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| **Academic Year:** 2024-25 | **Year:** Second Year | **Term:** II |
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| **Subject:** Software Engineering | | |
| **Assignment No.**: 6 |  | |
| **Date:** |  | |

**Lab Assignment: 04**

**Title**: Generating Use Case Diagrams using Miro/StarUML

1. What is a State Diagram?

A State Diagram is a type of behavioral diagram that shows the various states of an object or system over time. It also illustrates the transitions between these states. The state diagram is used to describe how the system behaves in response to external stimuli or events.

2. The Symbols Used in State Diagram:

* States: Represented by rectangles with rounded corners.
* Transitions: Arrows indicating the change from one state to another. They can be labeled with conditions or events.
* Initial State: A filled circle representing the initial state of the object or system.
* Final State: A filled circle with a surrounding circle representing the end of a process or the final state of the system.
* Actions: Text placed near transitions to describe the action taken during the transition.

3. Use and Applicability:

* Control Flow: State diagrams are often used in systems where the state of an object changes over time based on events.
* Software Design: They are helpful in illustrating workflows, status of objects in a program, and system behavior in response to user input.
* Hardware Design: State diagrams are used to design finite state machines in hardware systems.
* Problem Domains: In situations where there are complex workflows, decision-making processes, or multi-stage processes, such as a banking system, inventory management, or automated systems.

4. For the Problem Identified in CPS:

Since your system involves various actors and systems (banking, payment processing, inventory, etc.), a State Diagram could represent states in processes like:

* Vault Balance Display
* Account Tracking
* Payment Processing
* Locker Visit Scheduling
* Inventory Updates

