Development of a Chatbot Prototype for AIMhi-Y App or Stay Strong Website

An Interim Report

Submitted in partial fulfillment of the requirements for the award of the degree of Bachelor of Information Technology

Group 36

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Declaration

I hereby declare that the work herein, now submitted as an interim report for the degree of Bachelor of information technology at Charles Darwin University, is the result of my own investigations, and all references to ideas and work of other researchers have been specifically acknowledged. I hereby certify that the work embodied in this interim report has not already been accepted in substance for any degree, and is not being currently submitted in candidature for any other degree.

Signature:

Date: xx September 2025

List of Abbreviations

**AI** - Artificial Intelligence  
**AIMhi-Y** - Aboriginal and Islander Mental Health Initiative for Youth  
**API** - Application Programming Interface  
**BERT** - Bidirectional Encoder Representations from Transformers  
**CDU** - Charles Darwin University  
**CSS** - Cascading Style Sheets  
**CSV** - Comma-Separated Values  
**DistilBERT** - Distilled version of BERT  
**FSM** - Finite State Machine  
**HTML** - HyperText Markup Language  
**HTTP** - HyperText Transfer Protocol  
**IEEE** - Institute of Electrical and Electronics Engineers  
**JQE** - Journal of Quantum Electronics  
**JSON** - JavaScript Object Notation  
**LLM** - Large Language Model  
**ML** - Machine Learning  
**NLP** - Natural Language Processing  
**NSQDMH** - National Safety and Quality Digital Mental Health  
**PII** - Personally Identifiable Information  
**POST** - HTTP POST method  
**REST** - Representational State Transfer  
**RoBERTa** - Robustly Optimized BERT Pretraining Approach  
**SDLC** - Software Development Life Cycle  
**SQL** - Structured Query Language  
**UI** - User Interface  
**URL** - Uniform Resource Locator  
**UX** - User Experience

Abstract: This interim report describes the development of a rule-based chatbot prototype to support mental health for Aboriginal and Torres Strait Islander youth through the AIMhi-Y program. The project fills the gap between static digital resources and interactive engagement by creating a conversational AI system that follows the four step AIMhi Stay Strong model. Our methodology uses an iterative Software Development Life Cycle approach, combining rule-based logic with advanced natural language processing to ensure culturally safe and appropriate interactions. The prototype has a finite state machine architecture that guides users through structured conversations about support networks, personal strengths, worries and goals, and includes comprehensive risk detection protocols aligned to National Safety and Quality Digital Mental Health standards. Initial implementation has successfully combined deterministic rule-based responses with transformer-based intent classification and sentiment analysis and exceeded initial scope. The importance of this work is to show how conversational AI can provide mental health support that is accessible, culturally safe and meets strict safety protocols, and could be a model for other digital health interventions in Indigenous communities.

**Keywords**—Indigenous mental health, chatbot prototype, AIMhi Stay Strong, digital intervention