

# Mekelle University

**EIT-M**

**DEPARTMENT: SOFTWARE ENGINEERING**

**COURSE NAME: SOFTWARE TESTING AND QUALITY ASSURANCE**

**ASSESEMENT TYPE: INDIVIDUAL**

**PREPARED BY: KAPITAL GEBREHIWET**

**ID NUMBER: EITM/UR178681/12**

**SUBMITTED TO: INSTRUCTOR MESELE**

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# Test plan

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## **1. Introduction**

The purpose of this test plan is to outline the strategy, resources, and schedule for testing the software system that incorporates sign-in and sign-up using Clerk, course addition and viewing, payment processing via Stripe, and data management with MongoDB.

## **2. Scope**

This test plan covers functional, non-functional, performance, and security testing of the software system. The focus will be on:

- \*User authentication and authorization

- \*Course management

- \*Payment processing

- \*Database interactions

### **Features to be tested**

#### **\*Course Management:**

- Adding new courses

- Viewing available courses

- Course details and descriptions

#### **\*Payment Processing:**

- Payment workflow using Stripe

- Handling payment errors and exceptions

#### **\*Database Interactions:**

- Storing and retrieving user data

- Course data management

### **Features not to be tested**

### **Third-Party Integrations:**

Assumed to be working as per their individual specifications

### **Non-Critical UI Elements:**

Elements that do not impact core functionality

## **Quality Objectives**

### **3.1 Primary Objectives**

- \*Ensure the school management system functions as intended without defects.
- \*Verify that the system meets user requirements and expectations for managing courses and payments.

### **3.2 Secondary Objectives**

- \*Ensure the system is secure and maintains data privacy for student and course information.
- \*Validate system performance under expected load conditions, especially during course registration and payment processing.
- \*Ensure courses are correctly added to and retrieved from MongoDB.
- \*Verify that after a successful payment via Stripe, the course is made available to the user.

## **4. Test Approach**

A combination of manual and automated testing will be used to cover all aspects of the system.

### **4.1 Test Automation**

Automation will be implemented for repetitive and regression test cases to enhance efficiency and reduce manual effort.

## **5. Roles and Responsibilities**

**Testers:** Execute test cases, report defects, and verify fixes.

**Developers:** Resolve reported defects and support testers with technical issues.

## **6. Entry and Exit Criteria**

### **6.1 Entry Criteria**

- \*Development of all features is complete.
- \*Test environment is set up.
- \*Test data is prepared.
- \*All necessary test documentation is reviewed and approved.

### **6.2 Exit Criteria**

- \*All planned test cases are executed.
- \*All critical and high-priority defects are resolved.
- \*Test reports are reviewed and approved by stakeholders.

## **7. Suspension Criteria and Resumption Requirements**

### **7.1 Suspension Criteria**

Testing will be suspended if:

- \*Critical defects block further testing.
- \*Test environment becomes unstable or unavailable.

### **7.2 Resumption Criteria**

- \*Testing will resume once:
- \*Blocking defects are resolved.
- \*Test environment is restored and stable.

## **8. Test Strategy**

## 8.1 QA Role in Test Process

QA will be involved from the requirements phase through to final delivery, ensuring quality at every stage.

## 8.2 Bug Life Cycle

**Identification:** Testers identify and report defects.

**Triaging:** Defects are reviewed, prioritized, and assigned.

**Resolution:** Developers fix the defects.

**Verification:** Testers verify the fixes.

**Closure:** Verified defects are closed.

## 8.3 Testing Types

**Unit Testing:** Verify individual components or units of code for correctness.

**Integration Testing:** Test the interaction between integrated units or components.

**System Testing:** Validate the complete and integrated software product to ensure compliance with requirements.

**Acceptance Testing:** Confirm the system meets the acceptance criteria and is ready for deployment.

**Functional Testing:** Verify that each function of the software operates in conformance with the requirement specification.

**Non-Functional Testing:** Assess system performance, usability, and reliability.

**Performance Testing:** Measure system response times and stability under load.

**Security Testing:** Ensure the system is secure from vulnerabilities and threats.

## 8.4 Bug Severity and Priority Definition

**Severity List:**

**Critical:** System crash, data loss, or severe security issue.

**High:** Major functionality impacted but with a workaround.

**Medium:** Minor functionality impacted.

**Low:** Cosmetic issues or minor inconsistencies.

**Priority List:**

**High:** Must be fixed immediately.

**Medium:** Should be fixed in the next release cycle.

**Low:** Fix when time permits.

## **9. Resource and Environment Needs**

### **9.1 Testing Tools**

\*Test Management Tool: Jira

\*Automation Tool: Cypress

\*Bug Tracking Tool: Jira

### **9.2 Configuration Management**

Configuration management tools will be used to maintain consistency in the test environment and manage version control.

### **9.3 Test Environment**

A dedicated test environment that mirrors the production environment will be used for testing.

## **10. Test Schedule**

**Planning Phase:** 1 day

**Test Design Phase:** 2 days

**Test Execution Phase:** 1 day

**Defect Resolution Phase:** 2 days

**Final Review and Sign-off:** 1 day

## **11. Test Deliverables**

**Test Plan:** Document outlining the testing strategy and scope.

**Test Cases:** Detailed test cases for each functionality.



**Test Scripts:** Automated test scripts for regression testing.

**Test Data:** Data sets required for executing test cases.

**Test Reports:** Summaries of test execution and results.

**Defect Reports:** Detailed reports on identified defects.

**Final Test Summary Report:** Comprehensive summary of all testing activities and outcomes.

## **12 Approvals:**

- **The test should be approved by the testers**

## **13 Terms/Acronyms**

**QA:** Quality Assurance

**UAT:** User Acceptance Testing