

UML: Activity Diagram

Activity Diagram: what is it?

- Describes activities and flows of data or decisions between activities
- Provides a very broad view of business processes
- Can be used to break out the activities that occur within a use case
- Good for showing parallel threads
- Shows a set of activities, the flow from activity to activity.
- Represents the dynamic view of a system.
- Models the function of a system.

Creating an Activity Diagram

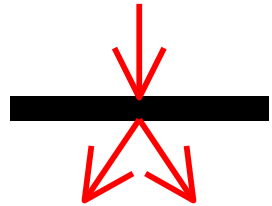
- ❑ This diagram is useful in showing work flow connections and describing behaviour that has a lot of parallel processing.
- ❑ When you use an activity diagram you can choose the order in which to do things.
- ❑ It expresses the essential sequencing rules to follow.
- ❑ It is different from a flow chart in that it shows parallel processes, not just sequential processes.

UML Activity symbols

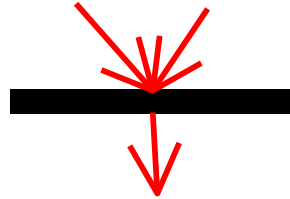
ActionState

● initial state

◉ final state



Transition
(Fork)



Transition
(Join)



Control Flow



Decision



Swimlane

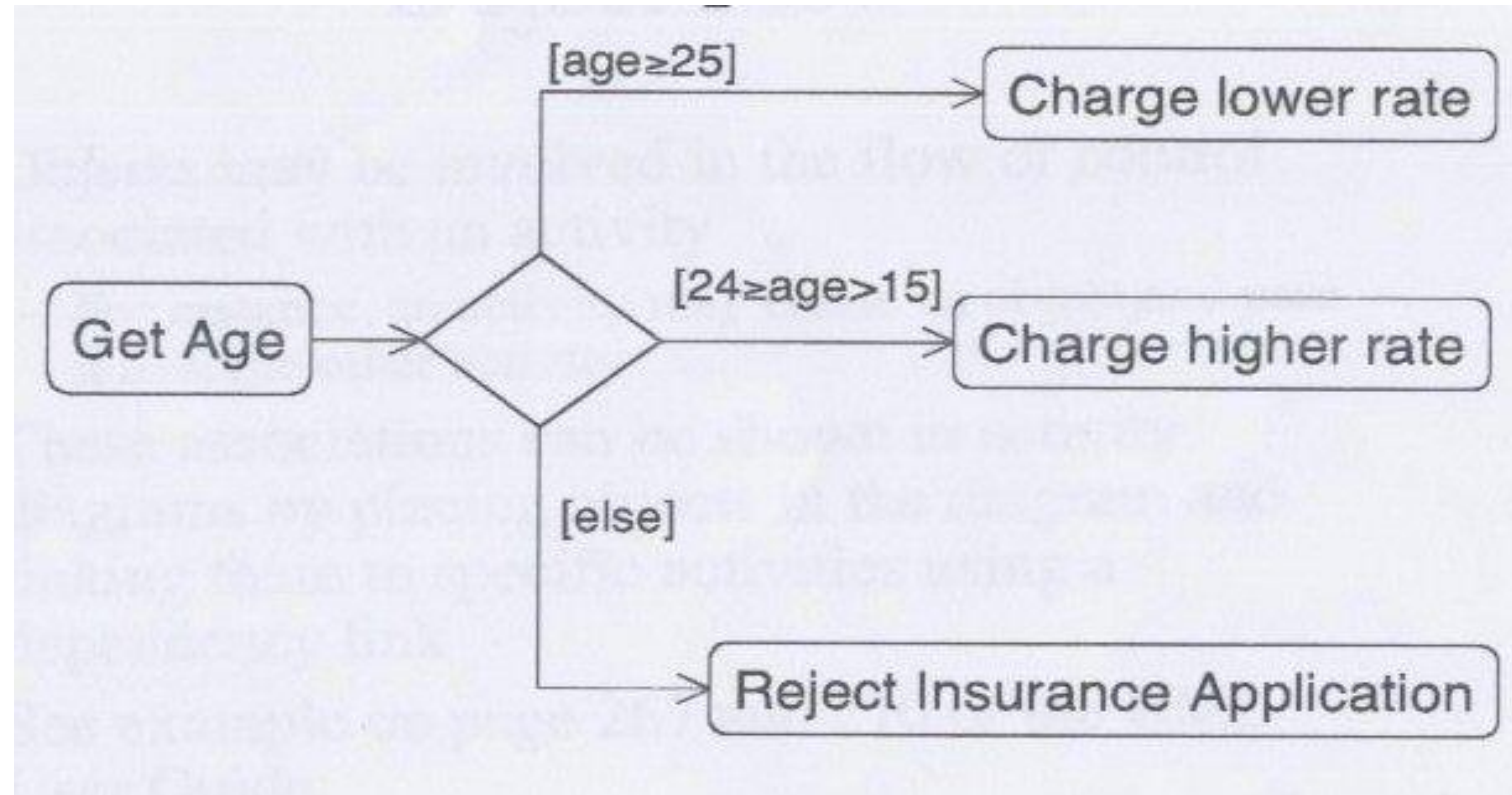
Action State

- In a conceptual diagram, an activity is a task that needs to be done – either by a human or a computer
- In a specification-perspective diagram or an implementation-diagram, an activity is a method on a class

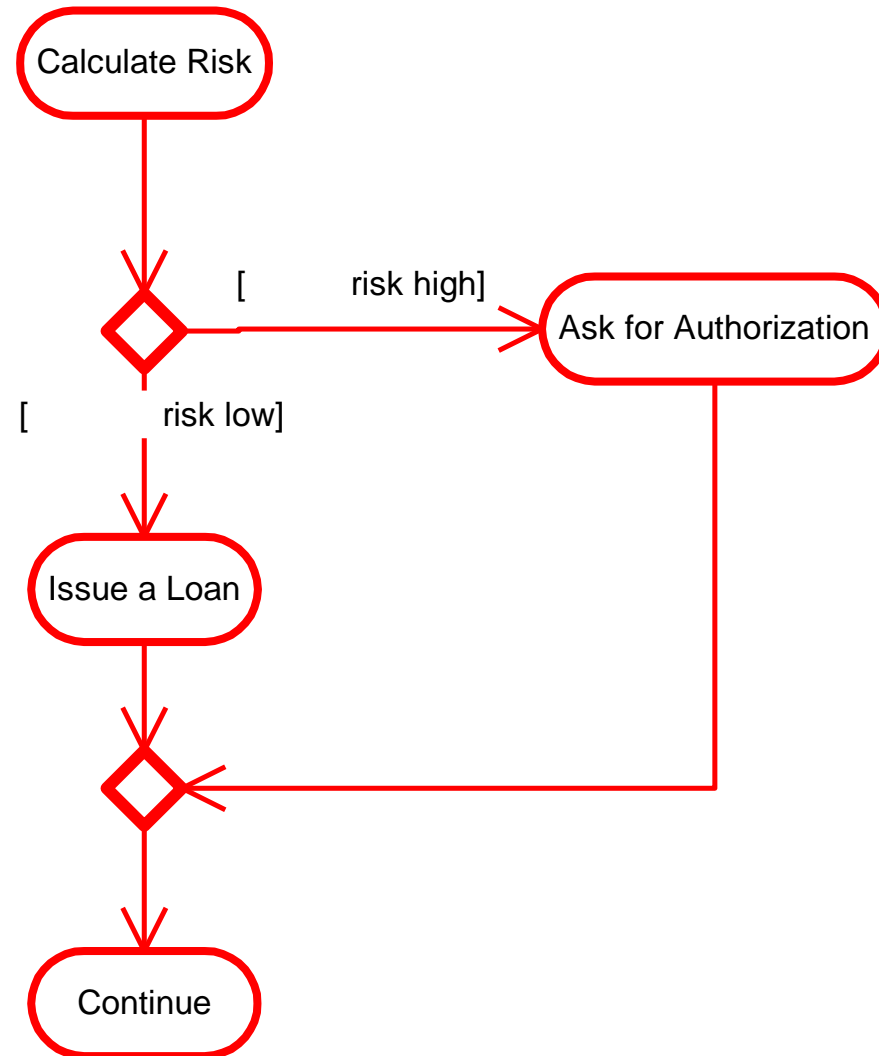
Sequential Branching

- A sequential branch is represented as a diamond
 - It may have one incoming transition and two or more outgoing transitions
 - Guards are associated with each transition. The guards are evaluated upon entering the branch, and the one that evaluates to true is then taken

