

Smart Waiter Test Report

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Revision History

Date	Comments
March 20, 2016	Test results added

Table 1: Revision History Table

1 Introduction

2 Database Testing

Database testing was exclusively performed from structural testing point of view. The goal of this component of testing was to verify that the database queries always return valid and correct data, under all circumstances. Specifically, a separate database was created for testing purposes, because any failed test case could affect the state of the original database.

Note: A mix of scripts and manual commands were required for database testing. The tests cannot be fully automated because it is not feasible, as mentioned in test plan.

2.1 Test Factors

For database testing, the following test factors will be considered;

- Correctness
- Performance
- Security
- Reliability

2.1.1 Correctness

In this section of database testing, tester had to verify that the application receives complete and correct data from the couchbase server.

2.1.2 Database Correctness Tests

Database Correctness Tests							
Test ID	Initial State	Input	Output	Severity of Defect	Summary of Defect	Comments	Result
Test 1- Correct retrieval of database	Empty Database	Add menu items to database	queryAllRestaurant() returns all data which matches input	NA	NA	NA	Pass
Test 2- Correct retrieval of updated database	Empty Database	1) Add menu items to database 2) Query Database 3) Update the database	queryAllRestaurant() returns all data which matches input	NA	NA	NA	Pass
Test 3 - Retreive Empty Database	Empty Database	None	queryAllRestaurant() results in a crash	Gating Release	Need try & catch statement to handle this issue	Easy Fix - Implement try & catch and mark this issue closed	Fail
Test 4 - Support backwards compatibility	Empty Database	Add menu items to the database,with attributes that the application does not support (added review comments section)	queryAllRestaurant() returns all data which matches input	NA	NA	NA	Pass

2.1.3 Performance

In this section of database testing, tester had to verify that the data query was performed in a reasonable amount of time.

2.1.4 Database Performance Tests

Database Performance Testing							
Test ID	Initial State	Input	Output	Severity of Defect	Summary of Defect	Comments	Result
Test 1 - Test database query with 10 menu items	Empty database	Add 10 menu items to Database	getRestaurantByBarcode() function returns all menu in less than 1.5 seconds	NA	NA	NA	Pass
Test 2 - Test database query with 50 menu items	Empty database	Add 50 menu items to Database	getRestaurantByBarcode() function returns all menu in less than 1.5 seconds	NA	NA	NA	Pass
Test 3 - Test database query with menu items	Empty database	Add 100 menu items to Database	getRestaurantByBarcode() function returns all menu in less than 1.5 seconds	NA	NA	NA	Pass

2.1.5 Security

In this section of database query testing, tester had to verify that database allows correct access control. Database penetration testing was not required because we will leverage couchbase security implementation, testing and certifications.

2.1.6 Database Security Tests

Database Security Tests							
Test ID	Initial State	Input	Output	Severity of Defect	Summary of Defect	Comments	Result
Test 1 -Verify incorrect access to menu catalog database is denied	Empty database	1) Add menu items to database 2) Set invalid client permission (client key) in the application	Query for a menu item. The access to database was denied	NA	NA	NA	Pass
Test 2 - Verify that correct access to menu catalog database is accepted	Empty database	1) Add menu items to database 2) Add correct client and matching key to sync gateway	Query for menu items with the correct client permissions (client Key).This request was allowed	NA	NA	NA	Pass

2.1.7 Reliability

In this section of database testing, we tested the robustness and reliability of the database.

2.1.8 Database Reliability Automated Tests

Database Reliability Tests							
Test ID	Initial State	Input	Output	Severity of Defect	Summary of Defect	Comments	Results
Test 1 - Dependability tests	This Test runs on original database populated with 30 items	Wrote script to fire HTTP get request every 2 minutes	The Query successfully returns the results	NA	NA	NA	Pass
Test 2 - Verify lockout during catalog updates	Empty Database	1) Add menu items to database 2) Create a write/block on server side to simulate update	Query for menu item should have been denied	Low - Behaviour does not affect functionality	The user device can still pull previous revision of the menu item	Need to investigate further, and check if behaviour is acceptable for restaurant owners	Fail
Test 3 - Verify database does not malfunction with stress	Empty Database	1) Add menu items to database 2) Query Database simultaneously from 30 devices	All Queries returned menus successfully	NA	NA	NA	Pass

3 System Testing

3.1 Barcode Scanning

3.1.1 Purpose

Barcode scanning tests were conducted to make sure users are able to scan a barcode with minimal attempts. Also, to check if appropriate messages are displayed according to each test case.

3.1.2 Functional Unit Test

As per our test plan, functional unit tests were conducted to assess test cases. Doing so replicates real world usage.

