Julianne Takaya

CS-255 Module Six

UML Activity and Sequence Diagram

UML Activity and Sequence Diagram Interpretation

In UML diagraming, an activity diagram models the control flowing from one activity to the next, where a sequence diagram depicts the messages flowing from one object to another. In the provided diagrams we can see the use case for withdrawing funds from an ATM. The sequence diagram starts with the User entering their card, this represents the first message exchange. The second message exchange is the ATM asking the user to enter their PIN. This is where the two diagrams converge, with the next message and activity verifying the PIN is correct. From there, the Activity diagram diverges into two options, Wrong Pin, and Correct PIN. If the PIN is wrong, the loop ends, and if the PIN is correct the next activity is to Ask for Amount, which is reflected in the Sequence Diagram. The next activity is a check to see if funds are available. If they are, the system dispenses the cash then generates a receipt and if they are not the system skips to generate receipt, then the receipt is printed and the loop ends. In the Sequence Diagram the user sends a message with the entered amount and the ATM responds with the dispensed cash, which is the end of the messages sent.

For these designs, I have identified some deficiencies in the logic of the current design. For the Sequence diagram there is no functionality represented for if the PIN should be incorrect. Likewise, there is no verification of the availability of funds. In the current diagram, any amount could be dispensed regardless of availability. To address these issues, additional steps should be added. In the case of verifying the PIN, an alternative message should be sent from the Bank which informs the User than the entered PIN was incorrect and ends the transaction. For verifying the User has the funds available, an additional message should be sent to the Bank to verify the funds requested are available. From there a message should be sent back to the ATM to either dispense the cash or inform the User the requested funds are unavailable.

I have chosen to reconstruct the sequence diagram including the functionality of ending the transaction should the PIN prove to be incorrect. You will find the diagram below.

A diagram of a bank

Description automatically generated