Example



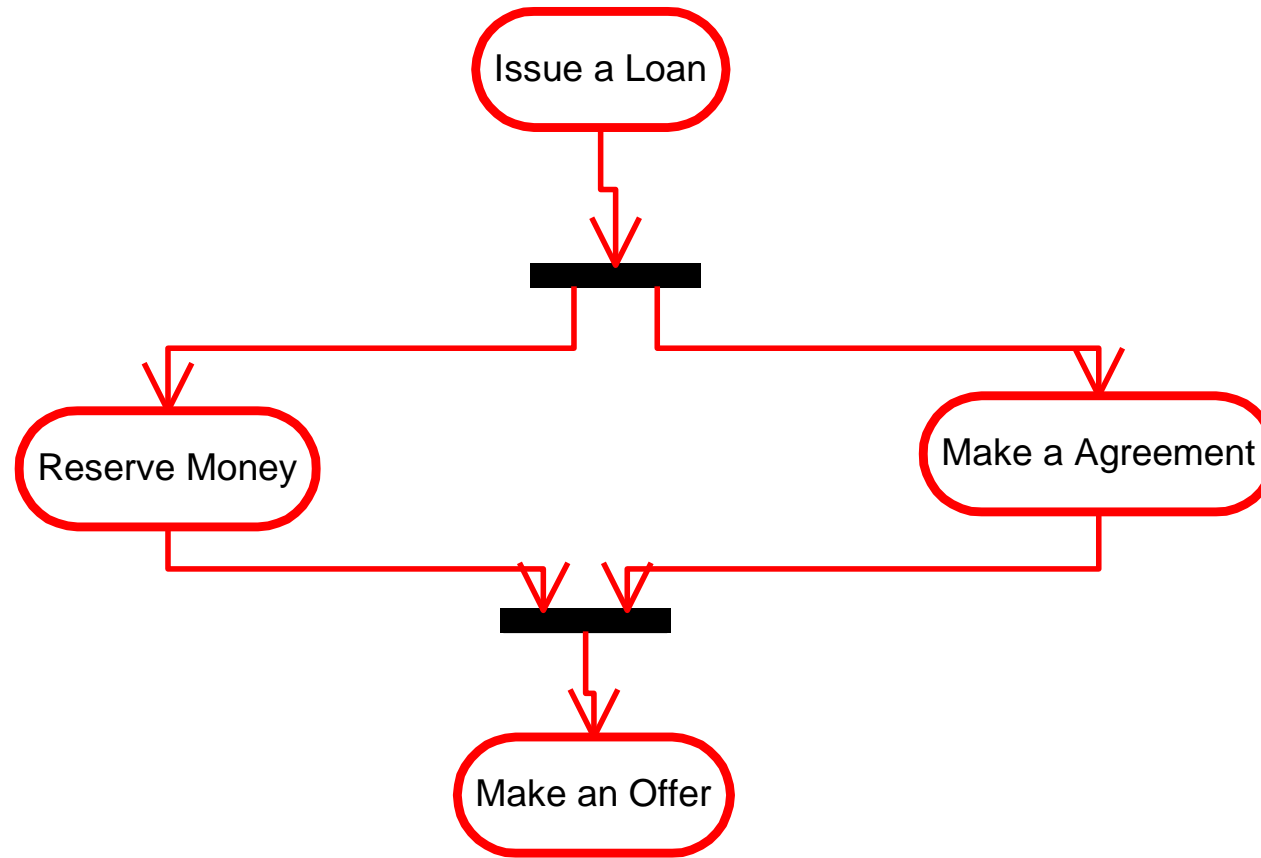
Branch & Merge



Forking and Joining

- Concurrent activities within an activity diagram are modelled with the use of synchronised bars
- Synchronisation bars are drawn as a thick horizontal or vertical line
- Joins and Forks should balance
 - The number of flows that leave a fork should equal to the number of flows entering the corresponding join.

