Information System Design
IT60105

Lecture 15

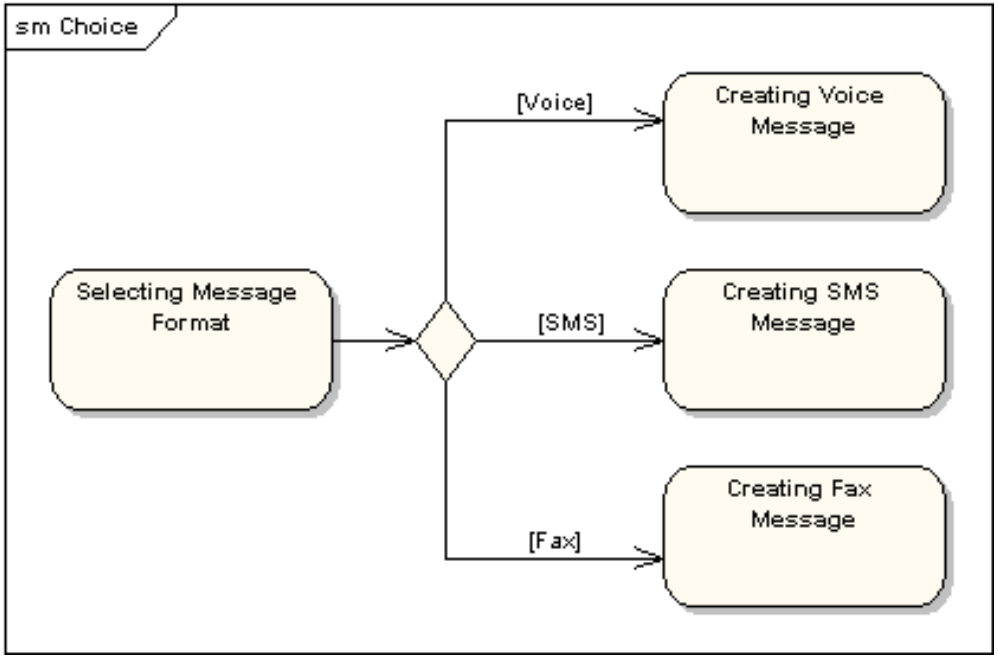
More features in Statechart Diagrams

Lecture #15

- Choice state
- Choice-Junction state
- History state
- Concurrent state

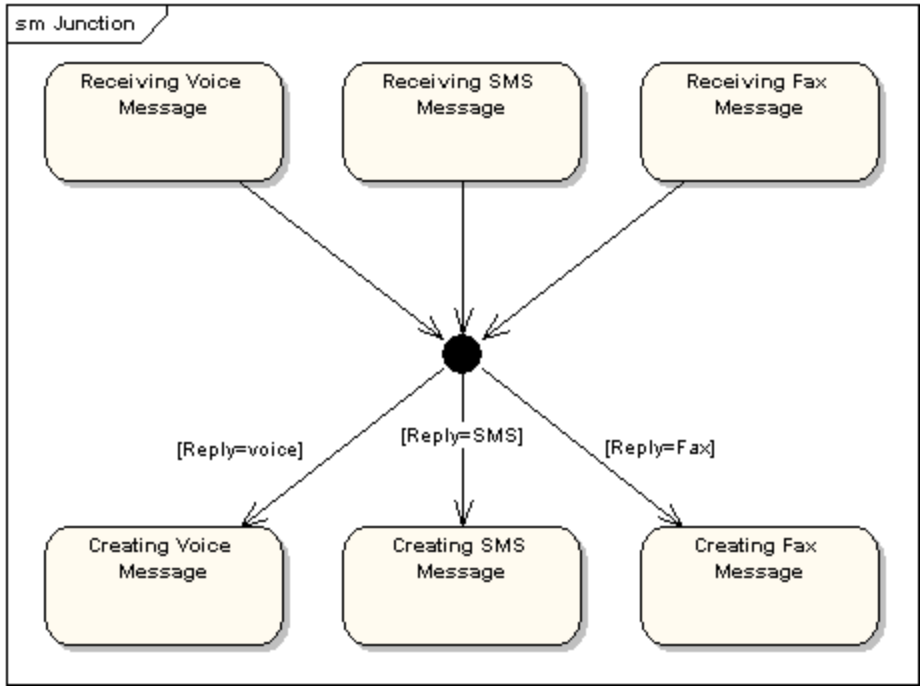
Choice Pseudo-State

- A choice pseudo-state is shown as a diamond with one transition arriving and two or more transitions leaving. The following diagram shows that whichever state is arrived at after the choice pseudo-state is dependent on the message format selected during execution of the previous state



