
□ Task: "Build & Judge a Mini AI"

Part 1 — Chronology of AI

- * Write **one real-world example** for each stage:
 - Machine Learning → spam mail detection
 - Deep Learning → self driving cars
 - Computer Vision → facial recognition passcode on smartphones
 - NLP → google translate
 - LLMs → chatbots like chatgpt, gemini
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Part 2 — Deep Learning Architectures

- * Match the model to the use case:
 1. **RNN** - Early speech-to-text systems
 2. **LSTM** - Text translation (old Google Translate)
 3. **CNN** - Image recognition
 4. **Transformer** - Predicting the next word in ChatGPT
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Part 3 — Frameworks

- * Choose one framework (PyTorch / TensorFlow / Keras).
- * In **one sentence**, explain why you would use it if you were a student making a cat-vs-dog classifier.

Ans: Keras. It is free, simple and ready-to-run for small scale CNN models like cat-vs-dog classifiers.

Part 4 — Evaluation Metrics

- * Imagine you built a spam filter. Answer:
 - **Precision:** If it marks 10 emails as spam and 7 are truly spam → what's Precision?
Ans : 70%
 $[TP/TP+FP] \rightarrow [7/7+3] \rightarrow 0.7$
 - **Recall:** If there were 12 spam emails in total, how many did it catch? (use same example)
Ans: 58%
 $[TP/TP+FN] \rightarrow [7/7+5] \rightarrow 7/12 \rightarrow .58$
 - **F1 Score:** Use the formula and calculate (round to 2 decimals).
Ans: 63%
 $F1 = 2 * (precision * Recall) / (precision + Recall)$
 $F1 = .63$
 - **MSE/MAE:** Predict your friend's age (actual = 15, prediction = 18). Which metric punishes the error more?
Ans: MSE
error= 3
 $MAE = |3| = 3$
 $MSE = 3^2 = 9$
 - **BLEU/ROUGE:** AI translated "The cat sat on the mat" as "Cat is on the

mat." Which metric (BLEU/ROUGE) do you think would give a high score?
Ans: ROUGE

Part 5 – Responsible AI & Explainability

- You built an AI that predicts loan
- approvals. A customer asks, "Why was my loan rejected?"

Write **one simple way** to explain the decision fairly (e.g., "Your income was too low compared to the loan size").

Ans:

Your loan application has been rejected and could not be approved because your CIBIL score was too low to credit a loan.

Specifically:

1. There have been late or missed repayment from your side previously.
2. There have been multiple recent loans or credit applications, which puts a risk of repayment.

