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Project Requirements Specification

Simple ATM system

Requirements

The requirements for the Simple ATM (SATM) system are derived from the those provided on pages 28, 29 and 30 of Software Testing A Craftsman's Approach, Fourth Edition[1]. Requirements are below and "[ ]" indicates modifications:

The SATM system communicates with bank customers via the 15 screens shown in Figure [1]. Using a terminal with features as shown in Figure [2], SATM customers can select any of three transaction types: deposits, withdrawals, and balance inquiries. For simplicity, these transactions can only be done on a checking account.

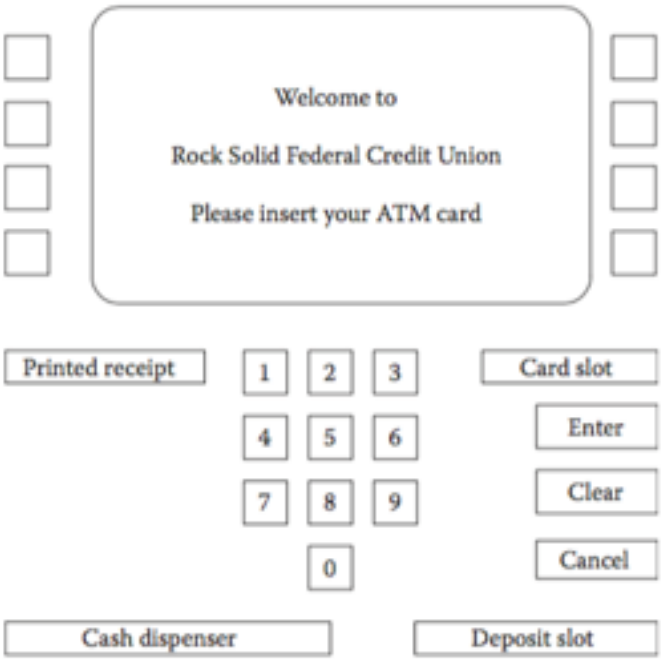

Figure 1: SATM terminal.

When a bank customer arrives at an SATM station, screen 1 is displayed. The bank customer accesses the SATM system with a plastic card encoded with a personal account number (PAN), which is a key to an internal customer account [variables in memory], containing, among other things, the customer's name and account information. If the customer's PAN matches the information in the customer account [variables in memory], the system presents screen 2 to the customer. If the customer's PAN is not found, screen 4 is displayed, and the card is kept.

At screen 2, the customer is prompted to enter his or her personal identification number (PIN). If the PIN is correct (i.e., matches the information in the customer account [variables in memory]), the system displays screen 5; otherwise, screen 3 is displayed. The customer has three chances to get the PIN correct; after three failures, screen 4 is displayed, and the card is kept.

[It is assumed that the SATM can hold many ATM cards. Thus once at screen 4 the SATM will transition to screen 1 after 3 seconds.]

On entry to screen 5, the customer selects the desired transaction from the options shown on screen. If balance is requested, screen 14 is then displayed. If a deposit is requested, the status of the deposit envelope slot is determined from a field in the terminal control [variables in memory]. If no problem is known, the system displays screen 7[a, which contains the text “Enter amount.”,] to get the transaction amount. If a problem occurs with the deposit envelope slot, the system displays screen 12.

