## 

## Non-Functional Requirements Report

**Project Title: Shule Finder – A School Discovery Platform**

ABDULRAZZAQ MOHAMMED SALIMINI

## ****1. Introduction****

This report documents the non-functional requirements (NFRs) of the Shule Finder system. While functional requirements define what the system must do, non-functional requirements describe how the system should behave—its performance, reliability, usability, and other quality attributes. These constraints are critical in shaping the user experience, technical architecture, and long-term maintainability of the platform.

## ****2. Purpose and Scope****

The purpose of this document is to specify the qualitative aspects of the Shule Finder system, ensuring that the product is robust, secure, scalable, and usable across multiple user demographics. These requirements directly inform architecture, deployment strategies, and quality assurance processes, and are traceable within the GitHub Project Board.

## ****3. Non-Functional Requirements****

| **ID** | **Category** | **Description** | **Rationale** | **Acceptance Criteria** |
| --- | --- | --- | --- | --- |
| NFR-01 | Performance | The system shall load the homepage within **2 seconds** under standard network conditions. | Ensures fast user interaction, reducing bounce rate. | Homepage loads in < 2 seconds on 4G with browser dev tools. |
| NFR-02 | Scalability | The system shall support up to **10,000 concurrent users** without degradation in performance. | Accommodates future growth, regional/national usage. | Load tests simulate 10,000 users with <5% error and response time <2s. |
| NFR-03 | Security | All data in transit shall be **end-to-end encrypted using HTTPS and AES-256** standards. | Protects user data and meets compliance expectations. | SSL/TLS certification enforced; headers tested with security tools. |
| NFR-04 | Availability | The system shall have **99.9% uptime** during business hours (8am–8pm EAT). | Ensures users can access the service when needed. | Uptime monitored monthly via hosting platform (e.g., UptimeRobot). |
| NFR-05 | Maintainability | The system codebase shall be **modular, well-documented**, and follow consistent naming conventions. | Facilitates future development, testing, and debugging. | Peer review standards met, ESLint and Prettier integration confirmed. |
| NFR-06 | Usability | The UI shall comply with **WCAG 2.1 Level AA** standards for accessibility. | Ensures inclusivity for users with disabilities. | UI tested with accessibility tools (e.g., Lighthouse, axe). |
| NFR-07 | Responsiveness | The system shall be fully functional on mobile (Android, iOS), tablet, and desktop. | Mobile users are a significant demographic. | Layout and inputs tested on various resolutions via browser/device tools. |
| NFR-08 | Backup & Recovery | System data shall be **backed up daily** and recoverable within **1 hour** in the event of data loss. | Prevents catastrophic data loss scenarios. | Backup policy in place, manual recovery test conducted quarterly. |
| NFR-09 | Logging & Monitoring | All critical system errors shall be logged in real-time and reviewed weekly. | Supports debugging and system reliability tracking. | Log system deployed with alerts; dashboard integrated via admin panel. |
| NFR-10 | Localization | The system shall support **multi-language support (English & Swahili)** in all user interfaces. | Adapts to the diverse linguistic background of Kenyan users. | Language toggle functional and complete for all views/pages. |

## ****4. Traceability Matrix (NFR to GitHub)****

| **Requirement ID** | **GitHub Issue** | **Developer Assigned** | **Status** | **Verification Method** |
| --- | --- | --- | --- | --- |
| NFR-01 | #45 | @frontend-lead | In Progress | Lighthouse testing |
| NFR-02 | #46 | @devops-team | Planned | Apache JMeter report |
| NFR-03 | #47 | @security-lead | Done | SSLScan, DevTools |
| NFR-04 | #48 | @ops-team | Planned | Hosting Dashboard |
| NFR-05 | #49 | @backend-lead | In Progress | Code review logs |
| NFR-06 | #50 | @ui-designer | Planned | axe, Wave tools |