

1. Prepare a state model from the given problem description and draw a state diagram using UML2 notations.

(Identification of at least 5 states with events is expected. Start action, do action and exit action should be shown for 2-3 states)

Implement this state model with a suitable object oriented language.

QStateModel01: A software tester enters a defect in a Defect Tracking system (DTS). When this happens, the defect goes into a state 'available'. Now, a software developer can acquire the 'available' defect. When the developer acquires this defect, it goes from 'available' state to 'In Progress' state and that developer is called owner of the defect.

Now no other developer can acquire it. Owner keeps working on 'In progress' defect. Once the defect is fixed ie the solution is found, it goes from 'in progress' state to the 'Ready for review' state. Reviewer reviews the solution of 'ready for review' defect. If reviewer is satisfied about solution, the defect goes to the state 'Resolved' else it goes to the 'available' state.

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QStateModel02: A simple digital watch has a 'display time' state, 'set hours' state and 'set minutes' state. It has two buttons, button A and B. When the watch is in 'display time' state and button A is pressed then it goes to 'set hours' state. If the watch is in 'set hours' state and button A is pressed then it goes to 'set minutes' state.

When the watch is in 'display time' state and button B is pressed there is no change in the state of the watch. When the watch is in 'set hours' state and button B is pressed, then the hour value in the display advances and the watch remains in the same state. When the watch is in 'set minutes' state and button B is pressed, then the minute value in the display advances and the watch remains in the same state.

The initial state of the watch is 'display time' state.

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QStateModel03: A copy machine has display panel, ready light. When the power is OFF the machine is in OFF state. When the power is on the machine, the machine goes to warming state. During warming state, the 'ready light' starts flashing. After doing the initial checks, the machine goes to ready state. When it is in ready state, the ready light is turned 'on', and it displays the number of copies as one and size as normal on the display panel. If the size and the no of copies are changed, the machine still remains in the same state. When a start button is pushed, the machine goes to copying state. Copying proceeds until all copies are complete. After this the machine goes into the ready state.

4. Prepare a state model from the given problem description and draw a state diagram using UML2 notations.

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QStateModel04: At the end of third year TP cell of institute asks students to register with training and placement site. While registering student, personal, educational and extracurricular information with resume, is collected by portal. The companies have to register with college portal and have to submit selection method and criteria. The resumes are matched with companies and interviews are scheduled by T & P office. The results of every round are displayed online.

Consider students transition in TP Cell from registered, applying for interview, appeared, selected, etc. Draw and implement State Model.

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QStateModel05: The laboratory management software displays information of computers available in the lab, with their IP address, its configuration, and its status(running, switchoff, standby etc.). It has facility to share desktop and install software's from server. Assume various facilities provided by typical lab management software.

Consider Software installation state transitions like selected, running, halted, stopped etc.

6. Prepare a state model from the given problem description and draw a state diagram using UML2 notations.

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QStateModel06: Consider Windows Operating system, Identify various states it will go through during use of file printing in network (Network file printer). You can consider various situations of user/application interventions.