Quality Assurance Plan

ActiTime - Time Tracking Software

<4th November 2023>

K.T.U Nimalsiri

(19020503)

1   Introduction

1.1   PURPOSE

The purpose of this Quality Assurance Test Plan is to provide a comprehensive overview of the testing process for the actiTIME HR application. This plan aims to define the testing strategy, approach, and team structure, emphasizing the identification and mitigation of software risks. By following this plan, we intend to ensure that the actiTIME HR application functions as expected, is secure, and meets the needs of HR personnel effectively.

1.2   PROJECT OVERVIEW

The actiTIME HR application is a crucial tool designed to streamline HR management processes. It grants HR personnel the ability to log into the system using valid credentials. Once logged in successfully, HR users can access and review employee profiles, monitor leave and attendance reports, and approve or reject timesheets.

The application's primary features include:

- HR Login Functionality: HR users must securely log in with a valid username and password to access the system. This ensures that only authorized personnel can use the application.

- Employee Profiles: HR personnel can view and verify employee profiles, including their personal and professional information. This information may include names, contact details, job roles, and more.

- Leave and Attendance Reports: HR users can access detailed reports about employee leave requests, absences, and attendance. This functionality helps HR personnel manage workforce scheduling and attendance tracking effectively.

- Timesheet Approval/Rejection: HR can approve or reject timesheets submitted by employees. This feature is vital for payroll and attendance management.

2 Scope

2.1 IN-SCOPE

In the context of this Quality Assurance Test Plan, the following aspects of the actiTIME HR application are considered "in-scope" for testing:

- HR Login Functionality: Testing will focus on the ability of HR personnel to log into the system using valid usernames and passwords. This includes checking the authentication process, ensuring the security of login credentials, and verifying successful access to the system.

- Employee Profile Access and Verification: HR users should be able to access and validate employee profiles. This includes verifying that the application displays accurate and up-to-date employee information, such as names, contact details, job roles, and any other relevant data.

- Review of Leave and Attendance Reports: HR personnel should be able to access and review comprehensive reports related to employee leave requests, absences, and attendance records. These reports should provide accurate and timely information, allowing HR to make informed decisions and effectively manage employee attendance.

- Approval/Rejection of Timesheets: The application should enable HR to approve or reject timesheets submitted by employees. This process should be straightforward, secure, and well-documented to ensure accurate payroll processing and compliance.

2.2 OUT-OF-SCOPE

While the primary focus of this testing plan is on the mentioned functionalities, the following aspects are considered "out-of-scope" for this phase of testing:

- Testing of Other User Roles: This plan primarily addresses the HR user role. Testing of other user roles, such as regular employees or managers, is beyond the scope of this plan.

3   Testing Strategy

3.1   PRODUCT/APPLICATION/SOLUTION RISKS

Risks	Criticality	Mitigation Strategy
Authentication Vulnerabilities	High	- Implement strong authentication methods such as two-factor authentication (2FA) to enhance security. - Implement CAPTCHA to prevent automated login attempts. - Regularly review and update password policies and encourage users to use complex, unique passwords.
Unauthorized Data Modifications	High	- Apply strict access controls to prevent unauthorized data modifications. - Conduct regular reviews of audit logs to detect and address any suspicious activities.
System Downtime	High	- Regularly perform maintenance during non-business hours. - Offer a clear downtime notification system.
Incomplete or Inaccurate Data	High	- Provide data validation checks when HR users review and approve timesheets or leave requests. - Conduct periodic data audits to identify and rectify data discrepancies.

Data Loss	High	- Implement regular automated data backups and off-site storage. - Test data recovery processes periodically to ensure they are effective.
Performance Issues	Medium	- Conduct performance testing to identify potential bottlenecks and areas for optimization. - Implement load balancing to distribute traffic evenly. - Set performance benchmarks and monitor system performance regularly.
User Interface (UI) Usability Issues	Medium	- Conduct usability testing with HR users to identify and address usability issues. - Implement user-friendly design principles and provide user training if necessary. - Regularly gather user feedback to make continuous UI improvements.
Integration Challenges	Medium	- Thoroughly test integrations with other systems before deployment. - Ensure compatibility and data consistency with external systems. - Establish clear communication channels with third-party vendors and service providers.

3.2   LEVEL OF TESTING

Test Type	Description
Functional Testing	Test the functionality of HR login, employee profile access, report reviews, and timesheet approval/rejection.
Non-Functional Testing	Conduct performance testing, security testing, and usability testing.
Regression Testing	Ensure that new changes or updates do not break existing functionality.

3.2.1 Functional Testing

Functional testing focuses on evaluating the functional aspects of the application, ensuring that it performs its intended tasks correctly. In the context of the actiTIME HR application, the following functional testing activities will be carried out:

- HR Login Functionality Testing: Verify that HR personnel can log in successfully with valid usernames and passwords. This involves testing various scenarios, including valid and invalid credentials, password recovery, and session management.
- Employee Profile Access Testing: Confirm that HR users can access and view employee profiles accurately. This includes checking if all relevant employee information is displayed correctly and that data is updated as expected.
- Review of Leave and Attendance Reports: Test the functionality that allows HR personnel to review leave and attendance reports. This involves ensuring that the application generates accurate and up-to-date reports, which can be easily interpreted and used for decision-making.
- Timesheet Approval/Rejection Testing: Ensure that the application allows HR to approve or reject timesheets submitted by employees. Verify that this process is secure, well-documented, and that payroll-related data remains accurate.

