Amber’s Script of Part I problem

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.

## Shorter version:

Hello, I’m Amber. Thank you for the opportunity to present.

Our team explored how diffusion-weighted MRI reveals meaningful patterns in brain tissue.

The project has two parts: Part I analyses brain MRI; Part II uses similar tools for image-based feature extraction.

In Part I, we estimate the diffusion tensor, a model of how water moves through brain tissue.

The MRI captures a baseline scan, then applies six or more magnetic shoves to track water motion in different directions.

These patterns expose microstructural changes linked to stroke, tumours, or neurodegeneration.

The power lies not just in what we learn, but in how we extract it from raw, complex imaging data.

We turn this into diagnostic maps that support earlier and more confident decisions in digital health.

I’ll now pass it on to Anish to show how we made this work in practice.