**White and Black Box Test Cases**

Benjamin M. Brandhorst

University of Maryland Global Campus

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Professor Kevin Woodson

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**High Level Design**

Figure 1 shows the high-level architectural design used from the previous homework assignments. This is used as a base from which both the white and black box test cases are designed from.

**A close up of text on a white background

Description automatically generated**

Figure 1 – High level architectural diagram of our Automatic Teller Machine (ATM)

**White Box Test Case**

For the white box test case, I decided to focus on the withdraw function of the Automatic Teller Machine (ATM). This was accomplished by first plotting all possible paths in a flowchart (see Figure 2).

A close up of a map

Description automatically generated

Figure 2 – Flowchart plotting all possible paths. Flowchart format source (Eriksson, 2016).

From this flowchart, one possible test case was created in which a user attempts to withdraw cash, the user account contains enough funds to support the withdraw, and the ATM contains enough cash to dispense the funds. Using the flowchart above, this test case tests 1,2,4,6,9.

White Box Test Case Example

|  |  |
| --- | --- |
| ID | 1 |
| Title | Withdrawal Funds |
| Pre-Conditions | 1.) ATM contains enough cash to dispense requested funds.  2.) User account is setup with a $100 balance.  3.) User account daily withdraw limit balance exceeds $100  4.) User signs in with keypad authorization |
| Test Steps | 1.) User uses keypad to select the “Withdraw” option.  2.) User uses keypad to enter $100 in the “Amount” box.  3.) User presses the “Confirm” button. |
| Expected Results | 1.) ATM confirms account contains enough funds to support withdraw.  2.) ATM confirms withdraw limit has not been exceeded.  3.) ATM confirms machine contains enough cash to dispense.  4.) $100 is deducted from user account.  5.) $100 is dispensed from cash dispenser. |
| Post-conditions | 1.) Confirm ATM cash balance will support further testing.  2.) Reset user account balance to $100.  3.) Reset user account withdraw limit |
| Priority | Medium |
| Author | Ben Brandhorst |

**Black Box Test Case**

For the black box test case, I decided to test whether there were safeguards against a user attempting to spoof another person. This test case subject was selected because it was the only software side threat I identified in the week 5 homework. For this test, I followed the instructions provided by (Zalavadia, 2020) on the softwaretestinghelp.com website.

Black Box Test Case Example

|  |  |
| --- | --- |
| ID | 2 |
| Title | Incorrect Personal Identification Number (PIN) Entry |
| Pre-Conditions | None |
| Test Steps | 1.) User inserts ATM card into card reader.  2.) User uses keypad to enter an incorrect PIN.  3.) User enters incorrect PIN a second time.  4.) User enters incorrect PIN a third time.  4.) User enters incorrect PIN a fourth time. |
| Expected Results | 1.) After first incorrect PIN entry, ATM warns user and prompts reentry.  2.) After second incorrect entry, ATM warns user and prompts reentry.  3.) After third incorrect entry, ATM retains card and prompts user to contact bank. |
| Post-conditions | 1.) Return ATM card to user  2.) Unlock user account |
| Priority | Medium |
| Author | Ben Brandhorst |

References

Eriksson, U. (2012, September 28). How to develop a good test case template. Retrieved from https://reqtest.com/tutorials/how-to-develop-a-template-for-test-cases/

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Zalavadia, S. (2020, February 28). Functional testing: A complete guide with types and example. Retrieved from https://www.softwaretestinghelp.com/guide-to-functional-testing/