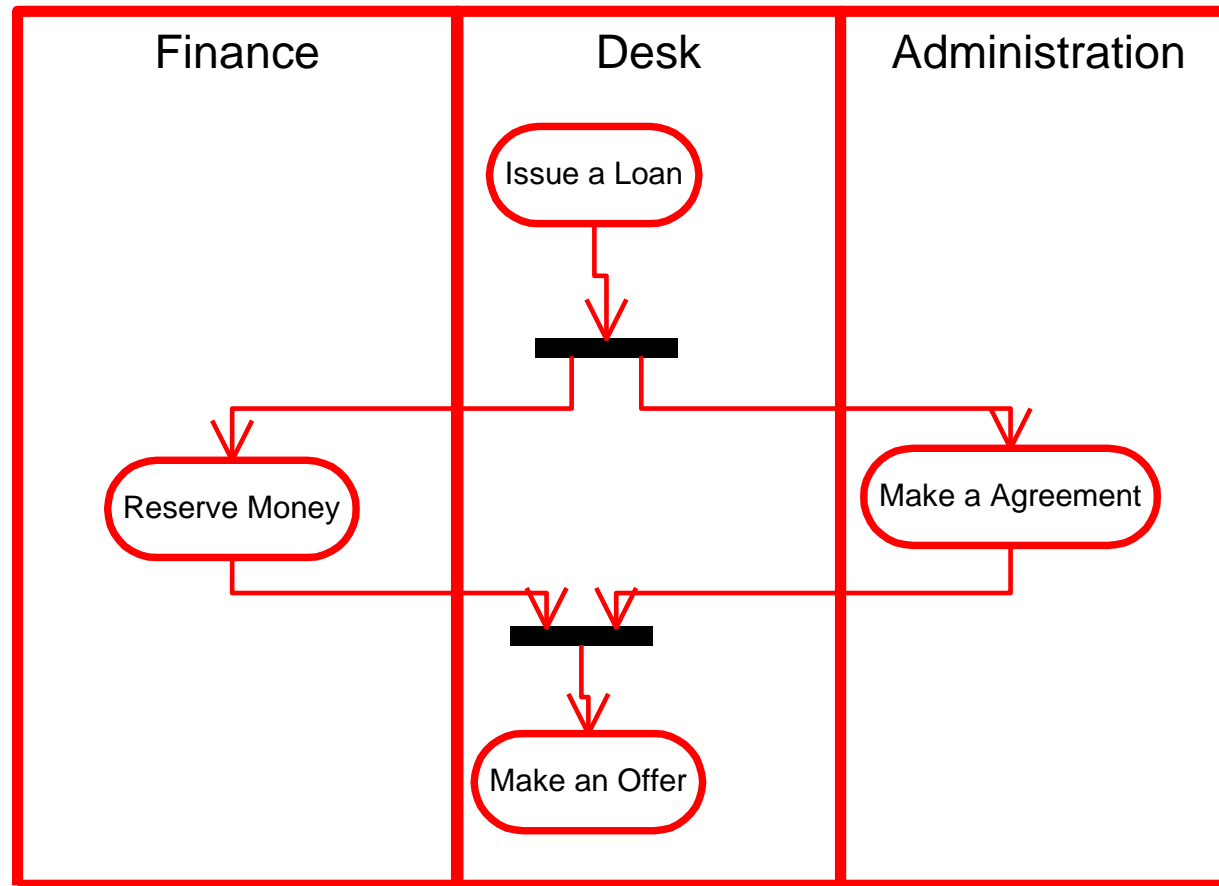
Fork & Join



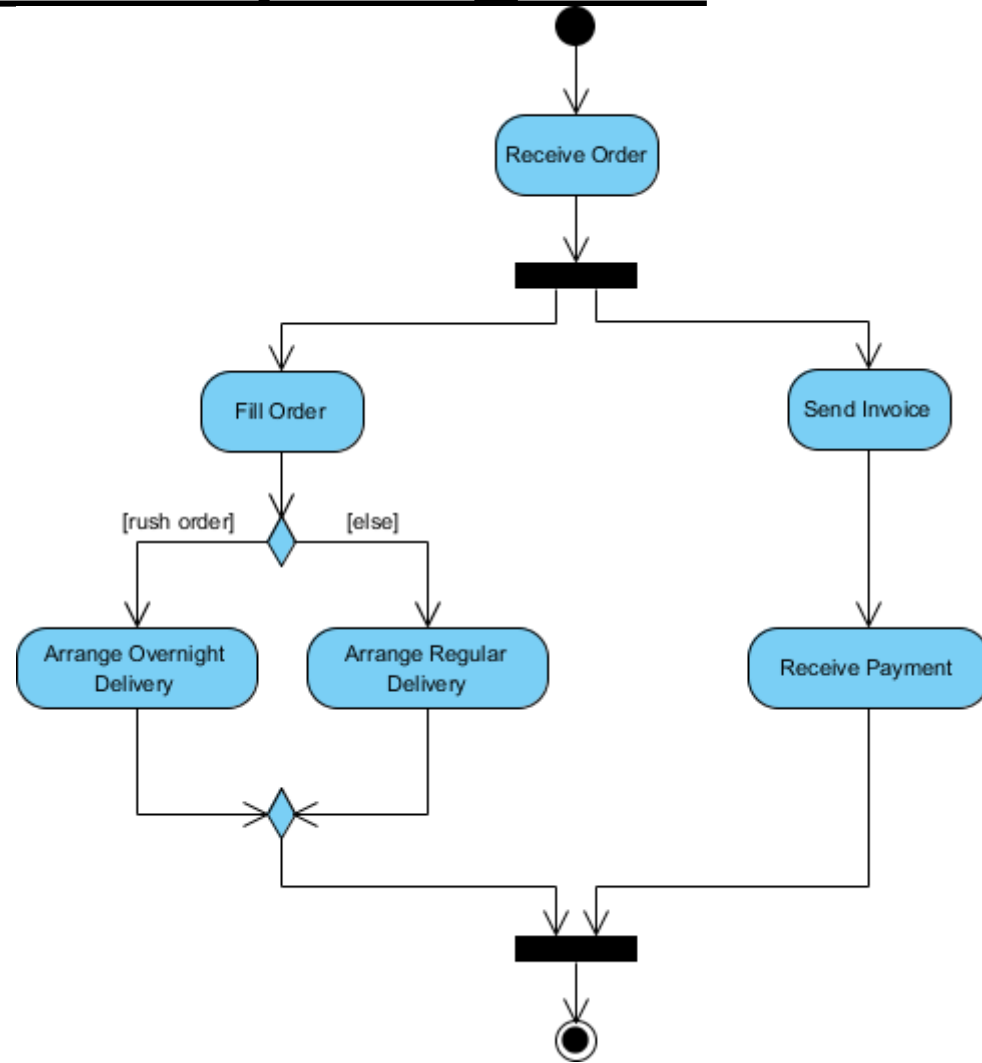
Swim lanes

- The activities of an activity diagram may be performed by different groups.
- Each zone or lane represents the responsibilities of a particular group.
- If swimlanes are used, each activity can belong to one and only one swimlane.
