Challenge you have tackled

Challenge 3 Voice Scam Shield
The goal was to develop "VoiceGuard Scam Shield," for scam detection during voice calls, to protect users from phishing scam calls. This requires monitoring of call audio, transcribing audio to text, and using AI to analyze the conversation for scam patterns and voice authenticity. The analysis needs to be presented in a dashboard for tracking, showing alerts and supporting multiple languages such as English, Spanish, French, Malay, and Simplified Chinese.

Tools / ML models you have used

- Frontend: React, TypeScript, Tailwind CSS
- Real-time Communication: WebRTC, WebSockets
- Backend & Database: Supabase (for project connection and secure API key management)
- ML Services:
    - Speech-to-Text (Transcription): ElevenLabs Conversational AI for multilingual transcription
    - Text-to-Speech: ElevenLabs GUI for high-quality, natural-sounding voice recordings; then the ElevenLabs API for alert and transcript voiceovers

What has worked well with these tools?

- Lovable vibe coding tool helped to create a plan, then created the app a base version of the app
- Lovable iteratively redefined and updated the app based on prompts I provided to it after testing the functionality and checking its plan
- Supabase allows me to store the ElevenLabs API key securely, and retrieve the key for use when calling the ElevenLabs APIs. Not putting API keys in our code is an important habit to improve cybersecurity and avoid a shock when we see spikes in our bills from unauthorised usage
- Voiceovers from ElevenLabs can truly resemble a real human

What was challenging?

- Understanding how to integrate with APIs or other services that we have not implemented for now (eg Twilio, Zoom SDK)
- Exploring relevant datasets for the demo

How have you spent your time?

0–3h: Think through the challenges, then finalise my option as challenge 3
3-6h: Lovable setup, ElevenLabs API setup (took alot of retries before voucher worked 1 hour later), explore datasets recommended
7–10h: Vibe coding with Lovable, integration with ElevenLabs, debugging, creation of synthetic text to speech examples using ElevenLabs
11–14h: Submission + videos