



Practical No:- 6

Aim:- To draw the behavioural view diagram :- state chart diagram, Activity diagram.

Theory:-

State chart diagram

- State chart diagram is one of the five UML diagrams used to model the dynamic nature of a system.
- State chart diagram are useful to model the reactive system
- A state chart diagram describes a state machine.
- State chart diagram describes the flow or control from one state to another state

Elements in state chart diagram

Initial state

- This state shows the first activity of the flow

- Initial state

State

A state represents the state of an object at a particular given point of time.

Transition

The transition from one state to another state of objects is represented by an arrow

→ Transition



Event and Action

A trigger that causes a transition to occur

Signal

When a message or a trigger caused by an event to a state, which causes a transition, this message is called as a signal.

Final States:-

The state diagram ends with a diagram that depicts a bull's eye is known as Final state.

● Final state

Activity Diagram

- Activity diagram is another important diagram in UML to describe the dynamic aspects of the system.
- Activity diagram is basically a flowchart to represent the flow from one activity to another activity.
- Activity diagrams deal with all type of flow control by using different elements such as fork, join, etc

Purpose of Activity diagram

- It captures the dynamic behaviour of the system. Other four diagrams are used to show the message flow from one object to another but activity diagram is used to show message flow from one activity to another

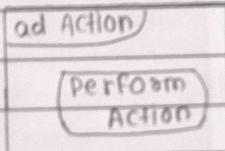


- Activity is the particular operation of the system. Activity diagrams are not only used for visualizing the dynamic nature of a system.
- Activity diagram is sometimes considered as the flow-chart

Elements of Activity Diagram

Action

An action represents a single step within an activity.
Actions are denoted by round-cornered rectangle

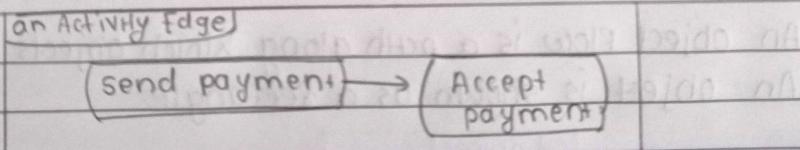


Action constraints

constraints can be attached to an action

control flow

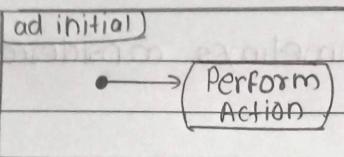
A control flow shows the flow of control from one action to the next. Its notation is a line with an arrow-head.





Initial Node

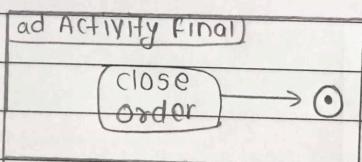
An initial or start node is depicted by black spot



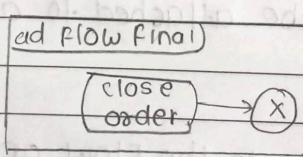
Final Node:

There are two types of final node: activity & flow final nodes

The activity final node is depicted as a circle with a dot inside.

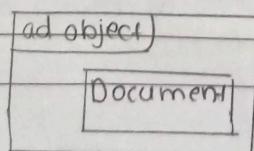


The flow final node is depicted as a circle with a cross inside.



Object and Object Flows

An object flow is a path along which objects or data can pass.
An object is shown as a rectangle.

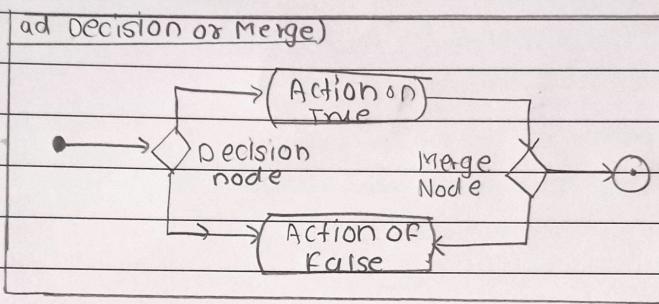




An object flow must have an object on at least one of its ends.

Decision and Merge Node

Decision nodes and merge nodes have the same notation: a diamond shape.



Fork and join

Fork and joins have the same notation: either a horizontal or vertical bar. They indicate the start/end of concurrent threads of control.

Expansion Region

An expansion region is a structured activity region that executes multiple times.

Exception Handler

Exception handler can be modelled on activity diagram.

Interruptible Activity Region

Surrounds a group of actions that can be interrupted.



Partition

An activity partition is shown as either a horizontal or vertical swimlane.