3.1.3 Test Results

No	Test Case	Initial State	Input	Expected Output	Actual Output	Result
1	Scan working barcode	Barcode scanning page	Eligible barcode	Restaurant menu	Restaurant menu	PASS
2	Scan corrupt barcode	Barcode scanning page	Corrupt barcode	Barcode scanning page with message reading, "Invalid barcode, please try again"	Barcode scanning page Message: "Invalid barcode, please try again"	PASS
3	Scan random picture	Barcode scanning page	Random picture	Barcode scanning page with message reading, "Invalid barcode, please try again"	Barcode scanning page Message: "Invalid barcode, please try again"	PASS
4	Scan corrupt barcode – third attempt	Barcode scanning page	Corrupt barcode	Barcode scanning page with message reading, "Please contact waiter"	Barcode scanning page Message: "Please contact waiter"	PASS
5	Scan random picture – third attempt	Barcode scanning page	Random picture	Barcode scanning page with message reading, "Please contact waiter"	Barcode scanning page Message: "Please contact waiter"	PASS

3.2 Accounts

3.2.1 Functional Dynamic Test

As per our test plan, manual functional dynamic tests we performed to assess the following test cases. This allows the system to be exhaustively tested which will minimize or completely erase errors in real world usage.

3.2.2 Purpose

Account creation and login tests were performed to ensure Smart-Waiter users are able to create an account quickly while still adhering to the account constraints set by Smart-Waiter. This is also to ensure proper error checking is implemented in the applications account related modules.

3.2.3 Test Results

Test Case	Initial State	Input	Output	Result
6.1.1	Create account menu, empty	All fields empty / left blank	Message reading: "Password too short"	PASS
6.1.2	Create account menu, empty	Password, first name, last name, home address, postal code, phone number	Barcode scanner menu	PASS
6.1.3	Create account menu, empty	Password, first name, last name, home address, phone number, incorrect postal code	Message reading: "Postal Code Invalid"	PASS
6.1.4	Create account menu, empty	Phone number consisting of 6 digits	Message reading: "Phone Number Invalid"	PASS
6.1.5	Create account menu, empty	Empty First Name Field	Message reading: "First Name Invalid"	PASS
6.1.6	Login menu, empty	Correct password	Barcode Scanner Menu	PASS
6.1.7	Login menu, empty	Empty password field	Message reading: "Invalid Password"	PASS
6.1.8	Login menu, empty	Incorrect password	Message reading: "Invalid Password"	PASS

4 Usability Test

Usability tests are conducted to assess the user's ability to complete routine tasks, and acquire their impression of the application.

4.1 Summary

To retrieve insightful results, participants were asked to complete a series of tasks and answer a brief questionnaire afterwards.

The first usability test has already been conducted on February 4, 2016. A total of six participants were gathered to conduct this test. To replicate

an adequate demographic, three participants chosen are experienced using android applications, while the remaining three have little to no experience.

The proceeding sections provide insight and results of the usability test conducted.

4.2 Methodology

4.2.1 Tasks conducted

Participants were given a list of tasks to complete including:

- Task 1: Create and login to account
- Task 2: Scan barcode to retrieve menu
- Task 3: Customize and add items to cart
- Task 4: View cart
- Task 5: Delete item
- Task 6: Modify item
- Task 7: Confirm and pay for order

4.2.2 Questionnaire

Participants were asked to rate from 1 to 5 (1 - strongly disagree, 5 - strongly agree), provided the following statements:

1. I was able to complete the task quickly using the system
2. It was easy to learn how to use the system
3. I prefer using Smart-Waiter over ordering in a traditional sense
4. The interface of the system was pleasant
5. The system has all the functions and capabilities I expect it to have
6. Whenever I made a mistake using the system, I could recover easily and quickly
7. Overall I was happy using the system

4.3 Testing Results

4.3.1 Questionnaire Results

Case	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Average
Complete task quickly	1	2	0	3	0	Neutral
Easy to learn	0	2	1	1	2	Agree
Prefer using Smart-Waiter over traditional menu	0	0	2	4	0	Agree
Interface of system is pleasant	2	3	1	0	0	Disagree
System has all functionalities and capabilities	1	4	1	0	0	Disagree
I could recover easily and quickly	0	0	2	3	1	Agree
Overall, I was happy with the system	0	0	2	4	0	Agree

4.3.2 User Feedback

After completing the usability test, we asked participants for feedback in terms of their experience. Specifically we asked for their; likes, dislikes and recommendations.

Likes

- Convenient for ordering take out at restaurant
- Ability to customize items and send special instructions
- Ease of use (according to experienced android application users)

Dislikes

- Look of GUI
- Unable to modify account settings
- Unable to save receipt

Recommendations

- Add settings page
- Offer ability to email receipt

4.4 Conclusion

Conducting this usability test definitely helps our team in terms of adjusting requirements to meet user recommendations. Specifically the following changes will be implemented:

- Create settings page
- Improve GUI
- Allow users to view order history

After implementation of these additions, a second usability test will be conducted. New participants will be gathered in order to provide unbiased results.