Movie Ticketing System

Test Plan

CS250-01-Sum2024

Version 1.0

06/10/2024

Revision History

| Version | Date | Author | Reason for Revision/Issue |
| --- | --- | --- | --- |
| 1.0 | 06/10/2024 | Ben Coon | Initial draft |
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|  |  |  |  |

Associated Documents

|  |  |
| --- | --- |
| Reference | Description |
| SRS | Software Requirements Specification |
| SDD | Software Design Document |

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# 1 Introduction

## 1.1 Purpose

This section of the Test Plan for the Movie Ticketing System outlines and documents the necessary information required to effectively define the approach to be used in testing the system. The Test Plan is initiated during the Design Phase and executed during the Development Phase of the project. The purpose is to ensure that all functionalities, including user registration, login, movie schedule display, seat selection, and payment processing, are verified and validated to meet the specified requirements.

The intended audience for this Test Plan includes the project manager, project team, and testing team. The document serves as a guide for all testing activities, detailing the scope, objectives, resources, schedule, and deliverables of the testing process. Some portions of this document may occasionally be shared with the client/user and other stakeholders whose input and approval into the testing process is crucial for ensuring that the system meets user expectations and business goals. This collaborative approach helps in identifying any potential issues early and ensures a smooth transition from development to production.

## 1.2 Background

The Movie Ticketing System is a web-based application designed to facilitate the booking of movie tickets for various cinemas. The system allows users to view movie schedules, select seats, and purchase tickets. The system also includes functionalities for user registration, login, and payment processing. This test plan outlines the approach and activities to ensure that the system meets its requirements and performs as expected.

## 1.3 Scope

This test plan covers unit testing, functional testing, and user acceptance testing of the Movie Ticketing System. The focus will be on ensuring that all user interactions, booking processes, payment transactions, and administrative functions perform as intended. Exclusions from this test plan include stress testing, security testing, and interface testing with third-party systems, which will be addressed in separate test plans.

# 2 Resource Requirements

The Resource Requirements section identifies the equipment, software, and personnel resources necessary to perform the testing activities outlined in this Test Plan for the Movie Ticketing System. A well-equipped testing environment is essential to simulate real-world conditions and ensure comprehensive testing of the system's functionalities.

## 2.1 Testing Environment

The testing environment for the Movie Ticketing System must replicate the production environment as closely as possible. This includes the necessary hardware such as servers, desktops, and mobile devices of various configurations to test compatibility across different platforms. The environment should be equipped with the latest versions of web browsers, operating systems, and network configurations to mimic the user environment. Additionally, the environment should include necessary software tools for automated testing, performance testing, and security testing to ensure all aspects of the system are thoroughly evaluated.

## 2.2 Other Testing Components

Other critical components required for testing include testing tools and software such as Selenium for automated UI testing, JMeter for performance testing, and OWASP ZAP for security testing. Additionally, the environment should have access to a database populated with test data to ensure realistic testing scenarios. Testing components should also include programming aids and debugging tools that can assist in identifying and resolving issues quickly. Continuous integration tools like Jenkins should be configured to automate the build and test processes, ensuring that any new code changes are tested immediately.

## 2.3 Roles and Responsibilities

Table 1. Personnel Roles and Responsibilities

| Role/Function | Name | Necessary Skills  (Experience, Tool Sets, Etc.) | Responsibilities |
| --- | --- | --- | --- |
| Project Manager and Test Lead | Ben Coon | Strong leadership, project management experience, knowledge of testing methodologies, and proficiency in test management tools like JIRA, and TestRail. | Oversee the testing process, ensure alignment with project timeline and objectives, coordinate between teams, manage resources, and report progress to stakeholders. |
| Test and Business Analyst | Lucine Babikian | Analytical skills, experience in requirement analysis and test planning, proficiency in test case design, and knowledge of testing tools like Selenium, and JMeter. | Design and plan test cases, analyze business requirements, ensure test coverage, and validate that the system meets business needs. |
| Developer | Raul Montes | Programming skills, experience in software development, knowledge of unit testing frameworks JUnit, NUnit), proficiency in debugging tools. | Develop and maintain the system, perform unit testing, assist in resolving defects, and ensure code quality and performance. |
|  |  |  |  |

# 3 Assumptions, Constraints, and Risks

## 3.1 Testing Assumptions

The testing process for the Movie Ticketing System is based on several critical assumptions. It is assumed that all necessary documentation, including the Software Requirements Specification (SRS) and design documents, will be readily available to the testing team. This documentation is essential for understanding the system's functionality and designing appropriate test cases. Additionally, it is assumed that the development team will provide timely fixes for any defects identified during the testing process. This collaboration is vital to maintain the testing schedule and ensure that the system can be thoroughly tested. Another assumption is that the test environment will mirror the production environment. This parity is crucial to ensure that test results accurately reflect real-world performance and behavior.

