CS255 Module Six Assignment

**What use case is being described by these diagrams?**

**What interactions are involved in this use case? What information is being passed back and forth?**

The use-case being described by these diagrams would be “Customer accesses account”. While the UML Activity diagram shows how a user accesses their account through a logical flow of authentication, verification, and request for funds from their account. The UML sequence diagram, however, shows how the account access process is completed using three different actors. These actors being the User, the ATM, and the Bank. The interactions that are involved are the user accessing their ATM using a bank card and entering their PIN, which is then verified by the bank’s system for proper authentication of the account. Once the PIN is verified the ATM prompts the user for an amount to withdraw, which then dispenses the amount, and generates a receipt for the user. The information that’s being passed back and forth is the users PIN from the ATM to the central banking system, and the users request for funds to be withdrawn from the ATM.

**These diagrams describe one basic design for this use case. Analyze the design by identifying at least two deficiencies in the logic or functionality of the current design. Think about ways that you could address these deficiencies to improve the logic or functionality of the design.**

One deficiency in the logic is in the UML activity diagram where the process is asking the user for the amount to enter to withdraw and if the amount is not available then a receipt is automatically generated. I think this is a logical error since if the amount is not available then the process should return to prompting the user again for a valid amount to enter. The generate receipt process is then followed by a Print Receipt function which does not logically flow the Amount Not Available pathway. To correct this, I would restructure the diagram to shift the process for “Amount Not Available” from the “Generate Receipt” function to returning to the “Ask for Amount” function. If an amount is not available then the ATM will prompt the user to re-enter a valid amount to withdraw funds.

A functional deficiency is in the UML Sequence diagram, when the Verify PIN process is sent to the Bank actor and the PIN Valid process is next. The UML Sequence Diagram does not show a functional process given the scenario that the PIN is invalid and thus either returns to the home screen of the ATM or prompts the user to re-enter their PIN. If the PIN is invalid, the Bank actor should send a message back to the ATM to indicate the failure, and the ATM should respond accordingly, either by returning to the home screen or prompting the user to re-enter their PIN.

A diagram of a process

Description automatically generated