FACULTY: Faculty of Information Computing Information Management (FOCIM).

COURSE: Bachelor in Science Information Security and Forensics (BISF)

TESTING PLAN

UNIT CODE: BISF 2208

UNIT NAME: Security and Forensics Project

PROJECT: CFF Church Management System.

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1.0 Introduction

1.1 Goals and Objectives

Goal

The goal of the testing process is to ensure the CFF Management System operates flawlessly and meets user requirements.

Objectives:

- Identify and correct defects in the system.
- Validate that the system meets user needs.
- Ensure data security and integrity.
- Confirm the system's performance under varying conditions.
- Verify compliance with accessibility standards.

2.0 Test Plan

1. Unit Testing

Purpose

To validate the correctness of individual components, functions, and classes within the CFF Management System.

Method

Developers will write test cases for each unit (functions, methods) to assess their behavior and correctness.

Reason

Unit testing ensures that specific program units function as intended and are free from logical errors, contributing to code quality and reliability.

2. Integration Testing:

Purpose

To verify the seamless interaction and data flow between integrated modules, ensuring they work cohesively.

Method

Developers and testers will progressively combine modules and assess their interactions, data exchanges, and compatibility.

Reason

Integration testing helps identify any interface issues, data inconsistencies, or communication problems between system components.

3. System Testing:

Purpose

To assess the overall performance, functionality, and behavior of the entire CFF Management System.

Method

Dedicated testers will execute predefined test cases and scenarios that cover all aspects of system functionality.

Reason

System testing evaluates whether the system meets its functional requirements, detects potential bottlenecks, and ensures comprehensive coverage of the system.

4. User Acceptance Testing (UAT):

Purpose

To determine if the CFF Management System meets user expectations, aligns with requirements, and is user-friendly.

Method

CFF administrators and potential users will interact with the system, providing feedback on usability, feature satisfaction, and overall experience.

Reason

UAT validates that the system fulfills its intended purpose and is ready for deployment, incorporating user input.

5. Performance Testing:

Purpose

To evaluate the system's responsiveness, speed, and stability under various loads and conditions.

Method

Load testing (simulating expected loads), stress testing (pushing system limits), and scalability testing for assessing capacity expansion will be done

Reason

Performance testing ensures the system can handle user loads, maintains responsiveness, and identifies performance bottlenecks or weaknesses.

6. Security Testing:

Purpose

To uncover vulnerabilities and security flaws in the system, focusing on data protection and privacy.

Method

Security experts will perform penetration testing, vulnerability scanning, and code review to identify and rectify security gaps.

Reason

Security testing safeguards sensitive member data and maintains the system's integrity, crucial for data privacy and regulatory compliance.

7. Regression Testing:

Purpose

To confirm that new system changes or updates have not introduced defects or negatively affected existing functionality.

Method

Re-running previously executed test cases and verifying that previously working features remain stable.

Reason

Regression testing preserves the integrity and reliability of the system by preventing the introduction of new defects or issues.

8. Usability Testing:

Purpose
To evaluate the system's user-friendliness and overall user experience.

Method
Real users will perform specific tasks while evaluators observe and collect feedback on usability, efficiency, and satisfaction.

Reason
-Usability testing ensures that the system is intuitive, user-friendly, and meets the expectations of its users.

9. Data Migration Testing:

Purpose
To validate the accuracy and integrity of data migration from the old system to the new CFF Management System.

Method
Testing the extraction, transformation, and loading (ETL) processes to ensure data consistency during migration.

Reason
Data migration testing minimizes the risk of data loss or corruption during the transition.

10. Accessibility Testing:

Purpose
To ensure that the system is accessible to users with disabilities, meeting accessibility standards–

Method
Testing with assistive technologies, screen readers, keyboard navigation, and evaluating compliance with accessibility guidelines.

Reason
Accessibility testing promotes inclusivity and ensures compliance with legal and ethical standards, enhancing the user experience for all individuals.

11. Mobile Device Testing:

Purpose

To assess the functionality and usability of the CFF Management System on various mobile devices (smartphones and tablets).

Method

Testing on different devices with various operating systems and screen sizes to identify and address mobile-specific issues.

Reason

Mobile device testing ensures that mobile users have a seamless and responsive experience with the system.

12. Browser Compatibility Testing:

Purpose

To verify that the system operates correctly and consistently on different web browsers available.

Method

 Testing on popular browsers (Chrome, Firefox, Safari, Edge) to detect and address any browser-specific issues.

Reason

Browser compatibility testing ensures a uniform user experience across various web browsers, promoting system accessibility.

3.0 Testing Staffing

Staffing

Here we will define the roles and responsibilities within the testing team:

- **Test Manager**

they oversee the entire testing process. Responsibilities include test strategy development, resource allocation, and coordination with the development team.

- **Test Engineers**

They are responsible for executing test cases and ensuring that the system meets quality standards. They will conduct various types of testing, including unit, integration, system, and more.

- **User Representatives**

A group of CFF administrators and potential end-users will participate in User Acceptance Testing (UAT). Their role is to evaluate the system's usability, functionality, and readiness. They will provide feedback and validate the system's compliance with user requirements.

- **Information Technology Group**

The ITG will provide support and assistance in configuring the testing environment, including setting up the necessary hardware, software, and network configurations.

Test Work Products

Work Products

specifies the essential work products generated during the testing process:

- **Test Cases:** Detailed test cases will be created for each type of testing (unit, integration, system, performance, security, etc.). Test cases will include step-by-step procedures, expected outcomes, and data inputs.
- **Test Scenarios:** High-level test scenarios will be defined to cover broader functionality and usage scenarios. These scenarios guide the creation of detailed test cases.
- **Test Data:** Specific test data, including valid and invalid inputs, will be prepared for executing test cases. Test data will simulate real-world scenarios and conditions.
- **Test Reports:** Comprehensive test reports will be generated for each testing phase. These reports will include details of test execution, identified defects, and overall test results.

Test Log

A test log will be maintained to record all tests and results:

- **Chronological Record:** The test log will include entries for each test conducted, indicating test type, date, objectives, executed steps, and outcomes (pass/fail).
- **Defect Logging:** Any identified defects will be logged in the test log, including descriptions, severity, status, and assignment for resolution.
- **Documentation:** The test log serves as a historical record of all testing activities and is essential for traceability and accountability.