

CA32106: Object Oriented Analysis and Design

Assignment

UML Statechart Diagrams

Assignment

Using Visual Paradigm, create a UML statechart diagram representing the dynamic behavior of the automatic teller machine (ATM) described below.

1. The ATM begins in a ready state, displaying the message “Please Insert Card.”
2. The customer inserts his or her ATM card and the ATM displays the message “Please Enter PIN” and waits for the customer to enter their PIN (personal identification number).
3. If the PIN matches the card, the ATM displays a message giving the customer the possible choices. If the PIN does not match the card, the ATM displays the enter pin message and waits for the customer to enter their PIN. The if the customer fails to enter a valid PIN three times, the ATM returns the card and returns to its ready state. Assume that the ATM object has a variable named `attempts` that starts out at 0 use a guard condition to determine which transition to take on a failed PIN.
4. If the PIN and card matches, the customer may select one of the following options, which is signaled to the ATM by pressing an appropriate button. Each account type has a balance and a transaction (i.e., a transition) should only be allowed if there are sufficient funds available. Add sufficient states and transitions to complete the system. Be sure to return the ATM to the appropriate state when the customer is finished.
 - a. Get a checking balance
 - b. Get a savings balance
 - c. Withdraw from checking
 - d. Withdraw from savings
 - e. Transfer money from savings to checking
 - f. End all transactions