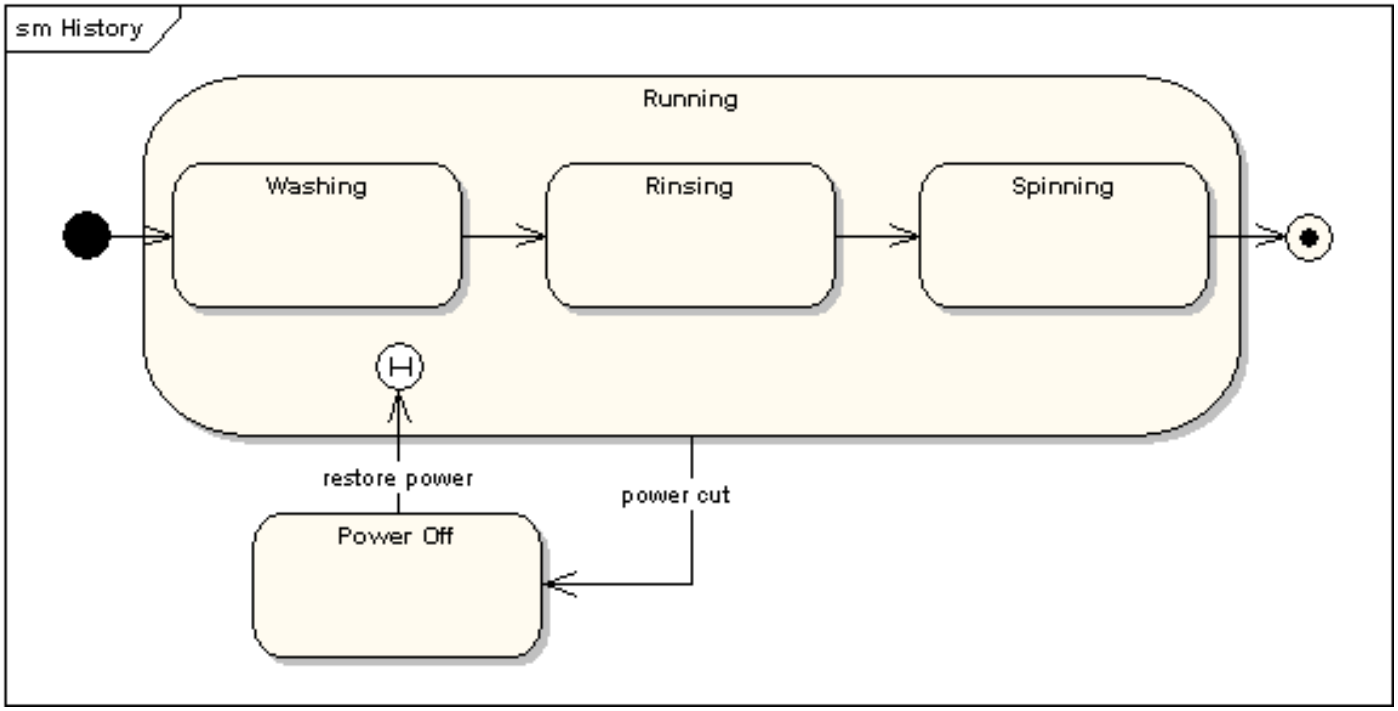
Choice Junction-State

- Junction pseudo-states are used to chain together multiple transitions. A single junction can have one or more incoming and one or more outgoing transitions and a guard can be applied to each transition. Junctions are semantic-free; a junction which splits an incoming transition into multiple outgoing transitions realizes a static conditional branch as opposed to a choice pseudo-state which realizes a dynamic conditional branch



