Challenge 1 — Universal Financial Audio Intelligence Engine

Business context:

Lenders receive massive volumes of voice data: onboarding calls, tele-KYC, support calls, collections calls, grievance calls, verification calls. Almost all of it is unstructured and legally risky.

Objective

Build an enterprise-grade audio ingestion, transcription, and financial-speech understanding platform.

Core capabilities

🎙 **Audio ingestion**

- Multi-format audio/video support

- Noise & language detection

- Speaker diarization

- Call quality scoring

- Tamper & replay detection

📝 **Financial transcription**

- Fintech-aware ASR

- Domain vocabulary injection

- Confidence scoring per word

- Multi-lingual switching

- Profanity & PII detection

🧠 **Financial speech understanding**

- Intent classification

- Financial entity extraction

- Obligation & promise detection

- Emotion & stress markers

- Regulatory phrase detection

Deliverables

✓ Audio processing pipeline
✓ Time-aligned transcripts
✓ Financial entity layer
✓ Signal confidence scores
✓ Review & correction UI

Challenge 2 — Universal Financial Document Intelligence Engine

Business Context:
A digital lender receives 200+ document formats: bank statements, invoices, agreements, payslips, settlement letters. Current rule-based OCR pipelines break at scale.

Objective:
Build a **self-learning financial document AI system** that ingests any financial document and converts it into a validated financial knowledge object.

Core Requirements

1. **Document intelligence**

   o Auto classify document type

   o Detect layouts (tables, headers, handwritten, stamps)

   o Multi-language support

   o Image quality scoring

2. **Extraction**

   o Schema-aware extraction

   o Table structure reconstruction

   o Entity resolution (same employer, same bank, same account)

3. **Validation**

   o Balance continuity checks

   o Date sequencing

   o Income plausibility

   o Cross-document consistency

4. **Learning loop**

   o Human correction capture

   o Error clustering

   o Retraining triggers

Deliverables

- Modular microservice pipeline

- JSON knowledge graph

- Reviewer UI

- Extraction quality dashboard