## 3.2 Testing Constraints

The testing process is subject to certain constraints that may impact its execution. One significant constraint is the limited access to the payment gateway sandbox for testing transactions. This limitation could restrict the ability to perform comprehensive testing of the payment processing functionality. Additionally, potential delays in receiving updates from third-party service providers can impact the testing schedule. These delays could affect the integration testing phase, where interactions with external services are verified.

## 3.3 Testing Risks

Several risks are associated with the testing activities for the Movie Ticketing System. Integration issues with payment gateways represent a significant risk, as these could cause delays in the testing process and potentially impact the overall project timeline. Another risk is the possibility of discovering critical bugs late in the testing phase. Such late discoveries can have a substantial impact on the release schedule, as additional time would be needed to fix these issues and perform regression testing to ensure no new defects have been introduced.

## 3.4 Testing Strategy

The testing strategy for the Movie Ticketing System will be conducted in phases to ensure comprehensive coverage and verification of all system functionalities. The initial phase will involve unit testing, where individual components of the system will be verified to ensure they function correctly in isolation. Following unit testing, functional testing will be conducted to validate the system against the specified functional requirements. This phase ensures that all features work as intended and meet the business needs. The final phase will be User Acceptance Testing (UAT), where the system will be tested by end-users to ensure it meets their expectations and requirements. Each testing phase will build on the previous one, providing a robust approach to system validation.

## 3.5 Type of Tests

The testing process will involve several types of tests to ensure a thorough evaluation of the system. Unit Testing will focus on verifying individual components of the system to ensure they function correctly in isolation. Functional Testing will validate the system against the functional requirements, ensuring that all features are implemented as specified. User Acceptance Testing (UAT) will involve end-users testing the system to ensure it meets their expectations and business requirements. This multi-layered approach ensures that the system is tested comprehensively from different perspectives.

## 3.6 Test Data

Test data for the Movie Ticketing System will include sample user accounts, movie schedules, seat maps, and payment details. This data will be used to simulate real-world scenarios and verify that the system can handle various use cases. To ensure data privacy and compliance with regulatory requirements, any sensitive information included in the test data will be anonymized. This approach allows for thorough testing while protecting user privacy.

## 3.7 Recording Results

All test results will be recorded in the test management tool. Detailed logs of test execution will be maintained, including information on test cases executed, defects found, and steps to reproduce the issues. This comprehensive recording ensures transparency and traceability, allowing the testing team to monitor progress and address any issues promptly.

## 3.8 Analyzing Results

The results of the testing activities will be analyzed to identify trends, common issues, and areas requiring additional testing. Key metrics such as pass/fail rates and defect density will be tracked to measure the effectiveness of the testing process. This analysis will help in understanding the quality of the system and identifying areas that need further improvement or more rigorous testing.

## 3.9 Defect and Bug Resolution

Defects identified during the testing process will be logged in the defect tracking system. Each defect will be prioritized based on its severity and impact on the system. The defects will then be assigned to developers for resolution. After fixes are deployed, retesting will be performed to ensure that the issues have been resolved and that no new defects have been introduced. This process ensures that the system is continuously improved and remains free of critical issues.

## 3.10 Regulatory/Mandate Criteria

All testing activities will adhere to industry standards and regulatory requirements. This includes ensuring compliance with data protection regulations, accessibility standards, and other relevant mandates. By adhering to these criteria, the testing process ensures that the system not only meets functional and performance requirements but also complies with legal and regulatory obligations. This comprehensive approach to compliance helps in building a reliable and legally compliant system.

# 4 Unit Testing

Unit testing is a fundamental part of the software testing process where individual components or modules of the Movie Ticketing System are tested to ensure they function correctly. These tests are typically performed by the programmer or developer during the development phase to verify that each function works as intended.

## 4.1 Items to Be Tested/Not Tested

Items to Be Tested:

* User Authentication Module: Testing will verify that the login and registration functionalities work correctly, ensuring users can create accounts and log in securely.
* Movie Schedule Retrieval: This involves testing the functionality that retrieves movie schedules from the database, ensuring accurate and timely information display.
* Seat Selection: The module that allows users to select seats for a particular show will be tested to ensure it accurately reflects availability and updates correctly when seats are selected or released.
* Payment Processing: Testing will focus on the payment gateway integration to ensure transactions are processed correctly and securely.
* Ticket Generation: This module will be tested to ensure tickets are generated accurately with the correct user and movie information.

Items Not to Be Tested:

* User Interface Layout: Detailed testing of UI elements like layout and style will be excluded from unit testing and handled during functional testing.
* Integration with External Services: While unit tests will cover the interaction logic with external services, the actual communication with third-party services will be tested during integration testing.

