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sqap

Software Quality Assurance Plan

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**1. Introduction**

**1.1 Purpose**

**The purpose of this Software Quality Assurance Plan (SQAP) is to define the processes, standards, activities, and responsibilities required to ensure the quality of the HealthSync software platform. This plan is designed to ensure that HealthSync meets all the specified functional, non-functional, security, and performance requirements as outlined in Contract HSN-2024-001. The goal is to deliver a high-quality, secure, and reliable healthcare management platform that satisfies both regulatory requirements and user needs.**

**1.2 Scope**

**This SQAP applies to the development, implementation, testing, and deployment of HealthSync, a healthcare management platform that allows patients and healthcare providers to communicate, manage appointments, and securely handle electronic medical records. This plan covers the following phases of the software lifecycle:**

**Requirements gathering**

**Design**

**Implementation**

**Testing**

**Deployment**

**Maintenance**

**The scope includes ensuring compliance with relevant healthcare regulations, including HIPAA (Health Insurance Portability and Accountability Act), and achieving a defect density below 1% in production.**

**1.3 Assumptions and Constraints**

**Assumptions:**

**The HealthSync project will comply with healthcare industry standards and regulations, including HIPAA.**

**All team members will have the necessary training in secure software development and healthcare compliance.**

**Testing will be conducted in a simulated environment that accurately reflects real-world use.**

**Constraints:**

**The project must be completed within the budget and time constraints specified in Contract HSN-2024-001, which defines a six-month development period.**

**The system must integrate with existing electronic health record (EHR) systems used by healthcare providers.**

**1.4 Software References**

**This SQAP references the following documents and standards:**

**HealthSync System Requirements Specification (SRS)**

**Contract HSN-2024-001: HealthSync Development Agreement**

**HIPAA Compliance Guidelines**

**IEEE 730-2014: Software Quality Assurance Plans Standard**

**IEEE 1012-2012: System and Software Verification and Validation**

**1.5 SQA Plan Overview**

**This SQAP outlines the structure and responsibilities for ensuring that the HealthSync platform is developed in accordance with industry best practices and meets the high standards expected for software handling sensitive healthcare data. Key components of the plan include:**

**Quality Objectives: Ensuring compliance with HIPAA and maintaining system availability of 99.9%.**

**Management: Responsibilities will be assigned to project managers, developers, and QA engineers to ensure collaboration across teams.**

**Testing: Testing will focus on functionality, security, and performance to prevent unauthorized access and ensure system reliability.**

**Problem Reporting: A defect tracking system (JIRA) will be used for tracking issues, with a priority system in place to address critical defects.**

**2. Quality Objectives**

**The following quality objectives are established for the HealthSync project to ensure that the software meets both functional and non-functional requirements, complies with relevant healthcare regulations, and delivers a reliable, high-quality user experience.**

* **Compliance with HIPAA:  
  The HealthSync platform must comply fully with the Health Insurance Portability and Accountability Act (HIPAA) regulations to protect sensitive patient health information (PHI) and ensure secure handling, transmission, and storage of medical records.**
* **Defect Density:  
  The software must achieve a defect density of less than 1% in the production environment. This metric ensures that fewer than 1 defect is present for every 100 lines of code or function points, indicating a high level of software reliability and minimizing the risk of failure in critical areas.**
* **System Availability:  
  The system must maintain an uptime of 99.9%, ensuring that the HealthSync platform is highly available to both patients and healthcare providers. This minimizes downtime and supports continuous access to critical healthcare information and services.**
* **Test Coverage:  
  The system must achieve at least 90% test coverage for critical functionalities, ensuring that all essential components of the system (e.g., appointment scheduling, medical record access) are thoroughly tested, including functionality, security, and performance.**
* **EHR Integration:  
  The platform must seamlessly integrate with existing Electronic Health Record (EHR) systems used by healthcare providers. This integration will be tested and verified to ensure that data is transferred securely and without errors, supporting accurate, real-time updates of patient medical information.**
* **Performance Benchmarks:  
  The system must respond to user interactions within an average of 2 seconds, ensuring a smooth and responsive user experience for both patients and healthcare providers. This objective is crucial for real-time interactions, such as managing appointments or accessing medical records.**
* **User Acceptance Testing (UAT):  
  A final User Acceptance Testing (UAT) phase will be conducted with healthcare professionals and administrative staff to validate that the system meets the operational needs of its users. This ensures that the platform is intuitive and effective for real-world healthcare workflows.**

**Here’s an updated Section 3: Roles and Responsibilities for the HealthSync Software Quality Assurance Plan (SQAP), based on the guidance from C.3.3 of IEEE 730-2014. This section outlines the roles and responsibilities of key personnel involved in the project, ensuring that quality assurance activities are properly assigned and managed. It also includes references to relevant documents such as the contract for the project.**

**3. Roles and Responsibilities**

**This section defines the roles and responsibilities for the personnel involved in ensuring the quality of the HealthSync project. All individuals must adhere to the processes and procedures outlined in this Software Quality Assurance Plan to meet the quality objectives and project milestones as specified in Contract HSN-2024-001.**

