STATE DIAGRAMS

What is a State Diagram?
A state diagram shows the behavior of classes in response to external stimuli. Specifically a state diagram describes the behavior of a single object in response to a series of events in a system. This UML diagram models the dynamic flow of control from state to state of a particular object within a system.

States refer to the different combinations of information that an object can hold, not how the object behaves. In order to understand the different states of an object, you might want to visualize all of the possible states and show how an object gets to each state, and you can do so with a UML state diagram.

How to Draw a State Diagram (You create one diagram per Use Case Document)
Before you begin your drawing find the initial and final state of the object in question.

Next, think of the states the object might undergo. For example, in e-commerce a product will have a release or available date, a sold out state, a restocked state, placed in cart state, a saved on wish list state, a purchased state, and so on.

Certain transitions will not be applicable when an object is in a particular state, for example a product can be in a purchased state or a saved in cart state if its previous state is sold out.
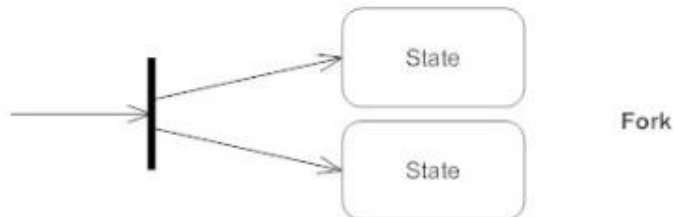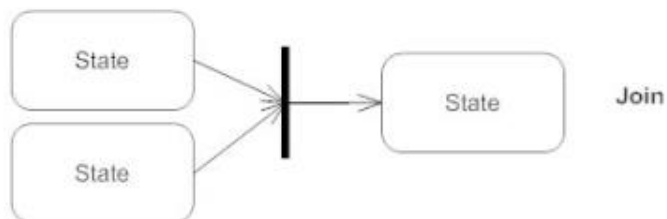
SYMBOLS IS A STATE DIAGRAM

State

A simple state

State

activities/methods

A state with internal activities

Transition
A solid arrow represents the path between different states of an object. Label the transition with the event that triggered it and the action that results from it. A state can have a transition that points back to itself.

Transition

Initial State
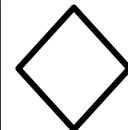A filled circle followed by an arrow represents the object's initial state.

Initial state

Final State
An arrow pointing to a filled circle nested inside another circle represents the object's final state.

Final state

Synchronization and Splitting of Control
A short heavy bar with two transitions entering it represents a synchronization of control. The first bar is often called a fork where a single transition splits into concurrent multiple transitions. The second bar is called a join, where the concurrent transitions reduce back to one.

State

State

Fork

State

State

State

Join

Exit point symbol is to exit due to an error or some issue where the process is not completed.

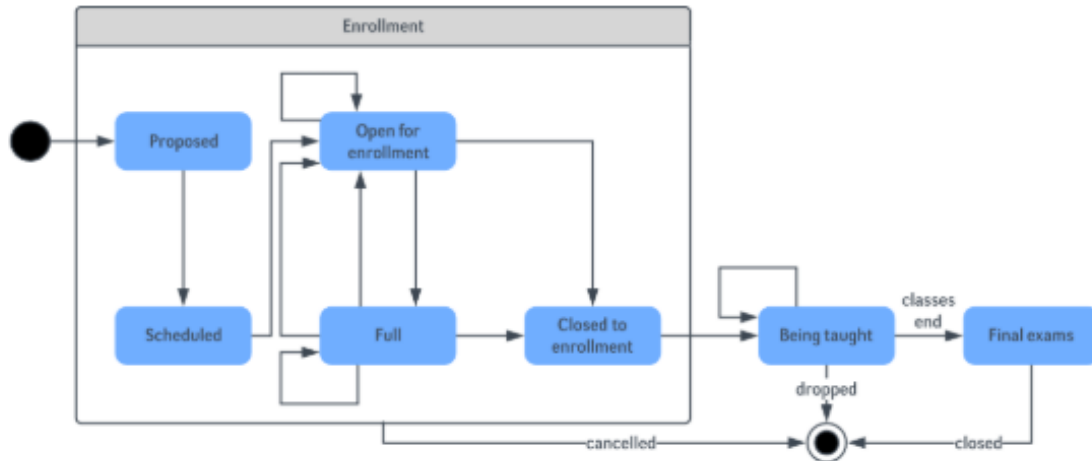A diamond indicates a dynamic condition with branched potential results.

EXAMPLES

University state diagram example

This state diagram shows the process of enrollment and classes at a university. The composite state "Enrollment" is made up of various substates that will lead students through the enrollment process. Once the student has enrolled, they will proceed to "Being taught" and finally to "Final exams."

Airport check-in state diagram example

The following example simplifies the steps required to check in at an airport. For airlines, a state diagram can help to streamline processes and eliminate unnecessary steps.