tasks

- Draw the confusion matrix for the model.
- Identify the number of True Positives (TP), True Negatives (TN), False Positives (FP), and False Negatives (FN).
- Calculate the following evaluation metrics: Accuracy, Precision, Recall, and F1-score.
- Show all formulas and calculation steps clearly.

Model Performance Analysis

- Do you think this model is reliable for sentiment analysis? Justify your answer.
- Do you think accuracy alone is sufficient for evaluating this model? Justify your answer.