

## Overview

This document outlines the unit tests conducted for the WGUApp. The primary focus of these tests was on the application's logic, rather than its user interface (UI). Due to resource constraints, extensive UI testing was not feasible for a small team. Instead, the tests concentrated on ensuring database integrity and overall logical correctness.

## Unit Test Coverage

- **Database Integrity:**
  - Tests verified the accuracy and consistency of data stored in the SQLite database.
  - Ensured proper data validation and error handling during database operations.
  - Checked for data integrity constraints, such as foreign key relationships, particularly with instructors, terms, and courses
  - Tested the correctness of calculations and decision-making processes such as term incrementing and logging out.
  - Assessed the handling of edge cases and potential error scenarios.
- **Android Interactions:**
  - Tested the app's communication with the system's notification settings, to ensure users are notified
  - Simulated date picking events to ensure logic is followed on the system.
- **Data Validation:**
  - Verified that the app effectively validates user input, preventing invalid data from being entered or processed, particularly with login.
  - Tested the handling of invalid input and potential errors, mainly with user end messaging.

## Testing Tools and Frameworks

- Nunit
- MStest
- Repetitive validation theory

## Test Results

- Overall, it was decided to make the table for reports more clean by adding line separators. It was also decided to make input requirements, particularly for login. Before, any data could be entered even if it was ridiculous. It was essential to make some boundaries. It was also decided to ensure temporary validation of logged in users, so it is reset when the application closes- or else the user will never log out!

- Some particular examples of what was mentioned above include: using user/pass - 123/123, which is too simple and unsafe! Also the app was causing problems when forced closed without manually clicking log out, which was fixed.

## Future Testing Considerations

- Consider getting a wider scope for unit testing. It was limited due to not a wide range of knowledge of the matter, but if we had more time, it would be great to dig deeper into UI validation, and time efficiency.
- Below is an example screenshot of what the Unit Test script looks like that was tested. This helped with database validation mainly, and a bit with the notification functionality of a mobile device

Unit Test script:

