# CS 255 Model Six Assignment

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The UML activity diagram provided describes the “Withdraw Cash” use case of an ATM system. In this process, a user inserts their ATM card, enters their PIN, selects the transaction type, enters the desired withdrawal amount, and receives cash if the request is approved. The diagram outlines the flow of control from one action to another and identifies how the ATM and backend banking system interact during this routine transaction. Key activities include verifying user credentials, confirming sufficient funds, dispensing the requested amount, and printing a transaction receipt. The diagram helps visualize the process from the user’s perspective and how the system responds to each action.

Despite offering a general overview, the current diagram lacks several critical real-world features that are essential for a reliable ATM system. One primary deficiency is the absence of logic for incorrect PIN entries. In a realistic setting, users are given a limited number of attempts to enter the correct PIN. Without this logic, the current diagram suggests that incorrect entries either go unaddressed or result in indefinite retries, which poses a serious security concern. A second deficiency is the missing confirmation step before the ATM dispenses cash. Typically, users are prompted to confirm their transaction details after entering an amount, giving them the opportunity to cancel if needed. This step not only adds a layer of verification but also improves user experience and prevents unintentional withdrawals.

To address these issues, the activity diagram was revised using Lucidchart to reflect a more complete and secure design. In the improved diagram, a decision node follows the PIN entry step, where the system checks the validity of the entered PIN. If the PIN is incorrect, a counter is incremented, and the user is given up to three attempts. After the third failed attempt, the card is retained, and the session ends. Additionally, after the user enters the withdrawal amount, a new confirmation prompt is included before the cash is dispensed. If the user cancels at this point, the transaction is aborted, and the card is returned. These updates reflect more accurate ATM behavior and align the system logic with user expectations and industry standards.

## References

Shelly, G. B., & Rosenblatt, H. J. (2012). *Systems analysis and design* (9th ed.). Boston, MA: Cengage Learning.