Barangay South Signal Village Web-App

Test Strategy

**Revision History**

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| **Date** | **Version** | **Author** | **Description** |
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**Table of Contents**

[Scope (Mabelle) 2](#_Toc1347360999)

[Test Approach (Mabelle) 3](#_Toc1947450055)

[Test Environment (Mabelle) 4](#_Toc1202933761)

[Testing Tools (Mabelle and Sofia) 5](#_Toc1226238002)

[Release Control (Sofia) 6](#_Toc1054639682)

[Risk Analysis (Sofia) 7](#_Toc1019778408)

[Review and Approvals (Sofia) 13](#_Toc422136756)

# **Scope**

This document will provide a high-level plan or framework that guides the testing process for a software project. It serves as a roadmap to ensure that testing efforts are organized, efficient, and effective in meeting the project's quality objectives. Team AV will be reviewing the documentation prior to the project of Developmentality who will be responsible for approving this document. Also, they will be carrying out the testing activities in line with their timeline.

# **Test Approach**

The system will undergo comprehensive testing facilitated by the utilization of Selenium, a widely recognized open-source testing framework renowned for its proficiency in automating the testing processes of web applications. Selenium will not only serve as the primary automation tool for the project but also play a pivotal role in ensuring the software's robustness and reliability across various testing levels. These testing levels encompass Unit Testing, which examines individual components or modules in isolation, Integration Testing, which evaluates the interaction between these components when integrated, and User Acceptance Testing, which assesses the system's fitness for purpose from an end-user perspective, ensuring that it meets the project's requirements and expectations. Through this multifaceted testing approach, we aim to enhance the system's quality, functionality, and overall performance, delivering a product that aligns seamlessly with user needs and industry standards.

*Roles and Responsibilities*

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| --- | --- | --- |
| **Name** | **Role** | **Responsibility** |
| Aspeli, Mabelle T. | Technical Writer | Responsible for bridging the gap between technical experts and end-users by creating clear, accurate, and accessible documentation that enables users to understand and effectively use complex technical products, systems, or processes. |
| Villamin, Sofia Emmanuelle R. | Tester/Technical Writer | Responsible for meticulously evaluating software or systems to identify defects, vulnerabilities, and areas for improvement while ensuring that the product meets quality and performance standards. |

# **Test Environment**

The SoCIT Cloud Environment will serve as the foundational infrastructure for setting up the entire testing environment, playing a pivotal role in enabling a controlled and scalable environment for rigorous testing activities throughout the project lifecycle. This cloud-based environment will provide a versatile and dynamic platform for hosting various software components, ensuring that the project's testing requirements are met efficiently and effectively.

In addition to facilitating environment setup, the SQL Database will be established within this environment to store and manage the data crucial for the testing scenarios. This database will serve as a central repository for test data, offering a secure and organized storage solution that ensures the availability of accurate and up-to-date information to support the testing efforts.

Moreover, the project team will be granted privileged access to this SQL Database, empowering them with the ability to manipulate and interact with the data as needed for testing purposes. This access ensures that team members have the necessary control and visibility into the database, enabling them to execute tests, analyze results, and troubleshoot issues efficiently.

In summary, the SoCIT Cloud Environment and the SQL Database collectively form a robust foundation for the project's testing endeavors, providing a flexible and accessible ecosystem that enhances the team's capability to conduct thorough and effective testing scenarios while maintaining the integrity and security of critical data resources.

# **Testing Tools**

About our testing toolkit, the team has strategically chosen to harness the capabilities of Selenium IDE, a versatile and powerful extension compatible with both Mozilla Firefox and Google Chrome browsers. Selenium IDE, renowned for its user-friendly interface and robust automation capabilities, will play a pivotal role in our testing efforts, enabling seamless test script creation, execution, and evaluation across these popular web browsers. Its cross-browser compatibility ensures a comprehensive and consistent evaluation of our web application's functionality and performance, thus enhancing our assurance of its quality and reliability.

Furthermore, as a complementary addition to our testing arsenal, we are introducing a new application called TestLink. This application will serve as a valuable tool for tracking and managing the various iterations and versions of our testing efforts. Testlink's robust functionality includes test case management, test execution tracking, and comprehensive reporting features. It will provide us with the visibility and control needed to systematically organize our testing activities, monitor progress, and facilitate effective collaboration among team members. By leveraging the combined strengths of Selenium IDE and Testlink, we aim to elevate our testing endeavors, ensuring that the development of our web application, the Barangay South Signal Village web app, progresses with efficiency, precision, and a meticulous focus on quality assurance.

