Software Quality Assurance (SQA) Plan

1. Introduction

1.1 Purpose

This Software Quality Assurance (SQA) Plan defines the quality processes, standards, and controls to be applied during the development and deployment of **FlaremPlus**, a web-based online forum platform for university communities. The purpose of this plan is to ensure that FlaremPlus meets functional requirements, usability expectations, performance needs, and reliability standards while maintaining ease of access and long-term maintainability.

1.2 Scope

This SQA Plan applies to all phases of the Software Development Life Cycle (SDLC) of FlaremPlus, including requirement analysis, system configuration, customization of the forum platform, testing, deployment, and maintenance. The plan covers both functional and non-functional quality aspects such as usability, accessibility, security, and performance.

1.3 Problem Overview

Currently, universities rely on multiple communication tools such as WhatsApp, Instagram, and email newsletters. These tools are not designed for structured discussion or information retrieval, resulting in missed messages, repeated questions, and low engagement. Existing university portals focus mainly on administrative functions and lack community-driven interaction. FlaremPlus addresses this gap by providing a centralized, searchable, and topic-based discussion platform for students and instructors.

1.4 Definitions and Acronyms

- **SQA**: Software Quality Assurance
- **SDLC**: Software Development Life Cycle
- **UAT**: User Acceptance Testing
- **CMS**: Content Management System

---

2. SQA Management

2.1 SQA Organization

The SQA activities for FlaremPlus are managed by the project team, consisting of a Project Manager, Software Quality Assurance Manager, developers, and testers. Quality assurance tasks are integrated throughout the development and deployment stages of the system.

2.2 Roles and Responsibilities

- **Faris Amsyari Bin Saiful Fazamil-Project Manager:** Oversees project execution and ensures quality objectives are achieved within schedule constraints.
- **Akmal Danish Jasni-Lead Programmer :** Oversees system development tasks, reviews code, and ensures technical requirements are met.
- **Mohamad Syafiq Haikal-Software Quality Assurance Manager:** Defines quality standards, monitors compliance, and conducts reviews and audits.
- **Mir Mohammad Muaz-Developer:** Customize and configure the Flarum platform, follow coding and configuration standards, and perform unit testing.
- **Muhammad Zaidani Bin Mohd Ezri-Sub Programer:** Works together with the lead programmer

2.3 SQA Tasks

- Review system requirements and configuration settings
- Ensure adherence to web development and security standards
- Conduct periodic reviews and quality audits
- Ensure that software quality (SQ) personnel have adequate workspace and the necessary tools to perform SQ activities.
- Offer overall guidance and direction to SQ staff responsible for executing software quality tasks and assessments.
- Deliver weekly and quarterly software quality status updates.
- Support SQ personnel in addressing and resolving any noncompliance issues, problems, or risks identified during SQ activities.
- Report any unresolved noncompliance matters to project management for escalation.

3. Documentation Standards

All project documents shall follow approved templates and standards. Documentation includes: - Software Requirements Specification (SRS) - Software Design Document (SDD) - Test Plan and Test Cases - User Manuals

Documents shall be reviewed and approved before proceeding to the next SDLC phase.

---

4. Standards, Practices, and Conventions

4.1 Development and Configuration Standards

FlaremPlus is built using the open-source forum platform **Flarum**, which is based on PHP and follows a modular architecture. All customizations and extensions shall comply with Flarum development guidelines and PHP best practices.

4.2 Web and Design Standards

The system shall follow responsive web design principles to ensure accessibility across desktops, tablets, and mobile devices. User interfaces shall be simple, lightweight, and easy to navigate to encourage participation.

4.3 Testing Standards

Testing activities shall follow defined procedures covering functional testing, usability testing, performance testing, and security testing.

---

5. Software Reviews and Audits

Formal reviews shall be conducted at each major SDLC phase: - Requirements Review - Design Review - Code Review - Test Review

Audits are conducted to verify compliance with approved processes and standards.

---

6. Software Testing

6.1 Test Strategy

The testing strategy focuses on ensuring that FlaremPlus supports structured discussions, easy information retrieval, and stable performance under multiple users. Testing is conducted throughout development to identify defects early.

6.2 Types of Testing

- **Unit Testing**: Verification of individual components and extensions
- **Integration Testing**: Validation of interactions between Flarum, MariaDB, and NGinx
- **System Testing**: End-to-end testing of forum features such as posting, commenting, and searching
- **User Acceptance Testing (UAT)**: Validation by representative students and instructors

6.3 Defect Management

All identified defects shall be logged, prioritized, and tracked until resolution. Corrective actions shall be verified before closure.

---

7. Configuration Management

Configuration management ensures consistency and control over all FlaremPlus software components. Version control tools are used to manage configuration files, extensions, and documentation. The deployment environment includes: - **Web Server**: NGinx - **Backend Platform**: PHP (Flarum) - **Database**: MariaDB

All changes shall be documented and approved before deployment.

---

8. Risk Management

Potential project risks related to quality shall be identified and mitigated. Regular risk assessments shall be conducted throughout the project lifecycle.

---

9. Training

Project members shall receive necessary training on tools, standards, and quality procedures to ensure effective implementation of the SQA plan.

---

10. Metrics and Measurement

Quality metrics such as defect density, test coverage, and review effectiveness shall be collected and analyzed to monitor software quality.

---

11. Problem Reporting and Corrective Action

Non-conformances shall be documented, analyzed, and corrective actions shall be implemented to prevent recurrence.

---

12. Tools and Techniques

The following tools may be used: - Version control systems (e.g., Git) - Testing tools - Issue and defect tracking tools

---

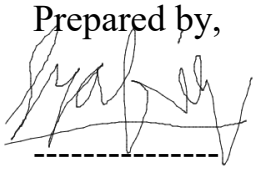
13. Approval

This SQA Plan shall be reviewed and approved by project stakeholders before implementation.

Prepared by: Software Quality Assurance Team
Date: ___30/12/2025_____

Signature Page

Prepared by,



Mohamad Syafiq Haikal Bin Abdul Aziz

30th December 2025

Software Quality Assurance Manager

Reviewed by,

Akmal Danish Jasni

10th January 2026

Lead Programmer

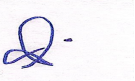
Reviewed by,

Mir Mohammad Muaz

10th January 2026

Developer

Approved by,



Faris Amsyari Bin Saiful Fazami

10th January 2026

Project Manager