



**IT-314: Software Engineering**

**Software Requirements Specifications**

**Group -14**

**Social Media Platform**

**Unit testing**

## **Introduction:**

This document provides an overview of the unit testing conducted for the project using Jest and earlyAI. It covers both back-end testing and details related to coverage, methodology, and the benefits derived from the testing process.

## **Tools and Framework:**

Jest: A JavaScript testing framework created to verify the accuracy and reliability of codebases.

## **White-box testing:**

White-box testing is a software testing method that involves examining the internal structure, design, and implementation of the code. Testers have access to the source code and focus on verifying the logic, flow, and functionality of the system.

## **Why unit testing is essential:**

- Improved Code Quality: Promotes the development of clean, modular, and easy-to-maintain code.
- Early Issue Identification: Detects problems at an early stage, reducing their impact on the overall project.

# Unit testing for Backend:

Overall test cases:

**All files controllers**

98.84% Statements 342/346 92.74% Branches 115/124 100% Functions 28/28 98.82% Lines 335/339

Press n or j to go to the next uncovered block, b, p or k for the previous block.

Filter:

File	Statements	Branches	Functions	Lines
message.controller.js	100%	27/27	87.5%	7/8
post.controller.js	100%	133/133	93.33%	28/30
user.controller.js	97.84%	182/186	93.02%	80/86

All test cases passed:

The screenshot shows the VS Code interface with the following details:

- Explorer:** Left sidebar showing the project structure with folders like backend, frontend, and tests.
- Code Editor:** Displays the `forgotpassword.early.test.js` file. The code includes a `describe` block for 'forgotpassword' and an `it` block for 'should handle internal server error'. The `it` block uses `jest.fn().mockRejectedValue` to simulate a database error and then checks the response status and message.
- Terminal:** Shows the output of running the tests. It indicates that all tests passed, with a summary: 'Test Suites: 25 passed, 25 total; Tests: 97 passed, 97 total; Time: 14.505 s'.
- Debug Console:** Shows the execution flow of the test, including calls to `Generator.tryCatch` and `asyncGeneratorStep`.