# **Release Control**

Release control stands as a pivotal pillar within a comprehensive quality assurance framework for testing, underscoring its critical role in ensuring that the software's journey from development to deployment is orchestrated with meticulous precision and adherence to established protocols. Within the ambit of this meticulous approach, Team AV is poised to spearhead the establishment and implementation of robust test execution and release management techniques, ensuring that every facet of this multifaceted process is well-organized and finely tuned for optimal outcomes.

As the testing saga unfolds for the Barangay South Signal Village Web App, it will undergo a battery of tests that collectively embody a rigorous and holistic evaluation, addressing various dimensions of its performance, functionality, and resilience. These encompass performance testing, which gauges the system's responsiveness and efficiency under different loads; functional testing, which meticulously verifies that every feature and capability aligns with the specified requirements; load testing, which assesses the system's endurance under varying levels of demand; spike testing, which scrutinizes its ability to withstand sudden surges in user activity; and smoke testing, which conducts a preliminary examination to ensure that essential functionalities are intact. These are just a few facets of the comprehensive testing regimen that will be applied to the web app, all with the overarching aim of ensuring that every nuance of its requirements and specifications is not just met, but exceeded, culminating in a software product that epitomizes quality, reliability, and user satisfaction.

# **Risk Analysis**

In the realm of project management, regardless of its nature, complexity, or scope, and including endeavors as diverse as crafting a sophisticated web application like the Barangay South Signal Village web app, it is an indisputable imperative to integrate comprehensive risk assessments into the project's foundational framework. These risk assessments serve as an indispensable compass, guiding the project team through the labyrinth of uncertainties, potential pitfalls, and unforeseen challenges that may lurk on the path to successful project completion. By undertaking rigorous risk assessments, project stakeholders gain invaluable insights into the various vulnerabilities, external factors, and internal dynamics that could impact the project's timeline, budget, quality, and overall success. Consequently, these assessments empower decision-makers to devise proactive risk mitigation strategies, allocate resources judiciously, and fortify project plans with the resilience needed to navigate the unpredictable terrain of project execution, ultimately ensuring that the development of the Barangay South Signal Village web app proceeds with foresight, adaptability, and a heightened probability of achieving its defined objectives. The Team AV gives an overview of how to conduct risk analysis for their test strategy:

1. The process of identifying risks involves systematically and comprehensively recognizing potential threats, uncertainties, and challenges that may impact a project, requiring careful analysis and documentation to inform risk management strategies.
   1. Technical risks encompass potential challenges related to the complexity, compatibility, and performance of technology components, which, if left unaddressed, may lead to development bottlenecks and software deficiencies.
   2. Compatibility of browsers and devices presents a critical concern, as ensuring seamless functionality and user experience across a wide range of platforms is essential for a successful software application, necessitating meticulous testing and adaptation efforts.
   3. Challenges associated with integrating external databases or systems can jeopardize the software's ability to interact cohesively with vital data sources and external entities, potentially leading to operational disruptions and data inconsistencies if not adequately addressed.
   4. Data breaches and security vulnerabilities pose a substantial risk, potentially exposing sensitive information, damaging user trust, and incurring legal and financial consequences, emphasizing the necessity for rigorous security testing and continuous monitoring measures.
   5. Performance constraints and scalability issues, such as slow response times and inability to handle increased user loads, can hinder the software's ability to meet evolving demands and user expectations, necessitating thorough performance testing and optimization efforts.

* + - 1. The notion of "resources at risk" encompasses the identification and evaluation of critical project assets, including personnel, financial allocations, and physical infrastructure, which may be exposed to various threats or uncertainties and require protection and contingency planning to ensure project success.
         * Shortage of qualified testing personnel poses a significant challenge for ensuring the thorough and effective validation of software products, potentially leading to quality issues, delayed releases, and increased project risks.
         * Inadequacy of infrastructure and testing tools can impede the comprehensive evaluation of software systems, hindering efficient development and potentially compromising product quality and reliability.
         * Budgetary limitations on testing activities can constrain the allocation of resources necessary for comprehensive testing, potentially compromising the thorough evaluation of the software and the overall project's success.
      2. Requirement and scope risks pertain to the potential challenges associated with defining, documenting, and managing project requirements and scope, which, if not adequately addressed, can lead to misunderstandings, scope creep, and project delays.
         * The presence of uncertain or shifting project specifications underscores the need for robust requirements management and a flexible project approach to accommodate evolving client expectations and ensure project success.
         * The absence of explicit user stories or acceptance criteria poses a significant challenge to effective software development, as it can lead to misunderstandings, misaligned expectations, and difficulties in accurately assessing when a feature or task is considered complete or meets the user's requirements.
         * Scope creep is a phenomenon in project management where additional features, requirements, or changes are gradually introduced during the development process, often without proper evaluation or documentation, which can lead to budget overruns, missed deadlines, and project inefficiencies.
      3. Planned risks, also known as known or anticipated risks, are those that have been identified and assessed in advance, and for which specific mitigation or contingency plans are put in place to manage their potential impact on a project.
         * Development delays that impact the timing of testing can result in compressed testing schedules, reduced testing coverage, and an increased risk of undetected defects, emphasizing the importance of proactive project management to minimize such disruptions.
         * Unexpected problems requiring intensive testing procedures can significantly disrupt project timelines and resources, underscoring the necessity for agile response strategies and robust testing frameworks to efficiently address and resolve such challenges.

