**SQAP**

**Bike Shop Inventory Software Project**

**By Hath a Way Co.**

**Prepared for: Schwinn**

**Approved by Bro Wood**

**Author: Nate Hathaway**

**Revision History**

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1 Purposes and scope

This Software Quality Assurance (SQA) Plan establishes the framework for ensuring quality in the development, implementation, and maintenance of the **Bike Shop Inventory Management System (BSIMS)**. The purpose of this document is to define the quality assurance activities, processes, and standards that will be applied to ensure that the software meets functional, performance, and reliability requirements.

1.1 Contract Reference

This SQA Plan is developed in accordance with the contractual agreement between the bike shop owner (client) and the software development team. The contract outlines the requirements, deliverables, and expectations for the BSIMS, ensuring alignment with business needs and industry best practices.

1.2 Scope of the Project

The **Bike Shop Inventory Management System (BSIMS)** is being developed to improve the efficiency of managing inventory, tracking stock levels, and optimizing reordering processes for bike shops. The system will provide functionalities such as:

* **Inventory Tracking** – Maintain real-time records of bikes, parts, and accessories.
* **Automated Stock Alerts** – Notify shop owners when stock is low.
* **Supplier Management** – Maintain a database of suppliers for streamlined ordering.
* **Sales and Purchase Integration** – Record transactions and adjust stock accordingly.
* **User Access Control** – Provide role-based access for employees and administrators.

The goal of the project is to eliminate manual errors, improve stock accuracy, and enhance operational efficiency, leading to better customer service and increased profitability for bike shop owners.

1.3 Quality Assurance Purpose

From a **Quality Management** perspective, this document defines the methods, tools, and processes that will be used to ensure that the BSIMS meets its specified requirements and performs reliably in a real-world retail environment. Quality assurance will be achieved by:

* Implementing **conformance testing** to validate system functionality.
* Performing **risk analysis** to identify potential failures in inventory tracking.
* Establishing **code review and testing procedures** to maintain software integrity.
* Ensuring **compliance with industry standards** for data security and reliability.
* Monitoring **user feedback and defect tracking** for continuous improvement.

This SQA Plan ensures that the development team adheres to best practices, mitigating software risks and delivering a high-quality product that meets the expectations of the client and end-users.

2 Definitions and acronyms

This section provides definitions for terms, acronyms, and concepts that may not be familiar to all stakeholders, particularly those outside of software engineering.

* **Software Quality Assurance (SQA):** A systematic process that ensures the software meets predefined quality standards, including functionality, reliability, and security. SQA involves verification and validation activities throughout the software development lifecycle.
* **Inventory Management System (IMS):** A software application that tracks and manages inventory levels, sales, and orders to optimize stock availability and prevent overstocking or shortages.
* **Automated Stock Alerts:** A system feature that notifies users when inventory levels fall below a predefined threshold, ensuring timely reordering and avoiding stockouts.
* **User Access Control:** A security mechanism that restricts system functionalities based on user roles (e.g., shop owner, manager, employee) to protect sensitive business information.
* **Risk Analysis:** The process of identifying, assessing, and mitigating potential issues that could impact the software’s performance, security, or reliability.

3 Reference documents

The following documents provide guidance and contractual obligations relevant to the **Bike Shop Inventory Management System (BSIMS)** development and quality assurance activities:

* **Contract Agreement for BSIMS Development (Contract #BSI-2025-01)** – Defines the scope, deliverables, quality expectations, and acceptance criteria for the project.
* **IEEE 730-2014: Standard for Software Quality Assurance Plans** – Provides guidelines for developing and implementing software quality assurance processes.
* **Concept of Operations (CONOPS) for Bike Shop Inventory Management System** – Describes the system’s intended use, operational needs, and high-level functionalities.

4 SQA plan overview

4.1 Organization and independence

4.2 Software product risk

4.3 Tools, techniques, and methodologies

4.4 Standards, practices, and conventions

5 Activities, outcomes, and tasks

5.1 Effort, resources, and tasks

5.1 Evaluate plans for conformance

5.2 Evaluate product for conformance

5.3 Evaluate product for acceptability

5.4 Evaluate product life cycle support for conformance

5.5 Measure products

5.2 Process evaluations

5.2.1 Evaluate life cycle processes for conformance

5.2.2 Evaluate environments for conformance

5.2.3 Evaluate subcontractor processes for conformance

5.2.4 Measure processes

5.3 Access staff skill and knowledge

6 Additional considerations

6.1 Contract review

6.2 Quality measurement

6.3 Waivers and deviations

6.4 Communications strategy

6.5 Tools for performing SQA

7 SQA records

7.1 Analyze, identify, collect, file, maintain and dispose

7.2 Availability of records