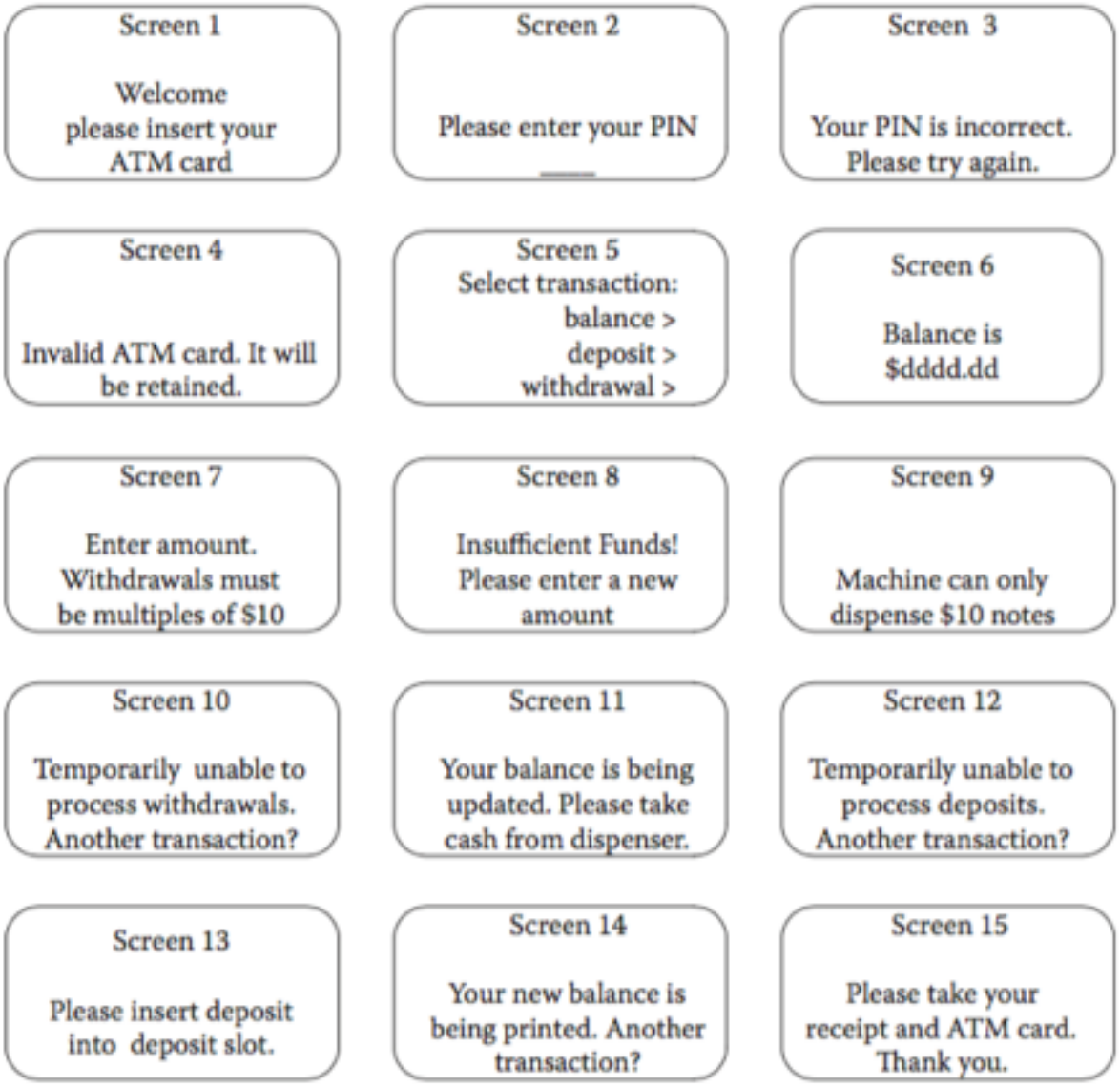

Figure 2: SATM Screens.

Once the deposit amount has been entered the system displays screen 13, accepts

the deposit envelope, and processes the deposit. The system then displays screen 14.

If a withdrawal is requested, the system checks the status (jammed or free) of the withdrawal chute in the terminal control [variables in memory]. If jammed, screen 10 is displayed; otherwise, screen 7[b, which contains the text “Enter amount. Withdrawals must be multiples of $10”,] is displayed so the customer can enter the withdrawal amount. Once the withdrawal amount is entered, [the withdrawal amount is checked to determine that it is a multiple of 10 (x%10 = 0). If its is not multiple of ten then screen 9 is displayed, otherwise] the system checks the terminal status [variables in memory] to see if it has enough currency to dispense. If it does not, screen [8] is displayed; otherwise, the withdrawal is processed. The system checks the customer balance (as described in the balance request transaction); if the funds in the account are insufficient, screen 8 is displayed. If the account balance is sufficient, screen 11 is displayed and the money is dispensed. The balance is printed on the transaction receipt as it is for a balance request transaction. After the cash has been removed, the system displays screen 14. [If the SATM arrives at screen 8 or 9 it transitions to screen 7b after 3 seconds.]

When the “No” button is pressed in screens 10, 12, or 14, the system presents screen 15 and returns the customer’s ATM card. Once the card is removed from the card slot, screen 1 is displayed. When the “Yes” button is pressed in screens 10, 12, or 14, the system presents screen 5 so the customer can select additional transactions.

