Group 37
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Introduction

The purpose of this lab is to gain experience with exploratory, manual and regression testing while utilizing industrial defect tracking systems, processes and practices. These tests will be performed on an ATM system that allows users to deposit, withdraw, query, and transfer funds from their hypothetical bank account. All of the bug/defect tracking and reporting will be done via Backlog.

Exploratory testing involves performing tests without prior planning and documentation. As it requires testing through improvisation, it is a great method for finding major problems with systems. Manual scripted testing involves writing test cases prior to execution. The heavy use of documentation allows for testing with minimal supervision. Regression testing involves finding new errors after updating software. This ensures that changes in code do not introduce new faults. Regression testing can be done both manually or with automation.

High-level description of the exploratory testing plan

For our exploratory testing, we will conduct our tests based on the basic use cases of the system. This includes system startup, system shutdown, sessions, transactions, withdrawal, deposit, transfer, inquiry and invalid PIN. These cases were derived from the system requirements as well as our prior knowledge of ATM machine functionality.

Comparison of exploratory and manual functional testing

The test suite allowed us to complete thorough tests with clearly specified expected results. This made manual functional testing much more straightforward and gave us a greater understanding of the system. Having a list of test cases also sped up our testing process as we were not required to come up with our own tests. Although the manual functional testing process was overall more efficient than exploratory testing, creatively coming up with our own test cases allowed us to uncover bugs that would not have been discovered through manual testing with the given test suite.

Notes and discussion of the peer reviews of defect reports

While performing our tests, we quickly realized the importance of writing clear and detailed defect reports. Since there are many variable factors involved with the ATM system, we found it imperative to specify details about the system state such as which card is being used, whether the system is on or off, and all of the necessary steps to replicate the bugs. This reduces confusion and repeated reports on the same defect

How the pair testing was managed and team work/effort was divided

During our pair testing, our team attempted to divide the work evenly between partners to ensure the work is divided fairly and everyone gains similar experience. While testing, one partner performed tests while the other came up with tests, wrote defect reports and tested each bug on their own device to ensure it was in fact a defect. For the exploratory portion of the testing, the partners switched roles after 15 minutes. For the manual functional testing, the partners switched roles after completing 20 tests. After both pairs finished their tests, we compared and combined our defect reports.

Difficulties encountered, challenges overcome, and lessons learned

We found writing defect reports the most challenging part of this assignment. It was difficult combining the lists of defects as many of the bugs were similar but the differing defect reports arose confusion. To combat this problem, we came up with a format for writing our defect reports to ensure similar bugs contain the same info in their defect reports. The test suite provided was somewhat restrictive in terms of tests we could do compared to exploratory testing. We were, however, able to test the system in depth and efficiently regardless.

Comments/feedback on the lab and lab document itself

This lab provided a great opportunity to gain experience with the different forms of testing and writing defect reports. The lab document itself was easy to follow and fairly straightforward, however, we believe some of the test cases in the provided test suite did not supply enough detail for expected outcomes. For example, test 33 in the suite has the expected outcome “system displays a menu of different account types” which does not specify which account types should be displayed. It was also unclear what we were supposed to do if we were to encounter a bug in version 1.1 which was not tested via scripted testing. There were some bugs we found by chance, and not through the test suite laid out in the Appendix. Some of the expected outputs listed for the test cases in the test suite are a little bit vague. For example, for test case #3 In the test suite, the expected output should be a little more specific as to what the system is doing to demonstrate that it has established a connection to the bank, will it explicitly say that a connection has been established? Or is the fact that the ATM is asking for a card a demonstration that the connection was established

ADDITIONAL INFO

Requirements:

- Customers must be able to make a cash withdrawal from any suitable account linked to the card in multiples of 20. Approval from the bank must be obtained before withdrawal.
- Customers must be able to make a deposit into any account linked to their card through cash and/or checks in an envelope. Customers will enter the amount to deposit, subject to manual verification when the envelope is removed by the machine operator. Approval must be obtained from the bank before physically accepting the envelope.
- Customers must be able to transfer money from any two accounts linked to their card
- Customers must be able to make balance inquiries on any account linked to their card
- Customers should be able to abort transactions by pressing “cancel” instead of responding to a machine request
- Invalid pins force users to re-enter their pin. If it fails 3 times, the card will be permanently retained from the machine and user must contact the bank
- Other problems should display the cause of the problem and asks the customer if they would like to complete another transaction
- The ATM provides a receipt after every successful transaction. This includes date, time, machine location, type of transaction, accounts, amount, and available balance of affected account (“to” account for transfers)
- The ATM has an on/off switch. After turning on, the operator is required to verify and enter the amount of cash on hand. The machine should only be able to turn off if it is NOT servicing a customer. When the switch is turned off, the machine will shut down.
- The ATM must store an internal transaction log. Entries will be made into the log when it is started or shut off, for each message sent to the bank (and the bank’s response), for dispensing cash, and for receiving envelopes. Entries contain card numbers and dollar amounts but never contain the PIN.