- To use swimlanes, you must arrange your activity diagrams into vertical zones separated by dashed lines.

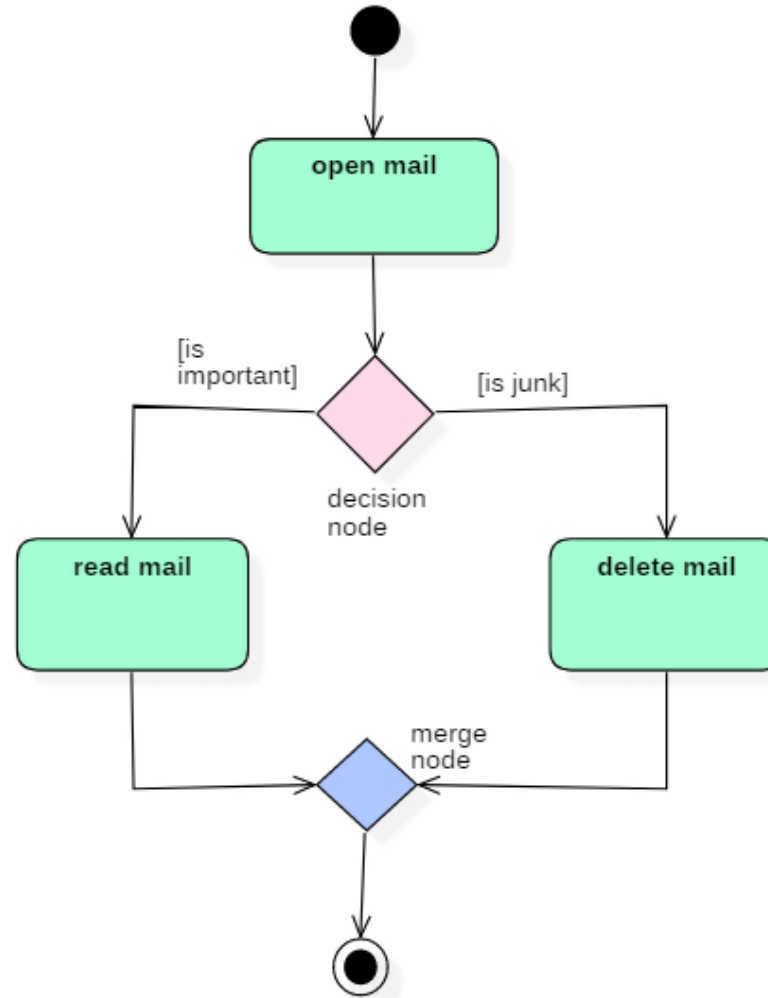
Swim lanes



Example of Activity Diagram



Example of Activity Diagram (contd.)



Activity diagram for Online Shopping