Figure 3 Provides an overview of SATM usage.

Assumptions:

1. The ATM holds $9000.
2. The customer has $2000 in their account.
3. Pins are 4 digit codes.
4. Withdrawals are given as 4 digits giving values between $0 and $9999.
5. Deposits are given as 4 digits giving values between $0 and $9999.

References:

1. Jorgensen, P. C. (2013). Software testing: a craftsman’s approach. CRC press.

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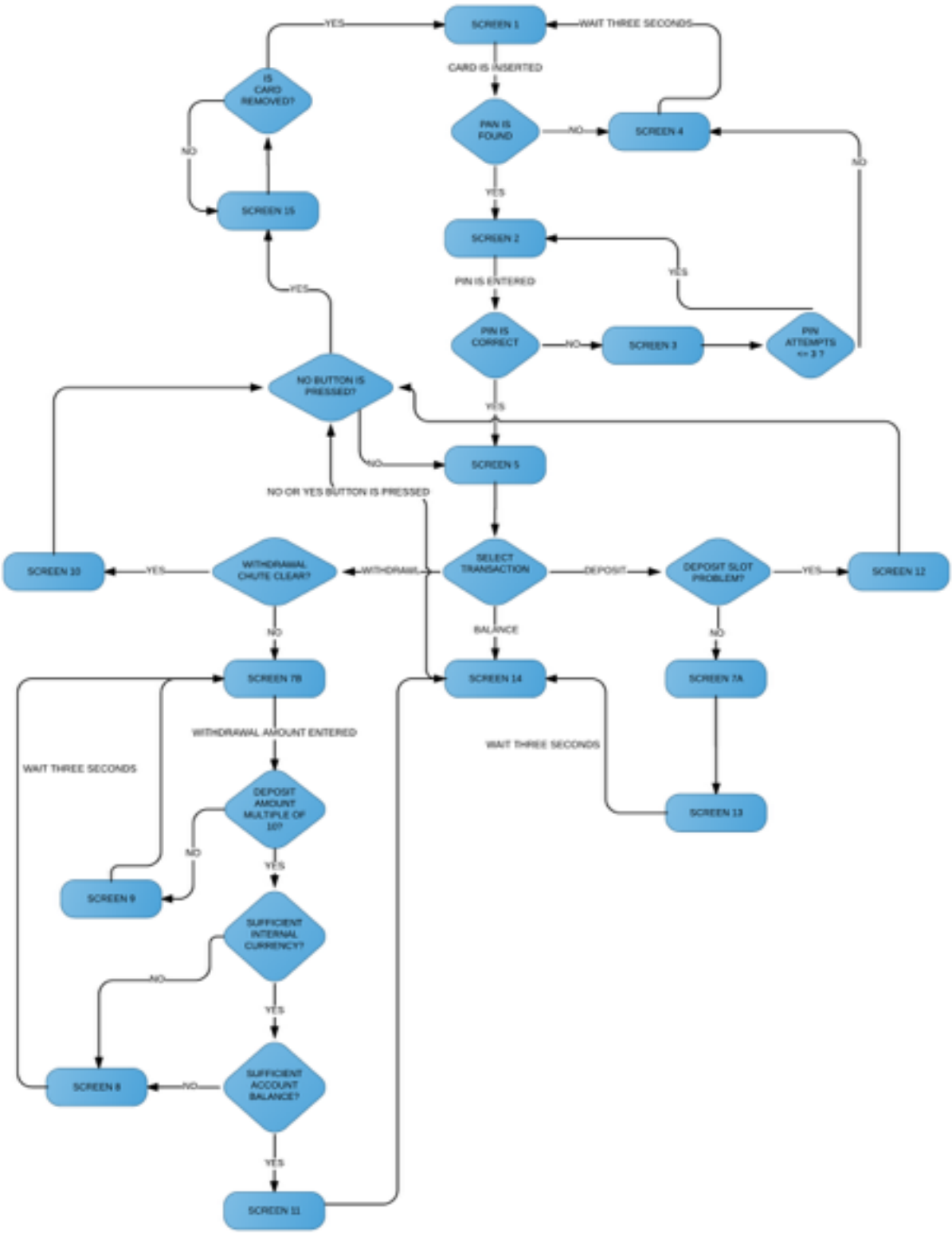

Figure 3: SATM Usage.