



智产智融
Smart P&L

Smart P&L

Test Plan

by Sparklefish



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1. Introduction

1.1 Purpose

The test program of the “Smart p&l” platform, helps to achieve the following goals.

- 1) Determine the information of the existing project and the software components should be tested.
- 2) Lists the recommended test requirements.
- 3) Recommend the possible testing strategy, and to assess the workload of the test.
- 4) List the delivered work piece of the test.

1.2 Project overview

With the rapid development of China's economy, the number of small and medium-sized enterprises is also growing rapidly, and they are playing more and more important roles in the country's economic aspect. According to the statistics data from the National Administration for Industry and Commerce of China, in 2013 the total amount of China's small and medium enterprises and individual industrial and commercial households registered has more than 15 million. By the end of 2016 the number will be more than 70 million. With the annual growth rate of more than 10%, it is estimated that by 2020, China's small and medium enterprises and individual industrial and commercial households will be more than 90 million. SMEs have accounted for more than 99% of the total number of enterprises. According to the guiding spirit of the 18th National People's Congress, it is important to “promote public entrepreneurship innovation, and constantly cultivate new, new kinetic energy to promote sustained and healthy development of small and medium enterprises”. With the implement of the next 5 year plan and the in-depth development of China's market economy, the number and size of small and medium enterprises will continue to develop.





While small and medium enterprises are booming, the financing environment for small and medium-sized enterprises is very bad. According to the data from Bank of China released in 2014, we found that by June 2013, the total number of small and medium enterprises has reached 56.51 million yet less than 10% of them could obtain credit support from the bank. China's SME is currently facing problems in difficult financing processes, limited financing channels, high financing costs, and the problem is becoming increasing hard.

Based on this development background, "Smart p&l" SME financing platform firmly grasp the market development opportunities and access to SME financing market. We are committed to improving the financing of small and medium enterprises, reducing the financing costs of small and medium enterprises, and to provide convenient and standardized services in credit audit and risk assessment for SMEs financing.

1.3 The range of test

1.3.1 Integration testing

The integration of the various components of the system to ensure that the system can work properly between the various units to complete the proper function and to ensure that the server and the client's normal communication, so as to ensure that the system can meet the requirements of integrated business processes.

1.3.2 Performance Test

Application Performance Test Plan Performs performance testing of the system to ensure that the server can withstand the pressure of maximum concurrent user operations to ensure that the response time of the server can not exceed the acceptable range of the





user in the event of multiple workflows. The team will analyze the performance test results, identify system performance bottlenecks, and solve problems and optimize the system.

1.3.3 System interface test

The system page test plan tests each page of the system to ensure that the pages of the system can be displayed in different operating environments and ensure that the jump between pages conforms to the business process logic.

1.3.4 System Reliability Testing

The system reliability test, test system average time between failures, determine the system maximum operating cycle.

1.3.5 System portability testing

Test the system portability to ensure a wide range of product applicability and compatibility.

1.4 Function needed to test

- 1) Project engineering and business processes
- 2) Server
- 3) Development environment
- 4) Operating environment
- 5) Database extension





2. Test reference documents and test submit documents

2.1 Test reference documents

- 1) Detailed design specification
- 2) Outline design specification
- 3) System requirements description
- 4) Project development plan
- 5) User manual
- 6) Database design specification

2.2 test submit documents

- 1) Test plan
- 2) Test analysis report

3. Test schedule

Test project	Actual start date	End date
Formulate test plan	2017.09.07	2017.09.07
Integration testing	2017.09.08-2017.09.09	2017.09.09
System performance test	2017.09.08-2017.09.09	2017.09.09
Page test	2017.09.08-2017.09.09	2017.09.09





The user acceptance test	2017.09.08-2017.09.09	2017.09.09
Test evaluation stage	2017.09.09	2017.09.09
Product release	2017.09.10	2017.09.10

4. Test resources

4.1 Test environment

Operating environment (related software, operating system, etc.)	Hardware environment (network situation, equipment performance, etc.)
Operating system: Windows XP, Windows7 and above	CPU: P3 2.4G
Browser: IE, Chrome, Firefox and other browsers	Memory: 512M or more

4.2 Staffing

Task	Recommended number of people	Specific responsibilities or comment
Test management	1	Responsibilities: <ul style="list-style-type: none"> ● provide technical guidance ● Find the right resources ● Co-ordinate the conduct of various testing tasks ● Provide management reports
Test design	2	Responsibilities:





		<ul style="list-style-type: none">● Develop a test plan● Design test models and use cases● Evaluate the test results
Test implementation	2-3	<p>Responsibilities:</p> <ul style="list-style-type: none">● Perform the test and record the results● Correct the error● Record change requirements

5 System risk and priority

5.1 System security

The test plan priority test system security and protect the overall safety from the physical security, information security, security management of the three aspects of the system. In the physical security, according to the system equipment and related facilities by physical protection to avoid destruction and loss. In logic security, protect according to the system of information resources security . In safety management, establish safety management policy and mechanism.

5.2 System stability

And then test system stability. Using Routh (Routh) and Nyquist stability criterion and control the system's transition process (output) gradually attenuate and tends to zero in any small initial deviation function.





5.3 Other bug in system

After guaranteeing system's safety and stability of the guarantee, test from all aspects of the system, using unit testing and the integrated testing method to find and processing other bugs in the system.

5.4 system function and performance

Create test cases and focus on the test of all direct tracking cases, system function and system rules, such as reproducibility, benchmark test, capacity planning test, infiltration test (soak test), peak valley test (peak - rest test). Test the system's reliability, robustness and portability to establish the known controlled environment, and simulate operating results, and then compared with the change.

