An automatic teller machine (ATM) performs various financial transactions (deposits, withdrawals, and balance inquiries) in response to user requests. The user is able to use the machine if the 4-digit PIN code s/he types in to the ATM keypad matches the code embedded in the magnetic strip on his/her card, which is read by the machine. If the user enters an invalid code, an error message is displayed, and the user is given another chance to enter the code correctly; a second incorrect code results in the user’s card being retained by the machine. Once a valid code is entered, the user may access his/her account for transactions. When a balance inquiry is requested, the machine prints the information on a receipt. When a deposit is requested, the machine receives the deposit envelope and the amount specified is added to the user’s account balance. When a withdrawal is requested, the account balance is checked to ensure that sufficient funds are available, and, if so, the machine dispenses cash and the account is debited by the withdrawal amount.

Use cases:

1) **Initiate transaction:**
   a) Machine displays greeting message and waits for customer
   b) Customer inserts his/her card in card reader
   c) Machine displays prompt for PIN code
   d) User keys in PIN code
   e) Machine matches PIN code to code on card, and displays main menu

   **Variation 1: User keys in incorrect PIN code**
   1.1 a) Instead of displaying menu, machine displays error message, waits for user response
   1.2 b) User chooses to proceed with another attempt, or cancel

   **Variation 2: Repeated attempts**
   1.2 a) If user chooses to repeat login attempt at step 1.1b, machine counts failed attempt, begins again at step c.
   1.2 b) If user reaches variation 1 a second time at step e, machine displays error message and retains user's card

   **Variation 3: Transaction attempt cancelled - perform Cancel Transaction**

2) **Cancel Transaction**
   a) Machine prints farewell message
   b) Machine releases card

3) **Withdraw funds**
   a) Perform **Initiate Transaction**
   b) User chooses "withdrawal" from main menu
   c) Machine displays menu of available accounts, including option to cancel
   d) User chooses account (savings or checking) from which to make withdrawal, or chooses to cancel
   e) Machine displays menu of amounts, including option to key in an amount not shown or cancel transaction
   f) User chooses amount to withdraw
   g) Machine checks user's account for available funds; if available, dispenses cash
   h) Machine subtracts withdrawal amount form user's account
   i) Machine prompts user to choose another transaction, or quit
   j) User makes choice; machine either displays main menu or performs **Cancel Transaction**

   **Variation 1: Amount not shown**
   3.1 a) Machine displays prompt for amount
   3.1 b) User keys in amount; proceed with step g

   **Variation 2: Insufficient funds**
   3.2 a) Machine displays message informing user of insufficient funds and waits for user response
   3.2 b) User acknowledges message
   3.3 c) Machine displays main menu

   **Variation 3: Transaction canceled - perform Cancel Transaction**