## 4.2 Test Pass/Fail Criteria

* Pass Criteria: A test will be considered as passed if the module or function under test performs all its intended operations correctly, produces the expected output, handles all specified inputs, and does not produce any unintended side effects.
* Fail Criteria: A test will fail if the module or function does not perform as expected, produces incorrect output, fails to handle specified inputs, or causes unintended side effects.

## 4.3 Test Deliverables

* Test Cases: Detailed test cases for each module or function tested.
* Test Logs: Logs detailing the execution of each test case, including the inputs used, expected outcomes, actual outcomes, and any discrepancies observed.
* Defect Reports: Reports on any defects or issues discovered during testing, including steps to reproduce, severity, and impact.
* Test Summary Report: A summary of all unit testing activities, including the number of tests executed, passed, and failed, along with any significant findings or trends.

Table 2. Unit Testing – Items to be Tested/Not Tested

|  |  |  |
| --- | --- | --- |
| **Test Case ID** | **Test Objective/Description** | **Tester(s)** |
| TC001 | Verify user can register with valid credentials | Ben Coon |
| TC002 | Verify user can log in with valid credentials | Raul Montes |
| TC003 | Retrieve the movie schedule correctly from the database | Lucine Babikian |
| TC004 | Ensure seat selection reflects current availability | Raul Montes |
| TC005 | Process payment through payment gateway successfully | Ben Coon |
| TC006 | Generate ticket with accurate user and movie details | Lucine Babikian |

# 5 Functional Testing

Functional testing is conducted to ensure that the Movie Ticketing System behaves according to the specified functional requirements. This testing phase involves validating that all functions outlined in the requirements are present in the system and work as intended. Functional testing will be performed using predefined use cases, and it will be carried out by a testing team independent of the development team to ensure unbiased evaluation.

## 5.1 Items to Be Tested/Not Tested

Items to Be Tested:

* User Authentication: Testing will ensure that users can register, log in, log out, and recover passwords securely and efficiently.
* Movie Listings and Schedules: This includes verifying that users can view current and upcoming movie schedules, search for specific movies, and filter listings by various criteria (e.g., genre, date).
* Seat Selection and Booking: The functionality for selecting available seats for a chosen movie and showtime will be tested to ensure accuracy and usability.
* Payment Processing: Functional tests will validate that the payment process works smoothly, including handling various payment methods, processing transactions, and managing payment failures.
* Ticket Generation and Delivery: This will test the system's ability to generate and deliver electronic tickets (e-tickets) correctly via email or the user's account dashboard.

Items Not to Be Tested:

* UI Design Consistency: Detailed checks of UI design elements, such as alignment and color schemes, will not be included in this phase and will be tested during usability testing.
* Non-functional Requirements: Aspects like system performance, load handling, and security vulnerabilities will be addressed separately in the performance and security testing phases.

## 5.2 Test Pass/Fail Criteria

* Pass Criteria: A test will pass if the feature performs all intended operations correctly according to the functional requirements, meets the acceptance criteria for user stories, and integrates seamlessly with other system components without issues.
* Fail Criteria: A test will fail if the feature does not perform as expected, fails to meet the acceptance criteria, or causes disruptions in the system's overall functionality.

## 5.3 Test Deliverables

* Test Cases: Detailed test cases for each functional requirement, specifying inputs, expected outcomes, and actual outcomes.
* Test Execution Reports: Logs detailing the execution of each test case, including the status (pass/fail), execution date, and tester.
* Defect Reports: Comprehensive reports on any defects or issues discovered during testing, including steps to reproduce, severity, and potential impacts.
* Test Summary Report: A summary of all functional testing activities, including the number of tests executed, passed, and failed, along with significant findings and recommendations for improvement.

Table 3. Functional Testing – Items to be Tested/Not Tested

|  |  |  |
| --- | --- | --- |
| **Test Case ID** | **Test Objective/Description** | **Tester(s)** |
| TC101 | Verify the user registration process with valid and invalid inputs | Ben Coon |
| TC102 | Validate user login and logout functionality | Raul Montes |
| TC103 | |  | | --- | |  |  |  | | --- | | Ensure movie listings display correctly and are searchable | | Lucine Babikian |
| TC104 | Test seat selection and booking for accuracy and updates | Raul Montes |
| TC105 | Validate payment processing for various payment methods | Ben Coon |
| TC106 | Ensure e-tickets are generated and delivered correctly | Lucine Babikian |

# 6 User Acceptance Testing

User Acceptance Testing (UAT) is a critical phase of testing where the client or sponsor evaluates the Movie Ticketing System to ensure it meets all requirements and is ready for operational use.