5.5 system extendability performance

Ensure that the above four priority stages of testing be completed, and then do the independent test and integrated test of the system's extendability performance, achieve user interaction and background processing coordination, increase the system's extendability performance.

6 Test strategy

6.1 Data and database integrity test

In the “Smart p&l” platform, the data and database process should be test as a subsystem. In the test of these subsystems, should not use the test object ‘s interface as a





data interface. For the database management system (DBMS), we need further research to make sure the following tools and techniques that supported test.

Test goal	Ensure that the “Smart p&l” platform system database access method and processes run normally and the data will not be destroyed.
Technology	<p>Call the user database access method and processes, and in which fill valid and invalid data or data request.</p> <p>Check the database, ensure that data have been filled by the expected method, and all database event has normal occurred; Or check the return data, to ensure proper keywords retrieval to correct data.</p>
Complete standard	All of the database access method and processes are running according to the design and the data were not damaged.
The test point and priority	Testing backstage database's access and processing first, and then processing foreground of user interface data access and processing.
Special items should be considered	<p>Test may need DBMS development environment or driver direct input or modify data in the database.</p> <p>Process should be transfer on manual mode.</p> <p>Should use small or minimum database (record number limited) to make all can't accept events are more mandible.</p>





6.2 Integration testing

Test goal	Test system user requirements and background management of the various business flow and data flow is correct
Technology	Use of effective and invalid data to carry out various cases, cases flow or function, in order to verify the following contents: The desired effect in the use of effective data. The corresponding error messages or warning message in the use of invalid data. Business rules are correct applied.
Complete standard	All plans test have got all the execution, and have solve the flow processing problem.
The test point and priority	The test focuses on the user interaction and the processing that the background management facing the business flow and data flow.
Special items should be considered	Different users online processing business flow and data flow at the same time.

6.3 Functional test

Functional testing of the test object should focus on all use cases or system functions that can be traced directly and test requirements of system rules. The goal of this test is to





verify that the receiving, processing and retrieval of the data are correct and the implementation of the system rules is appropriate. Such tests are based on black box technology. It verifies the application and its internal processes by interacting the graphical user interface (GUI) with the system and analyzing the output or results.

Test goal	Ensure that the "Smart p&l" platform of the normal function, including login, registration, lending business, security services and other functions
Technology	Performing the various use cases, use case flow or function with valid and invalid data to verify the following: The expected results with valid data. The appropriate error message or warning message with invalid data. The system rules have been applied correctly.
Complete standard	All plans test have got all the execution, and have solve the flow processing problem.
The test point and priority	Test focus on the change of the data of the user interaction when use a variety of sample and the reaction that each business rules operating in the system.
Special items should be considered	Different users online processing business flow and data flow at the same time.

6.4 User interface test

The user interface (UI) test used to verify the interaction between the system and users. UI test goal is to ensure that the user interface will provide the corresponding access or browsing through the test object's function. In addition, UI test can also ensure that the object in the UI operate normally and conform to company or industry standard.

Test goal	Main control panel interface is beautiful, decent, normal function, the object and feature meets the standards.
Technology	First, test on the interface one by one to ensure that each





	interface function performs normally and then test the jump as many combinations of operations as possible after every interface is proved to be normal.
Complete standard	Each interface is beautiful and decent, functional and in a variety of combinations of operations the system are no exception.
The test point and priority	Test the user interface, and then test the background management interface.
Special items should be considered	Whether the third party can browse interface or not.

6.5 Performance evaluation

Performance evaluation is a performance test. It assesses response time, transaction rates, and other time-related demand. The goal of performance evaluation is to verify whether the performance requirements have been met. Implementation and enforcement of performance evaluation is intended to evaluate and fine-tuning a function whose conditions are the performance behaviors of the test object (such as workload or hardware configuration).

Test goal	Test the "Smart p&l" platform's performance under the condition of the normal work, normal expected workload and the most heavy workload expected.
Technology	Using the test process making by the function or business cycle test. Test the performance of the system by iterative number





	which increase through the modification of the order of magnitude of data, size, heavy and complicated degree and amend script.
Complete standard	Complete normal working condition test and the most heavy workload test.
The test point and priority	Deal with the working performance under the normal workload and optimize it.
Special items should be considered	Control of the most heavy workload.

6.6 Strength test

The goal of strength test can be expressed as identifying and documenting the situation or condition that the system can not continue normal operation.

Test goal	Verify the server can be normal operation without any error under the strength conditions following: server with little or no memory available to connect or simulate the maximum number of clients with multiple users over a task at the same time.
Technology	To test limited resources, reduce or limit the memory on the server using multiple clients running the same tests or complementary tests to produce the most heavy transaction volume and the worst transaction mix.
Complete standard	After finishing the test, the system meets or exceeds the specified limits without any failure, or the conditions leading to system failure is not within the specified conditions.
Special items should be considered	Increase network working strength need to use network tools to loading information or packets.





	Should temporarily reduce DASD to limit the growth of available database space.
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7 Appendix

Here are some test-related tasks:

Planning the test

- Determine the testing requirements
- Risk assessment
- Develop test strategy
- Determine the test resources
- Create a schedule
- Generate test plans

Design the test

- Prepare workload analysis document
- Identify and describe test cases
- Determine the testing process, and establish the structure of the testing process
- Review and evaluation of test coverage

Implement the test

- Record or create a test script by programming
- Determine the design and implementation of model test-specific functions
- Create an external data set

Perform the test

- Perform the test process
- Assess the implementation of the test
- Resume a paused tests
- Verification results
- Investigate the unexpected results
- Record defects

Evaluate the test

- Assessment of test cases covering
- Assessment of code coverage
- Analysis of defects
- Determine whether the standards successfully completed