1. Risk evaluation is a systematic and thorough assessment process that involves the analysis of identified risks to determine their potential impact, likelihood of occurrence, and overall significance to the project, aiding in the prioritization and selection of appropriate risk response strategies.
   1. Impact analysis entails a meticulous examination of the potential consequences of each identified risk on various facets of the project, including its budget, schedule, and the overall quality of deliverables, serving as a crucial foundation for informed decision-making and risk response planning.
   2. To calculate the probability that each risk will manifest, various techniques such as statistical analysis, expert opinions, or dedicated risk assessment methodologies can be employed, enabling a quantitative assessment that helps in prioritizing risks and determining appropriate mitigation strategies.

1. Setting risk priorities involves assigning a relative importance or significance to each identified risk based on factors such as its potential impact, likelihood of occurrence, and alignment with project objectives, allowing for focused attention and resource allocation to the most critical risks.
   1. The process of sorting out identified risks based on their likelihood and impact entails categorizing them into different risk categories, with a higher emphasis on addressing those risks that exhibit both a high potential impact and a high likelihood of occurrence, as they pose the greatest potential threats to the project's success and warrant immediate attention.

1. Creating strategies for mitigating risk involves developing proactive and systematic approaches to reduce the potential negative impact of identified risks, which may include risk avoidance, risk reduction, risk transfer, or risk acceptance strategies, depending on the specific characteristics of each risk and the project's objectives.
   1. Risk mitigation encompasses the implementation of deliberate actions and measures to either decrease the likelihood of a risk occurring or minimize its potential impact, such as thoroughly defining and documenting project requirements to enhance clarity and reduce the risk of misunderstandings or scope-related issues.
   2. Implementing risk mitigation strategies involves executing planned actions and measures aimed at diminishing the likelihood or severity of risks, as exemplified by the practice of security testing, which plays a pivotal role in identifying and addressing security vulnerabilities, ultimately reducing the potential for security breaches or flaws in the software.
   3. Risk transfer is the strategic delegation of risk management responsibilities to a third party, whether through outsourcing certain project aspects or securing insurance coverage, which can help redistribute the potential financial or operational burden associated with identified risks and enhance the project's overall risk profile.
   4. The practice of accepting risks involves a deliberate decision to acknowledge and tolerate identified risks, typically when their potential impact is relatively minor or the cost of mitigation exceeds the expected consequences, thereby allowing for a more balanced allocation of resources and focus on higher-priority risks.

1. The continuous process of monitoring and evaluating involves the ongoing surveillance of the project's risk landscape, tracking the status of identified risks, assessing the effectiveness of implemented risk mitigation measures, and making informed adjustments as needed to ensure that the project remains aligned with its objectives and adaptive to evolving risk profiles.
   1. As the project progresses through its lifecycle, it is imperative to adopt a proactive approach by regularly and systematically reviewing and updating the risk management plan. This dynamic process acknowledges the fluid nature of risks, as their characteristics and impact potential can undergo significant changes over time. Risks that were once considered remote may escalate in likelihood, while their consequences may evolve, posing new challenges to the project's success.
   2. Frequent reviews of the risk management plan enable project stakeholders to stay vigilant, identify emerging risks, and reevaluate the significance of existing ones. This iterative approach ensures that mitigation strategies remain relevant and effective, adapting to the evolving risk landscape. By embracing this practice, the project team not only enhances its ability to anticipate and navigate potential obstacles but also demonstrates a commitment to adaptability, resilience, and the proactive management of uncertainties, thereby enhancing the project's chances of achieving its goals and objectives.

# **Review and Approvals**

This document will undergo thorough review and require approval from the designated individuals or stakeholders who hold the authority and responsibility to ensure its accuracy, completeness, and alignment with project goals and requirements.

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| **Name** | **Signature** | **Date** |
| Wilkins Caducio  *Project Manager of Team Developmentality* |  |  |
| Jose Eugenio Quesada  *Course Professor* |  |  |