Problem Statement
The following is the description for an ATM machine. It is a generic machine not affiliated with any bank in particular. The user can only make withdrawals from the machine.

The machine is made up of 6 main parts:
1. Card slot;
2. Display screen;
3. Keypad, which has buttons 0-9, Enter, and Cancel button;
4. Four buttons on the side of the screen. There are labeled ###;
5. Money dispenser;
6. Receipt printer.
There are 5 basic screens that the user will view and interact with:

1. Idle screen, before the card is inserted;
2. Enter PIN screen;
3. Pick account screen;
4. Enter amount screen;
5. ‘Thank You’ screen.

**ATM Operation**

When the machine is idling there is a Generic Welcome Message.

The user inserts her/his ATM card. Upon insertion the user is prompted to enter their PIN and press the enter button.

Then, the user is prompted to select from what account he/she would like to make the withdrawal. The choices are Checking and Savings.

The user decides on the amount to withdrawal. The amount must be a multiple of $10.

The machine checks if the amount is correct and if the machine contains enough money to complete the transaction. If correct, then the information is sent to the correct bank system to be validated. Otherwise the appropriate message is displayed and they are taken back to the enter amount screen.

The information sent is the card number, PIN, amount, and account type. The bank system checks the data and either returns:

- OK, if the user has an account of that type with enough money and the PIN and card number match, or
- Not OK, if any part of the validation fails.

If the transaction is valid then the machine dispenses the money. After dispensing the money, the ATM sends an update to the bank to deduct the funds dispensed. (Note that this is not done until the money is dispensed because if the user asks for $40 and due to some mechanical failure only $20 is dispensed the user should not be out $20.) Then the bank acknowledges and deducts the amount and the new balance is returned to the ATM. The new balance is printed on a receipt along with the amount deducted and the receipt and card are returned to the user.

The scenarios to be considered for the Sequence, Collaboration, and Object diagrams are as follows:

a. A successful transaction withdrawing $50;
b. A failed transaction because the machine does not have the funds ;
c. A failed transaction because the user does not have the funds.