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Reflection #3 Sequence Diagrams

- 1) Certain details, such as the specific procedures for user authentication (inputting a username, password, PIN, and completing two-factor authentication) in Scenario 1, with the online banking system, were not particularly helpful when creating the sequence diagram. While these details are crucial for the system's security, this amount of detail has little effect on the high-level flow of interactions between all the different components of the system. The sequence of how things come into contact with one another is the main focus of sequence diagrams, which includes every stage of the authentication process could make the diagram excessively complex and take attention away from higher-level tasks like payment confirmation and credential verification. To keep the clear and focused on the sequence of events, it was more practical to organize the authentication procedure into a single step, such as "authenticate user" when drafting the diagrams.
- 2) In Scenario 2, a security camera system is designed to recognize and react to unusual behavior and handle time intervals that present a specific challenge. The time-based

conditions include those that ask if an employee has been identified within the last hour or if the security desk was alerted in the last five minutes, among other things. Since sequence diagrams aren't made to handle time intervals, it can be challenging to represent these time-based conditions in one. Even though the events are clearly ordered, the addition of time-based constraints requires additional explanations or steps in the diagram, which could complicate the otherwise straightforward interaction flow. Due to this, it was difficult to capture the time conditions effectively without cramming the diagram when sketching.

- 3) In Scenario 3, splitting the responsibilities between different actors and systems was rather challenging. There are numerous users in the system, each with distinguishable roles and responsibilities, including academics, advisers, students, and administrators. It was difficult to determine which actions the system handles automatically, and which needed human interaction or approval from an admin or adviser, especially in circumstances like grade appeals and issues with course registration. It became more complex to create a clear and accurate sequence diagram because of the large number of interactions between actors and the system, which needed to be carefully thought out to make sure that the diagram accurately showed which jobs were automated by the system and which required input from humans.

- 4) Sequence diagrams and activity diagrams share similarities in that each has advantages and disadvantages of its own. Sequence diagrams emphasize the exact order in which

messages get sent, making them an effective way to show the complex interaction between objects or people throughout time. They are also ideal in situations where the timing of interactions is important. As Scenario 2 demonstrates, if there are too many interactions or time-based requirements, they can become overly complicated. Activity diagrams, on the other hand, are suitable for depicting workflows and decision points and provide a more comprehensive understanding of processes. While they may lack the accuracy of showing direct interactions between objects, they are particularly effective for mapping high-level processes, such as forks and parallel activities.