Dhirubhai Ambani Institute of Information and
Communication Technology

**IT-314: Software Engineering**
**Group-10**
## Unit Testing Report

FlipThePage

**eBook Library System**

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# Introduction

This document provides an overview of the unit testing conducted for the project using tools such as Jest, Vitest, and Istanbul. Covers back-end and front-end testing with details of coverage, methodology, and benefits.

## 1. Tools and Frameworks

Jest: A JavaScript testing framework designed to ensure the correctness of codebases. Istanbul: Provides coverage statistics for JavaScript codebases.

## 2. White-Box Testing

White-box testing involves examining and validating the internal structure and logic of the code. In contrast to black-box testing, which is concerned only with input-output behavior, white-box testing looks at the internal workings of the code.

## 3. Why is Unit testing important?

- **Ensures correctness**: Verifies that individual components function as expected.
- **Catches errors early**: Identifies issues at an early stage, reducing the cost of fixing bugs.
- **Improves code quality**: Encourages writing modular, maintainable, and reliable code.

# 4. Testing

- ## Overall Coverage

**All files**

**95.18%** Statements 277/291   **95.4%** Branches 83/87   **92.3%** Functions 24/26   **95.12%** Lines 273/287

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 ⇕ | |
|--------|--|--------------|--|------------|--|-------------|--|---------|--|
| Controllers | | 95.29% | 223/234 | 96.47% | 82/85 | 95.65% | 22/23 | 95.21% | 219/230 |
| Models | | 94.73% | 18/19 | 50% | 1/2 | 100% | 0/0 | 94.73% | 18/19 |
| Utils | | 92% | 23/25 | 100% | 0/0 | 66.66% | 2/3 | 92% | 23/25 |
| config | | 100% | 13/13 | 100% | 0/0 | 100% | 0/0 | 100% | 13/13 |

Code coverage generated by istanbul at 2024-12-01T19:33:41.236Z

- ## Coverage of Controllers

**All files** Controllers

**95.29%** Statements 223/234   **96.47%** Branches 82/85   **95.65%** Functions 22/23   **95.21%** Lines 219/230

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 ⇕ | |
|--------|--|--------------|--|------------|--|-------------|--|---------|--|
| AuthController.js | | 95% | 133/140 | 100% | 46/46 | 91.66% | 11/12 | 94.96% | 132/139 |
| BookController.js | | 100% | 25/25 | 92.3% | 12/13 | 100% | 2/2 | 100% | 25/25 |
| DashboardController.js | | 97.82% | 45/46 | 100% | 4/4 | 100% | 8/8 | 97.72% | 43/44 |
| SearchController.js | | 86.95% | 20/23 | 90.9% | 20/22 | 100% | 1/1 | 86.36% | 19/22 |

Code coverage generated by istanbul at 2024-12-01T12:59:52.634Z