**Script:**

Hello, this is Amber and thank you for the opportunity to present.

Our team explored how diffusion-weighted MRI can be leveraged to extract meaningful insights about brain tissue health.

The project is split into two parts: Part I focuses on brain MRI analysis, while Part II applies similar techniques to image-based feature extraction. Let’s begin with Part I.

Here we estimate the diffusion tensor, a mathematical model that captures how water molecules move through the brain.

To do this, the MRI first captures a baseline scan of the brain, then applies a series of directional magnetic shoves, typically six or more, to observe how water motion responds in each direction.

These movement patterns reveal subtle structural changes in neural tissue, which are vital for diagnosing conditions like stroke, tumours, or neurodegeneration.

What makes this powerful is not just the insight we gain, but how we extract it from raw, complex imaging data.

Our process transforms signal variations into clear diagnostic maps, paving the way for earlier, more confident clinical decisions in digital health.

I’ll now hand over to Anish to show how our team brought this to life.

Anish (Part I solution):

* Solution outline in laymen’s terms.
* What’s new / innovative?

Charlie (Part II problem)

Part II Solution: Warren (Draft responses)

~ 25 sec

* Solution outline in laymen’s terms

*“Thank you Charlie, in this section we will replace brain scans with face photos due to limitations in acquiring large-scale MRI data.*

*With that in mind, our solution will be demonstrated using our moustache detector. Picture a moustache as a visual marker for a specific brain disease; one that might go unnoticed by your average doctor.*

*Out of a sample of 1000 photos, our moustache detector has successfully identified faces with moustaches at a 97% accuracy, as shown. If awarded the contract, our group can adapt this method to real world MRI data to accurately detect brain diseases at machine-level speeds. This unprecedented approach could redefine how we can diagnose complex brain diseases…*

*Faster, earlier and more accurately than ever before. Thank you for your time.”*