

In web application development, testing is a necessary phase to ensure software quality, find bugs early, and make a secure and reliable product. A multiple levels testing strategy, which includes end-to-end (E2E), integration, and unit testing, will be implemented in our group project.

Verifying different components or features (such as controllers or services) independently is the main goal of unit testing. Debugging has become easier and logic errors can be discovered early because of this. We want to develop and show unit tests for our Node.js based application using Mocha and Chai.

(Segu Nagesh, 2025)

Integration testing is going to help in verifying how components interact, including checking that data flows correctly between the database, front-end, and APIs. This makes sure effective interaction between modules as we add additional functions.

To make sure that the application works as expected from the user's point of view, end-to-end testing is going to replicate actual user situations, such as logging in, placing orders, and receiving confirmations. Tools like Cypress or Selenium can be used in this. **(Fernando, 2025)**

Our objective is to keep code quality good during agile sprints by performing automated tests. Our the source code will be secure and collaboration will be enhanced by adopting a test-driven development (TDD) mindset.

References:

Fernando, N. (7 April 2025) *SIT725 Online Lecture - Week 6*, Deakin University, accessed 09 April 2025. [Available via Deakin's CloudDeakin/Microsoft Teams platform]

Segu Nagesh, S. (11 April 2025) *SIT725 Online Workshop - Week 6*, Deakin University, accessed 1 April 2025.

[Available via Deakin's CloudDeakin/Microsoft Teams platform]