**COMSATS UNIVERSITY ISLAMABAD**



**SOFTWARE TESTING**

**THEORY ASSIGNMENT# 04**

|  |  |
| --- | --- |
| **NAME:** | **Muhammad Ammar Ali**  **Muhammad Moiz**  **Muaaz Bin Mukhtar** |
| **REGISTRATION NO:** | **FA21-BSE-042**  **FA21-BSE-044**  **FA21-BSE-045** |
| **CLASS & SECTION:** | **BSSE-7A** |
| **SUBMITTED TO:** | **Ma’am Najmun Nisa** |
| **DATE OF SUBMISSION:** | **December 26 ,2024** |

**Department of Computer Science**

**Test Plan Document**

**1. Test Plan Identifier**

**Project Name:** Agrotech  
**Test Plan Version:** 1.0  
**Date:** 2024-12-25  
**Author:** Muhammad Ammar Ali, Muhammad Moiz& Muaaz Bin Mukhtar

**Contact Information:** [SyedMuhammadMoizZaidi@yahoo.com](mailto:SyedMuhammadMoizZaidi@yahoo.com), [MubizMukhtar@gmail.com](mailto:MubizMukhtar@gmail.com), [ammarali1932008@gmail.com](mailto:ammarali1932008@gmail.com)

**Revision History:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Changes** |
| 1.0 | 2024-12-25 | Muhammad Moiz | Initial Test Plan Draft |

**2. Introduction**

**Purpose:** This test plan outlines the strategy, scope, resources, and schedule for the testing activities of the AgroTech application. The objective is to ensure the system meets all functional and non-functional requirements while identifying any defects or usability issues.

**Scope:** The plan includes testing core functionalities such as user registration, complaint management, crop recommendations, soil analysis, and e-commerce functionalities. Testing levels include unit, integration, functional, system, and regression testing.

**References:**

* AgroTech Software Design Document (SDS)
* Project Plan Document
* Relevant Standards and Policies

**3. Test Items**

The following modules will undergo testing:

* User Registration and Login
* Crop Recommendation
* Soil Analysis
* Complaint Management System
* Farmer Dashboard
* E-commerce Marketplace

**4. Features to Be Tested**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Description** | **Risk Level** |
| User Registration | New users can sign up with valid credentials | High |
| Crop Recommendation | Suggest crops based on soil and weather data. | Medium |
| Complaint Management | Users can lodge and view complaints | High |
| MarketPlace Purchase | Purchase farming products via cart/checkout. | Medium |

**5. Features Not to Be Tested**

|  |  |
| --- | --- |
| **Feature** | **Reason for Exclusion** |
| Advanced AI in Crop Disease Detection | Not implemented in this release version |
| ML Model to determine crop maturity | Not implemented in this release version |
| Multi-language Support | Planned for future updates |
| Offline Mode Functionality | Not a priority for the current development cycle |

**6. Approach**

**Test Strategy:**

Testing will be incremental and include the following tools:

* **Postman:** API Testing
* **Selenium:** Automated UI Testing
* **Mockaroo:** Test Data Generation

**Testing Levels:**

* **Unit Testing:** Individual modules (e.g., registration validation).
* **Integration Testing:** Interaction between modules like marketplace and dashboard.
* **System Testing:** Validate the system’s end-to-end functionality.
* **Regression Testing:** Ensuring previous functionality remains intact after updates.

**7. Item Pass/Fail Criteria**

|  |  |  |
| --- | --- | --- |
| **Criterion** | **Pass Condition** | **Fail Condition** |
| Registration | Successful account creation | Error in form submission |
| Crop Recommendation | Accurate crop suggestions provided. | Incorrect or missing recommendations. |
| Complaint Management | Complaint lodged and tracked successfully. | Missing or inconsistent complaint data. |
| E-commerce Purchase | Successful payment confirmation | Failed transaction |

**8. Suspension Criteria and Resumption Requirements**

**Suspension Criteria:**

* High-severity bugs block critical functionalities.
* Unavailable test environment.

**Resumption Requirements:**

* All critical bugs resolved and re-tested.
* Test environment restored.

**9. Test Deliverables**

* Test Plan Document
* Test Case Specifications
* Test Logs
* Bug/Defect Reports
* Test Summary Reports

**10. Test Tasks**

* Create test cases for all features.
* Execute unit tests for individual modules.
* Perform integration tests for module interactions.
* Log and report defects in a centralized tracking system.
* Conduct regression testing post-fix implementation.

**11. Environmental Needs**

**Environmental Needs**

**Hardware:**

* **Desktop and mobile devices.**

**Software:**

* **Selenium Testing Framework**
* **MongoDB Test Database**
* **Mockaroo for Test Data**

**12. Responsibilities**

|  |  |
| --- | --- |
| **Task** | **Assigned To** |
| Writing Test Cases | Muhammad Moiz, Muaaz Bin Mukhtar |
| Unit Testing | Muhammad Ammar Ali |
| Integration Testing | Development Team |
| Regression Testing | QA Team |

**13. Staffing and Training Needs**

* Training on Selenium for UI automation.
* Familiarity with MongoDB query testing.

**14. Schedule**

|  |  |
| --- | --- |
| **Activity** | **Start Date** |
| Test Case Design | 2024-12-22 |
| Unit Testing | 2025-01-07 |
| Integration Testing | 2025-01- |
| System Testing | 2025-01-21 |
| Regression Testing | 2025-02-01 |

**15. Risks and Contingencies**

|  |  |  |
| --- | --- | --- |
| **Module** | **Risk** | **Mitigation Strategy** |
| User Profiling and Login | Delay in development | Parallel testing with partial builds |
| Soil Analysis | Inaccurate analysis of soil data | Validate with soil testing report |
| Crop Recommendation | Inaccurate suggestions due to data gaps. | Validate with external API or real samples. |
| Complaint Management | High complaint volumes overwhelm system. | Optimize database queries. |
| Dashboard Performance | Slow dashboard performance due to high data retrieval demands. | Use pagination, caching, and optimized database queries. |
| Crop Health Monitoring | Inaccurate disease detection of crops | Validate with crop health report. |
| User Experience (UX) | Confusing navigation could lead to user dissatisfaction. | Conduct user testing and feedback sessions to refine navigation and workflows. |

**16. Approvals**

**Approved By:**  
Supervisor: Ma’am Saira Beg  
Date: 2024-12-25