TEST MANAGEMENT AND BUG TRACKING SYSTEM

## Implementation Report

Student: Sharad Sharma

Email: sizzvirus49@gmail.com

GitHub: @srmasharad

Unit: ICT933 – Software Quality

Semester: S2 – 2025

Date: October 15, 2025

# EXECUTIVE SUMMARY

This report presents a comprehensive implementation of a test management and bug tracking system designed to streamline software testing processes, enhance defect tracking capabilities, and provide insightful reporting and visualization features. The system addresses the critical need for organized test management in modern software development by providing a centralized platform for managing test cases, tracking bugs through their complete lifecycle, and generating analytical reports that inform decision-making at both technical and managerial levels.

The implementation successfully fulfills all assessment requirements including system design documentation, database normalization to third normal form, comprehensive form implementations for data entry, five distinct analytical reports, graphical visualizations of testing metrics, and extensive test data population exceeding minimum requirements. The system employs modern web technologies including React with TypeScript for the frontend and Node.js with Express for the backend, with support for both SQLite for local development and PostgreSQL for production deployment on cloud platforms like Neon and Vercel.