

Test Strategy for Ozymandyas Perfect Holidays LTD

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1. Objectives

- Verify the core functionality of the holiday planning system based on user preferences, dates, and weather conditions.
- Ensure seamless integration between the website, holiday service, queue, weather façade service, internal database, and external weather service.
- Validate the system's ability to handle the expected load and maintain data integrity when interacting with the production database.
- Confirm the asynchronous processing of weather updates via the queue.
- Guarantee the new system replicates the behavior of the existing system.

2. Scope of Testing

- **User Interface (Website):**
 - Login functionality for registered users.
 - Input and submission of holiday criteria (5 types).
 - Selection of travel dates.
 - Display of potential holiday candidates (initial and after weather update).
- **Holiday Service:**
 - Processing of user requests from the website.
 - Interaction with the "DB Holidays" database to retrieve and update holiday data.
 - Communication with the queue for weather updates.
- **Queue:**
 - Verification of message queuing and delivery to the "Weather Façade Service."
 - Confirmation of asynchronous processing.

- Resilience to message loss.
- **Weather Façade Service:**
 - Consumption of weather update messages from the queue.
 - Interaction with the "External Weather Service."
 - Processing of weather data.
 - Updating the "Holiday Service" with relevant weather information.
- **Database (DB Holidays):**
 - Verification of data retrieval based on user preferences and dates.
 - Validation of the system's ability to update customer request data.
 - Confirmation that existing experience types and setups remain unaffected.
- **External Weather Service (Simulation):**
 - Initial testing might involve a simulation to control weather scenarios.
- **Performance:**
 - Load testing to simulate 1000 requests per second.
 - Stress testing to identify system breaking points.

3. Out of Scope

- Functionality related to the management and setup of experience types within the "DB Holidays" database.
- Testing of other systems that interact with the "DB Holidays" database.
- Detailed testing of the "External Weather Service" itself.

4. Test Levels

- Unit Testing
- Integration Testing
- System Testing
- Performance Testing
- Acceptance Testing (UAT)

5. Test Data Management

- **Production Data Usage:**
 - Implement strict data masking or anonymization techniques.
 - Establish robust backup and restore procedures.
 - Carefully manage any data modifications.
- **Synthetic Test Data:**
 - Create synthetic data for unit and integration testing.

6. Test Environment

- Development Environment
- Test Environment
- Staging Environment
- Production Environment (for limited and controlled testing)

7. Test Tools

- Test Management Tools
- Automation Tools
- Performance Testing Tools
- Database Testing Tools
- Monitoring Tools
- Queue Monitoring Tools

8. Test Execution

1. Test Planning
2. Test Design
3. Test Environment Setup
4. Test Execution
5. Defect Management
6. Test Reporting

7. Regression Testing
8. Go-Live Readiness Assessment

9. Entry and Exit Criteria

- **Entry Criteria for Testing:**
 - Test environment is set up and accessible.
 - Test data is prepared.
 - Test cases are documented and reviewed.
 - Build deployed to the test environment.
- **Exit Criteria for Testing:**
 - All planned test cases have been executed.
 - A predefined percentage of test cases have passed.
 - All critical and high-priority defects have been resolved and re-tested successfully.
 - Stakeholder sign-off on test completion.

10. Roles and Responsibilities

- Clearly define roles and responsibilities (e.g., Test Lead, Test Engineers, Developers, Business Analysts).

11. Risk Management

- Identify potential risks (e.g., data corruption, performance bottlenecks, integration issues).
- Develop mitigation strategies.

12. Performance Testing Strategy

- Realistic Load Simulation
- Gradual Load Increase
- Monitoring Key Metrics (Response time, Throughput, Resource utilization, Error rates)
- Scalability Testing

- Stability Testing

13. Asynchronous Processing Verification

- Queue Monitoring
- Timing Analysis
- Negative Testing (simulating external service unavailability)

14. Regression Testing

- Comprehensive suite of automated regression tests.