State Machine and State Transition Diagram

Draw an **UML Diagram for a Course Registration System**. It consists of Registration open, close, students enrolled and students dropped. Once the course registration system is open, students gets enrolled for the course and the students details for the course is added to the course enrolled list. The enrollment for the course is limited to 60. As the course list if full, students enrolled for the course is in waiting list. The waiting list count for the course is 10. If a student has dropped / leave the course, his / her details of the course is removed from the list. From the waiting list, the students will be moved to enrolled list automatically. After the enrollment is completed and the course is started, no student can add or drop the course.

Develop Traffic Signal Control System using State Machine Diagram & Deployment Diagram

Requirements

1. The traffic signal system should control the flow of traffic at road junction.
2. The system should support different types of signals, such as red, yellow, and green.
3. The duration is fixed as 3 minutes of each signal should be configurable and adjustable based on traffic conditions.
4. The system should handle the transition between signals smoothly, ensuring safe and efficient traffic flow.
5. The system should be able to detect and handle emergency situations, such as an ambulance or fire truck approaching the intersection.
6. The system should report the status at nearby police booth and station

Draw an UML **state machine / state transition diagram** and Deployment Diagram for **Lift Operation System** for 4 floor building using State Machine Diagram. The condition applied to lift operation is the lift will not stop at first floor.

- Idle
- Moving Down
- Moving Up
- Stopping
- Door Opening
- Door Closing
- Next Stop Processing
- Open Door
- Floor Button

Transition between States

- Idle to Decision - floor chosen
- Decision to Moving Down - elevator is above the current floor
- Decision to Moving Up - elevator is below the current floor
- Moving Down to Stopping - elevator approached the destination floor
- Moving Up to Stopping - elevator approached the destination floor
- Stopping to Door Opening - elevator stopped on the destination floor
- Door Opening to Open Door - door fully open
- Door Open to Door Closing - open door timer elapsed
- Door Closing to Door Opening - someone stepped into the door
- Door Closing to Next Stop Processing - door closed
- Next Stop Processing to Moving Down - elevator is above the destination floor
- Next Stop Processing to Moving Up - elevator is below the destination floor
- Next Stop Processing to Idle - no other destination available