November 11, 2016

SATM Project

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*A Description of Project Variances in Version 1.0 from Specifications Listed*

1. **SPECIFICATIONS**
2. Each account is to be kept in a separate account file.
3. The number initially input is a PAN number.
4. If the PAN (Card) number is not on record, or the PIN has been incorrectly input three times, the card is kept and screen 4 is shown, displaying the text, “Invalid ATM card. It will be retained.”
5. Screen 14 displays, “Your new balance is being printed. Another transaction?”
6. Screen 10, 12, and 14 have no indicator of how to respond “yes” or “no”.
7. Screen 9 displays, “Machine can only dispense $10 notes.”
8. If balance is requested, screen 14 is displayed.
9. Deposit amount is determined from a field in the terminal control file.
10. Error-free deposit redirects to screen 7.
11. Bad deposit-slot entry redirects to screen 12.
12. Good deposit redirects to screen 13, then 14.
13. If withdrawal is requested, system checks status of withdrawal chute, and if good redirects to screen 7; if bad, it redirects to screen 10.
14. Customer account balance is checked after the withdrawal is processed.
15. Not enough cash in the machine when a withdrawal is requested redirects to screen 9.
16. Screen 15 returns the user’s card.
17. **VARIANCES**
18. Each account is kept together with the others as JSON strings on separate lines of an “accounts.txt” file in the src/atm directory.
19. The PAN number is called a “(19-digit) ATM card.”
20. If the card is not on record, screen 4 is shown, per spec, except card is not “retained”, nor does the message say it is. If the PIN is incorrectly input three times, the account is locked and the user is notified that there account has been locked in the screen 3 error message. If they press Enter, Cancel, or Clear from this version of screen 3, they will be redirected to screen 1 instead of screen 2, and their card will be disposed of.
21. Screen 14 tells the new balance instead of saying it is being printed.
22. Screens 10, 12, and 14 have a yes/no option listed on line 4 of the screen. If the user presses the line-4 button on the left of the screen, “Yes” is selected. If they press the corresponding button on the right, “No” is selected.
23. On screen 9, “notes” is changed to “bills”. Also, “ERROR:” is added to line 2 of the screen (which is blank in the spec).
24. If balance is requested, screen 6 is displayed.
25. Deposit amount is determined from a text-entry box where the deposit slot should be located. A small button next to the slot submits the deposit.
26. Error-free deposit redirects to screen 14.
27. Bad deposit slot entry stays on screen 13, but displays an error message on the top of the screen. The user can exit by pressing Cancel or Clear.
28. Good deposits redirect straight to screen 14.
29. There is no withdrawal chute to check. Withdrawal transaction request goes straight to screen 7.
30. Withdrawal is processed only after both the ATM cash dispenser and the user account balance are both checked.
31. Not enough cash in the dispenser when a withdrawal is requested redirects to screen 10.
32. Screen 15 prints the transaction receipt and prompts the user to remove their card, which may be done by pressing the button next to the card-insertion slot.
33. **RATIONAL**
34. System is more streamline and robust with a unified accounts file, with accounts in JSON format. (We recognize that in a real-life implementation, the accounts would be in a database or encrypted files, but since that has not been required, we implemented it this way to save on time and resources.)
35. We implemented the system this way for the sake of clarity. Those working outside of a bank setting will not be too familiar with what a PAN is. The “19-digit” annotation is included since the simulation has the user typing in the card number, and it is a reminder to them that card numbers are 19 digits long.
36. It does not make sense to retain an invalid card. If I accidentally put in my company ID/access card, I don’t want the ATM to shred it; I want it back. Also, if the PIN is incorrectly input three times, that does not make the card invalid, so redirecting to screen 4 does not make sense for this scenario. Locking the account and disposing of the card makes more sense.
37. As a user, I don’t want a receipt for everything, just for withdrawals and finalizing an entire transaction. Also, there is no reason to not display the balance right on the screen for every account-balance change. It is very useful, and thus we included it. It demonstrates that the transaction has gone through, and gives the user information upon which to base their decision as to whether or not they want to perform another transaction.
38. If there is no indicator as to how to respond “Yes” or “No”, the User Experience (UX) will be awful.
39. The word change was made because we are in America using the USD as our currency. The “ERROR:” line is added to clarify to the user that the message they are receiving is indicating a problem with something they did. With the spec message, it was a little ambiguous.
40. If the transaction request is just a straight balance request, the balance has not changed. Therefore, it does not make sense to notify the user of their “new” balance. Thus, the user is redirected to screen 6 instead. (Also, it seemed that screen 6 was unused, so we thought that this might have been the use this screen was originally intended for.)
41. It did not make sense for UX purposes to take the deposit amount from a system file, so we allowed the user to input it as a string instead.
42. Error-free deposits should not redirect to the Withdrawal screen, as doing so would not make any logical sense. Screen 14 is the most logical result of a successful deposit.
43. Redirecting to screen 12 does not make sense, as the machine is able to process deposits, just not random non-monetary (read: non-numeric) ones. Thus, having a live error message, with an option for the user to immediately correct their mistake, makes a lot more sense from a UX perspective than having to start the process all over to change one little mistake.
44. Redirecting to screen 13 for a split second before moving on to screen 14 made absolutely no sense, as (1) the user has already input the deposit and (2) they won’t even see a split-second display the likes of which is called for in the spec.
45. We did not check the withdrawal chute because there is not withdrawal chute to check or jam in this simulation. The only reason to make one would be to check it, and if we made one, the only reason it would be jammed would be if we jammed it intentionally. All of this seemed superfluous, so we did not do it.
46. This just makes sense. Doing it the spec way could result in erroneous withdrawals from an account with insufficient money simply because the machine had the money to dispense.
47. This makes more sense, given the messages on the respective screens.
48. Not a huge deal, but we determined that this made for a better UX. It is also more consistent with real-life ATM’s.