3.2.2 Regression Testing

Regression testing is critical for ensuring that new changes, updates, or bug fixes do not introduce new defects or negatively impact existing functionality. For the actiTIME HR application, regression testing will encompass the following activities:

- Test Case Re-execution: Re-run previously executed test cases to confirm that existing functionality still works as expected after any changes or updates.
- Regression Test Suite: Maintain a suite of regression test cases to cover core functionality and frequently used features.
- Automated Testing: Implement automated regression testing scripts to efficiently validate functionality across multiple test scenarios.

3.2.3 Non-Functional Testing

Non-functional testing assesses the performance, security, and usability aspects of the application. These types of tests go beyond functionality and ensure the overall quality of the application:

- Performance Testing: Evaluate how the application performs under different loads, including testing for response times, scalability, and resource utilization. This is critical to ensuring that the system can handle HR operations effectively, even during peak usage.
- Security Testing: Identify and address security vulnerabilities through methods such as vulnerability scanning and penetration testing. This ensures that sensitive HR data remains protected and that the application is resilient against potential threats.
- Usability Testing: Assess the user-friendliness of the application's interface, making sure that HR users can navigate and perform tasks easily and efficiently. Usability testing often involves collecting feedback from users to make improvements to the user interface.

4. Test Approach

The Test Design Approach for the actiTIME HR Application is a comprehensive strategy tailored to meet the specific requirements of the application. It aims to ensure effective testing and evaluation of the system, which enables HR personnel to log in, access employee profiles, review leave and attendance reports, and approve or reject timesheets.

Before initiating testing, specific entry criteria must be fulfilled. This includes setting up the test environment, configuring the application, ensuring accurate test data, and ensuring a stable application state free from critical issues. Testing will be deemed complete when all test cases are executed, high-priority defects are resolved, performance benchmarks are achieved, usability issues are addressed, and the test team has reviewed and approved the results.

Testing will be conducted across various operating systems and browsers to ensure compatibility. The test data will encompass real-world scenarios, including employee profiles, leave and attendance records, and timesheets, covering different use cases and access levels.

To facilitate testing, a Test Management Tool will be used for test case management and reporting. Automation will be employed for regression testing, with automated scripts covering critical functionalities such as HR login, report generation, and timesheet approval/rejection. Additionally, performance and security testing will leverage dedicated tools to ensure robust evaluations.

Automation plays a significant role in enhancing efficiency and accuracy in regression testing. Automated test scripts are designed to cover critical functionalities and ensure seamless execution across various browsers and operating systems.

The test team structure is designed for effective execution and oversight. The QA Manager oversees the overall test strategy, project supervision, and stakeholder communication. QA Leads manage test planning, coordination, and the test team. Senior QA Engineers are responsible for designing, executing, and maintaining test cases, as well as identifying high-priority issues. QA Engineers execute test cases, report defects, and contribute to the maintenance of the test environment.

Test results are diligently documented and reported using a designated test management tool. These reports include information on executed test cases, their pass/fail status, identified defects, and performance benchmarks. Before sharing results with stakeholders, QA Leads and the QA Manager review and approve the test results.

Defects are systematically logged in the designated defect tracking system, providing detailed descriptions, steps to reproduce, and severity levels. The QA team prioritizes defects based on their impact and collaborates with the development team for resolution. Defects are retested to verify fixes and ensure successful closure.

5. Test Team Structure

5.1 TEAM STRUCTURE

#	Role	Resource Count
1	QA Manager	1
2	QA Leads	2
3	Senior QA Engineers	5
4	QA Engineers	15

5.2 ROLES AND RESPONSIBILITIES

- QA Manager: The QA Manager plays a central role in the testing process. Their responsibilities include project supervision, overseeing the test strategy, and ensuring that testing aligns with the project's goals and objectives. The QA Manager also manages resource allocation and communicates with project stakeholders regarding testing progress and outcomes.
- QA Leads: QA Leads are responsible for test planning and coordination. They work closely with the QA Manager to develop the test strategy and plan, create test schedules, and ensure that testing activities are organized and executed effectively. QA Leads also serve as the main point of contact for the testing team.
- Senior QA Engineers: Senior QA Engineers are responsible for both test design and execution. They are experienced testers who create test cases, scenarios, and test data, ensuring comprehensive test coverage. They also execute tests, report defects, and provide valuable insights into test design improvements.

- QA Engineers: QA Engineers execute test cases and report defects as directed by the senior QA engineers. They play a critical role in carrying out the testing activities in a systematic and structured manner. Their work contributes to the identification of issues and improvements in the application.

6. Test Schedule

- Test Planning and Design: This phase includes planning the test strategy, identifying test scenarios, and designing test cases. The specific dates for this phase should be determined based on the project timeline and complexity.

- Test Execution: During this phase, test cases are executed, and test data is used to validate the application's functionality. The timeline for test execution depends on the number of test cases and the overall project schedule.

- Defect Reporting and Tracking: This phase includes reporting defects, tracking their status, and retesting after defect fixes. The timeline for defect management should allow for timely resolution and verification.

- Test Completion and Reporting: The final phase involves wrapping up testing activities and preparing test reports. The test completion and reporting phase should provide stakeholders with a summary of testing results and any necessary recommendations.

7. Test Reporting

7.1 Quality Metrics

- Test Cases Executed and Passed
- Defects Found and Resolved
- Performance Benchmarks Achieved

8. Test Environment Requirements

- Operating Systems
- Browsers
- Test Data

9. Dependencies and Assumptions

- Availability of Test Environment: Testing relies on access to the appropriate test environment and configurations, which may be subject to delays or constraints.
- Availability of HR Personnel for Testing Assistance: HR personnel are crucial for testing certain aspects of the application, and their availability is assumed for effective testing.
- Timely Completion of Development Milestones: The testing schedule depends on the completion of development milestones, making it essential to meet these deadlines to stay on track.