**Topic Area: Health Sector**

**Aim:** Predict the likelihood of an individual being diagnosed with dementia based on demographic, lifestyle, and medical data.

**Models:** Machine learning models such the Deep Neural Networks and Random Forest model will be used to analyse the data.

**General Research Questions:**

*Prediction Accuracy:* How accurately can we predict the onset of dementia using demographic, lifestyle, and medical data from Australian populations?

*Model Performance:* How do different machine learning models (Deep Neural Networks and Random Forest,) compare in terms of prediction accuracy and robustness?

*Feature Importance:* Which features (e.g., age, gender, lifestyle factors, medical history) are the most significant predictors for dementia?

Proposed Target for Prediction Accuracy: 90%

**Disease-Specific Research Questions:**

1. What lifestyle and genetic factors are most strongly associated with the risk of developing dementia?
2. What role does genetic data play in enhancing the accuracy and personalization of dementia predictions?
3. How early can we predict the onset of dementia with reasonable accuracy?
4. Can prediction models help optimize healthcare resource allocation for chronic disease management?

**Data Sources:**

Datasets from Kaggle.com, research from Australian Institute of Health and Welfare (AIHW)