## 6.1 Items to Be Tested/Not Tested

Items to Be Tested:

* User Interface Usability: Users will evaluate the system's user interface for ease of use, intuitiveness, and accessibility.
* Functionality Compliance: Testing will ensure that all functional requirements specified in the system's requirements documents are met.
* Performance and Reliability: Users will assess the system's performance under realistic usage scenarios, including ticket booking, payment processing, and ticket retrieval.
* Compatibility: Testing will verify the system's compatibility with different devices, browsers, and operating systems.
* Security: Users will check the system's security measures, including data protection, authentication mechanisms, and secure payment processing.

Items Not to Be Tested:

* Technical Details: Low-level technical details such as code structure, database schema, and server configurations will not be evaluated during UAT.
* Non-functional Requirements: Aspects like system performance under heavy load, scalability, and disaster recovery will be addressed separately in performance testing and disaster recovery planning.

## 6.2 Test Pass/Fail Criteria

* Pass Criteria: A test will pass if the system meets all specified requirements, functions as expected, and satisfies user needs and expectations.
* Fail Criteria: A test will fail if the system fails to meet any specified requirements, exhibits critical defects or malfunctions, or does not meet user expectations.

## 6.3 Test Deliverables

* Test Cases: Detailed test cases for each user requirement or use case, outlining steps to be performed and expected outcomes.
* Test Execution Reports: Logs detailing the execution of each test case, including any issues encountered and their resolution status.
* User Feedback Reports: Reports summarizing user feedback, including suggestions for improvement, identified issues, and overall satisfaction with the system.
* UAT Summary Report: A comprehensive summary of all UAT activities, including test results, user feedback, and recommendations for system improvement.

Table 4. User Acceptance Testing – Items to be Tested/Not Tested

|  |  |  |
| --- | --- | --- |
| **Test Case ID** | **Test Objective/Description** | **Tester(s)** |
| UAT\_TC001 | Evaluate user interface for ease of use and accessibility | Client Representatives |
| UAT\_TC002 | Verify system functionality against documented requirements | Client Representatives |
| UAT\_TC003 | Assess system performance during peak usage hours | Client Representatives |
| UAT\_TC004 | Test system compatibility with various devices and browsers | Client Representatives |
| UAT\_TC005 | Validate system security measures, including data protection | Client Representatives |

# Appendix 1: Test Results Matrix

|  |  |
| --- | --- |
| Testing Results Summary Report | |
| Ticket Number: | TBD |
| Project Name/Project Manager: | Movie Ticketing System/ Ben Coon |
| Testing Period: | 6/10/2024 – 6/20/2024 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test Case ID | Description of Test Objectives | Tested By  Unit, Functional, or UAT | Date Tested | Results:  Pass/Fail | Comments |
| **Pre-Implementation** | | | | | |
| TC001 | Verify user login functionality and ensure only registered users can access the system. The test will pass if valid users can log in successfully, and invalid users are denied access. | Developer  Unit | 06/11/2024 | Pass | Login functionality works as expected. |
| TC002 | Validate the seat selection process during booking, ensuring users cannot select already reserved seats. The test will pass if the system correctly shows available and unavailable seats. | Test Analyst  Functional | 06/12/2024 | Pass | The seat selection process is accurate. |
| TC003 | Test payment gateway integration by processing a test transaction. The test will pass if the payment is processed successfully without errors. | Developer  Unit | 06/13/2024 | Fail | Payment gateway timeout issues. |
| TC004 | Ensure the system correctly displays movie schedules and allows users to filter by date and genre. The test will pass if movie schedules are accurate and filters work correctly. | Test Analyst  Functional | 06/14/2024 | Pass | Movie schedules and filters are functioning. |
| TC005 | Confirm user registration process, checking if all mandatory fields are validated. The test will pass if the system prevents registration without the required information. | Developer  Unit | 06/15/2024 | Pass | Registration validation is successful. |
| **Post-Implementation** | | | | | |
| TC006 | Verify system performance under load by simulating high traffic. The test will pass if the system maintains performance standards under load conditions. | Test Analyst  Functional | 06/16/2024 | Pass | System performs well under load. |
| TC007 | Validate overall system integration, ensuring all modules interact correctly. The test will pass if there are no integration issues. | Test Analyst  UAT | 06/17/2024 | Pass | All modules are integrated smoothly. |
| TC008 | Confirm that the entire user booking workflow from login to payment confirmation works seamlessly. The test will pass if the user can complete a booking without issues. | Client  UAT | 06/18/2024 | Fail | Minor UI issues in the booking confirmation page. |
| TC009 | Ensure data security compliance by testing for common vulnerabilities like SQL injection and cross-site scripting. The test will pass if no security vulnerabilities are found. | Developer  Unit | 06/19/2024 | Pass | No security vulnerabilities detected. |
| TC0010 | Test the user feedback feature, checking if users can submit and view feedback on movies. The test will pass if feedback is correctly submitted and displayed. | Test Analyst  Functional | 06/20/2024 | Pass | Feedback feature works as expected. |