

Test Plan

Online Tutoring Platform

Version 1.0

1. Introduction

This document outlines the test plan for the Online Tutoring Platform. The testing activities involve both automated and manual methods.

2. Objectives

The primary objectives of the testing phase are:

1. Verify the correctness and robustness of the platform's functionalities.
 2. Ensure a seamless user experience through live frontend-backend testing.
 3. Validate the integration between various components (frontend, backend, and database).
 4. Identify and resolve defects before deployment.
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3. Testing Strategy

3.1 Automated Testing

- **Framework Used:** JUnit
- **Coverage Goals:**
 - Unit testing of backend services and controllers.
 - Code coverage of at least 60% across all critical modules.
- **Test Execution:**
 - Tests are triggered automatically during CI/CD pipelines using GitHub Actions.
 - Reports generated via SonarQube.

3.2 Manual Testing

- **Live Testing:**
 - Four team members performed frontend-backend integration tests.

- Focused on real-time interactions, session scheduling, and user authentication workflows.
- **Scenarios Tested:**
 - User login and registration flows.
 - Scheduling tutoring sessions.
 - WebRTC interaction.

3.3 Integration Testing

- **Tools:** Postman
- **Objective:**
 - Validate API integration between frontend and backend.
 - Ensure correct database operations (CRUD).

3.4 Performance Testing

- **Focus Areas:**
 - Backend API response times.
 - Concurrent user sessions.
 - Database query optimization.
 - **Tools Planned:** Apache JMeter (future enhancement).
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4. Roles and Responsibilities

Role	Name	Responsibility
Frontend Testers	Mishi and Anastasiya	Live frontend testing.
Backend Testers	Erind and Gor	JUnit and integration testing.
Integration Tester	Nikolai	End-to-end testing coordination.

5. Risks and Mitigation

Risk	Likelihood	Impact	Mitigation Strategy
API integration errors	Medium	High	Use Postman and live testing to verify APIs.
Database connection failures	Low	High	Ensure proper database configurations.

Risk	Likelihood	Impact	Mitigation Strategy
Concurrent session handling issues	Medium	High	Conduct stress and load testing.