**3.1 QA Manager**

**Name: Ian Young  
Responsibilities:**

* **Oversee all quality assurance activities related to the HealthSync project.**
* **Develop and implement the QA strategy, ensuring it aligns with project milestones and contract requirements.**
* **Ensure compliance with regulatory standards, including HIPAA.**
* **Review and approve test plans, test cases, and test results.**
* **Monitor the defect density metric and ensure it remains below 1%.**
* **Manage the overall quality assurance team, allocating resources and responsibilities as needed.**

**3.2 Project Manager**

**Name: Ian Young  
Responsibilities:**

* **Coordinate between development, QA, and stakeholder teams to ensure the project remains on schedule and within scope.**
* **Facilitate communication between developers and the QA team to address defects and ensure timely resolutions.**
* **Ensure that all project deliverables meet the quality objectives outlined in Contract HSN-2024-001.**
* **Report project progress to stakeholders, including compliance with the established system availability and test coverage goals.**

**3.3 QA Engineers**

**Names: Ian Young  
Responsibilities:**

* **Design and execute detailed test cases for both functional and non-functional requirements.**
* **Ensure that the system achieves 90% test coverage for critical functionalities, with a focus on testing for HIPAA compliance.**
* **Perform performance and security testing to ensure system responsiveness and data protection.**
* **Log defects in the JIRA defect tracking system and collaborate with developers to resolve issues.**
* **Ensure the platform integrates seamlessly with existing EHR (Electronic Health Record) systems.**

**3.4 Developers**

**Names: Ian Young  
Responsibilities:**

* **Develop high-quality code that adheres to the design and functional requirements of the HealthSync platform.**
* **Conduct unit tests to identify and resolve defects early in the development cycle.**
* **Participate in peer code reviews to ensure code quality and reduce defect density.**
* **Collaborate with the QA team to address defects, particularly high-priority issues affecting system security or EHR integration.**

**3.5 Stakeholders**

**Names: Ian Young  
Responsibilities:**

* **Provide requirements and feedback throughout the project lifecycle.**
* **Participate in User Acceptance Testing (UAT) to ensure the system meets user expectations and operational needs.**
* **Validate that the system complies with regulatory standards and delivers the expected performance and functionality.**

**Standards, Practices, Conventions, and Metrics 4.1 Software Documentation  
(Stub: Outline of required software documentation.)  
4.2 Software Development Standards  
(Stub: Define development standards for the software.)  
4.3 QA Standards  
(Stub: Specific quality assurance standards.)  
4.4 Metrics  
(Stub: Metrics for monitoring software quality.)**

**Reviews and Audits 5.1 Types of Reviews  
(Stub: Types of reviews such as design, code, and requirements reviews.)  
5.2 Types of Audits  
(Stub: Types of audits like internal or external.)  
5.3 Review and Audit Procedures  
(Stub: Procedures for conducting reviews and audits.)**

**Test 6.1 Test Planning  
6.2 Test Design  
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6.4 Test Reporting  
(Stub: Placeholder for various stages of testing activities.)**

**Problem Reporting and Corrective Action 7.1 Problem Reporting  
7.2 Corrective Action  
(Stub: Defect reporting and resolution process.)**

**Tools, Techniques, and Methodologies 8.1 Tools and Techniques  
8.2 Software Development Methodology  
8.3 Standards for Tools, Techniques, and Methodologies  
(Stub: Outline of tools and techniques used in development and QA.)**

**Code Control 9.1 Source Code Management  
9.2 Code Review Procedures  
9.3 Version Control  
(Stub: Procedures for managing and reviewing source code.)**

**Media Control 10.1 Media Handling  
10.2 Media Storage  
10.3 Media Labeling  
(Stub: Procedures for controlling software media.)**

**Supplier Control 11.1 Supplier Selection  
11.2 Supplier Audits  
11.3 Supplier Review  
(Stub: Outline processes for managing third-party suppliers.)**

**Records Collection, Maintenance, and Retention 12.1 Record Types  
12.2 Record Storage  
12.3 Record Retention  
(Stub: Define how QA records are maintained and stored.)**

**Training 13.1 Training Needs  
13.2 Training Plan  
13.3 Training Records  
(Stub: Define training plans and needs for QA staff.)**

**Risk Management 14.1 Risk Identification  
14.2 Risk Analysis  
14.3 Risk Mitigation  
(Stub: Risk management approach in the QA process.)**

**Quality Assurance Reporting 15.1 Reports  
15.2 Report Frequency  
15.3 Report Distribution  
(Stub: Reporting procedures and frequency for QA progress.)**

**Revision History**

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| --- | --- | --- | --- |
| **Date** | **Update** | **Version** | **Author** |
| 2024-10-04 | - initial draft - title page - revision page - TOC - Stubs | V0.0.1 | Ian Young |
| 2024-10-05 | * Additional text * TOC improvement * Stubs * Update Section 1, 2, and 3 | V0.0.2 | Ian Young |
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