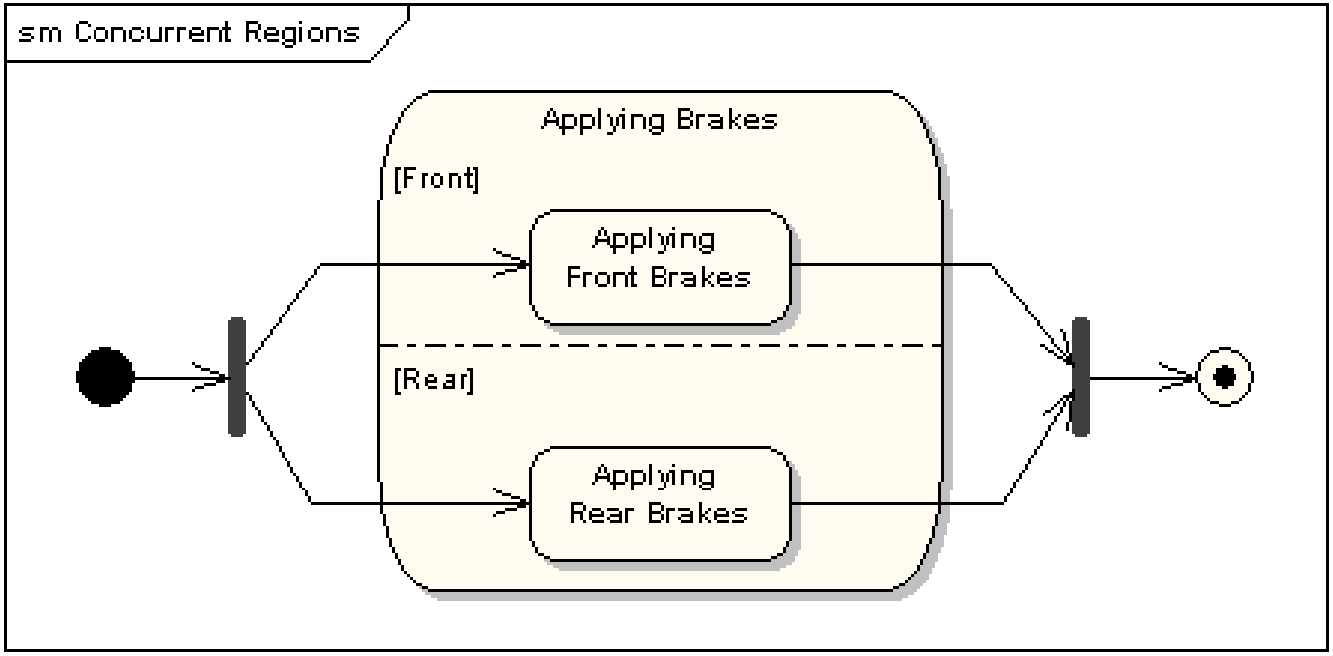
History State

- A History State is used to remember the previous state of a state machine when it was interrupted. The following diagram illustrates the use of history states. The example is a state machine belonging to a washing machine



Concurrent State

- A state may be divided into regions containing sub-states that exist and execute concurrently. The example below shows that within the state "Applying Brakes", the front and rear brakes will be operating simultaneously and independently. Notice the use of fork and join pseudo-states rather than choice and merge pseudo-states. These symbols are used to synchronize the concurrent threads



A State Machine with Three States