4.2.3 State-transition diagrams

Saturday, 6 February 2021 9:20 AM

4.2.3 State-transition...

4.2.1 Decision Tables

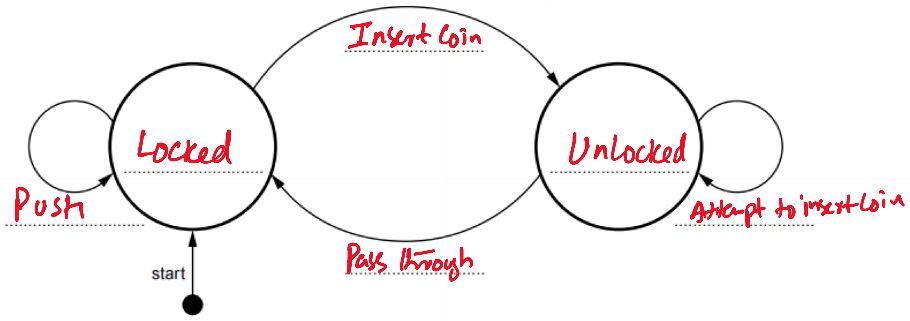
Computer Science (9608)

May/June 2015.P41/P42

1 A turnstile is a gate which is in a locked state. To open it and pass through, a customer inserts a coin into a slot on the turnstile. The turnstile then unlocks and allows the customer to push the turnstile and pass through the gate. After the customer has passed through, the turnstile locks again. If a customer pushes the turnstile while it is in the locked state, it will remain locked until another coin is inserted.
The turnstile has two possible states: **locked** and **unlocked**. The transition from one state to another is as shown in the table below.

Current state	Event	Next state
Locked	Insert coin	Unlocked
Locked	Push	Locked
Unlocked	Attempt to insert coin	Unlocked
Unlocked	Pass through	Locked

Complete the state transition diagram for the turnstile:



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May/June 2015.P43

1 A petrol filling station has a single self-service petrol pump.

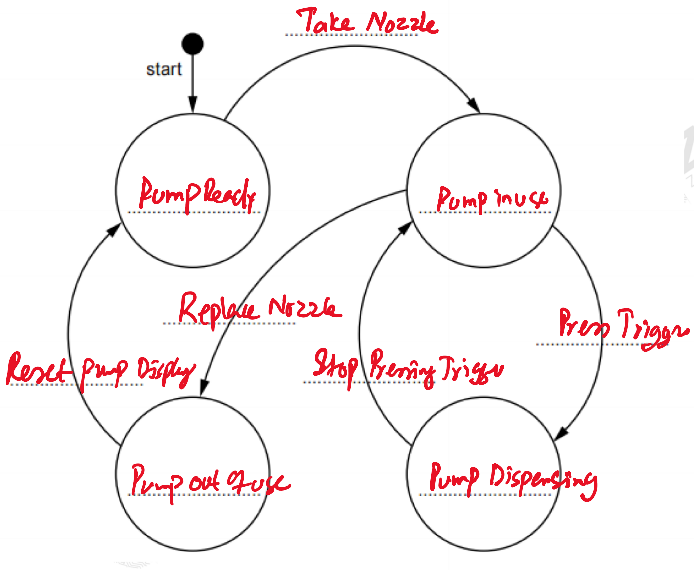
A customer can use the petrol pump when it is ready to dispense petrol.
The pump is in use when the customer takes the nozzle from a holster on the pump.
The pump dispenses petrol while the customer presses the trigger on the nozzle.
When the customer replaces the nozzle into the holster, the pump is out of use.
The cashier must press a reset button to make the pump ready for the next customer to use.

4.2.1 Decision Tables

The petrol pump's four possible states and the transition from one state to another are as shown in the table below.

Current state	Event	Next state
Pump ready	Take nozzle	Pump in use
Pump in use	Press trigger	Pump dispensing
Pump dispensing	Stop pressing trigger	Pump in use
Pump in use	Replace nozzle	Pump out of use
Pump out of use	Reset pump display	Pump ready

Complete the state transition diagram for the petrol pump:



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