

Activity Diagram

- Activity diagrams illustrate the **flow of functionality** in a system.
- used in business modeling to show the **business workflow**.
- They may be used in requirements gathering to illustrate the flow of events through a use case.
- These diagrams define **where the workflow starts, where it ends, what activities occur during the workflow, and in what order the activities occur**.
- *An activity is a task that is performed during the workflow.*

Activity Diagram Notations

1. Swimlanes

- determine which object is responsible for which activity.
- To partition the activity states on an activity diagram into groups
 - each group representing the business organization responsible for those activities
 - each group is called a swimlane
- Each swimlane is divided from its neighbor by a vertical solid line

Activity Diagram Notations

- ❑ Each swimlane has a name unique within its diagram
- ❑ Each swimlane may represent some real-world entity
- ❑ Each swimlane may be implemented by one or more classes
- ❑ Every activity belongs to exactly one swimlane, but transitions may cross lanes

Swimlane Sample

Object 1

Object 2

Object 3

Swimlane

Swimlane

Swimlane

Start / Stop Marker



Start Marker



Stop Marker

Activity - Transition

A single **transition** comes out of each activity, connecting it to the next activity.

Symbol : 

A transition may **branch** into two or more mutually exclusive transitions.

Activity - Transition

Action nodes: executable activity nodes; the execution of an action represents some transformations or processes in the modeled system.

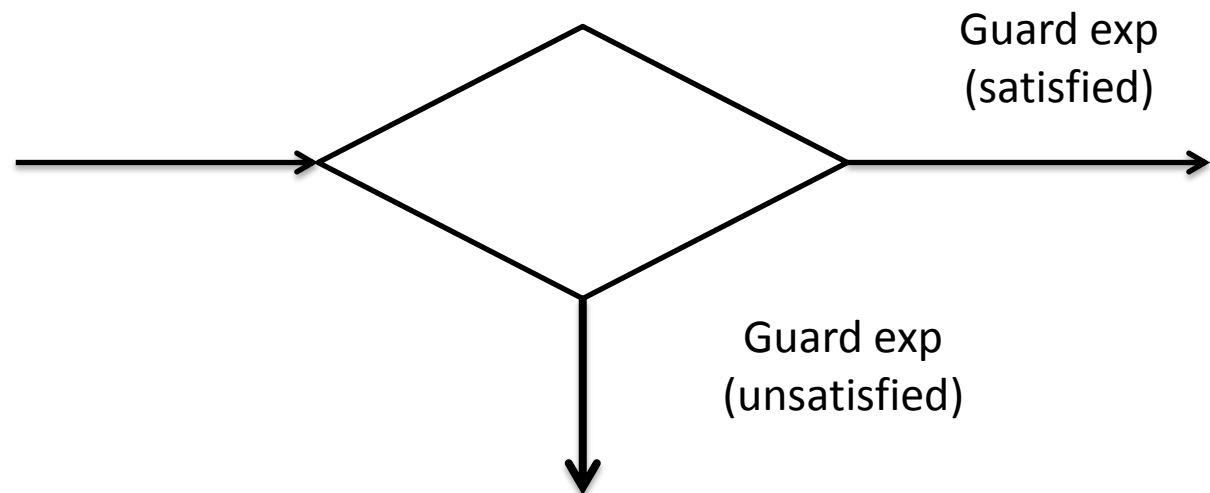
Symbol :



Control Nodes - decision nodes (Branching)

- ❑ A branch specifies alternate paths taken based on some Boolean expression
- ❑ A branch may have one incoming transition and two or more outgoing ones
- ❑ **Guard expressions** (inside []) label the transitions coming out of a branch.

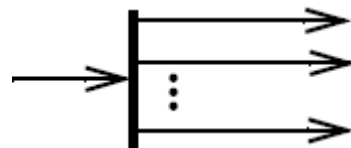
Symbol :



Control Nodes – fork nodes

- Fork nodes split flows into multiple concurrent flows
- A fork may have one incoming transitions and two or more outgoing transitions
 - each transition represents an independent flow of control
 - conceptually, the activities of each of outgoing transitions are concurrent
 - either truly concurrent (multiple nodes)
 - or sequential yet interleaved (one node)

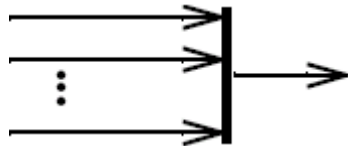
Symbol :



Control Nodes – join nodes

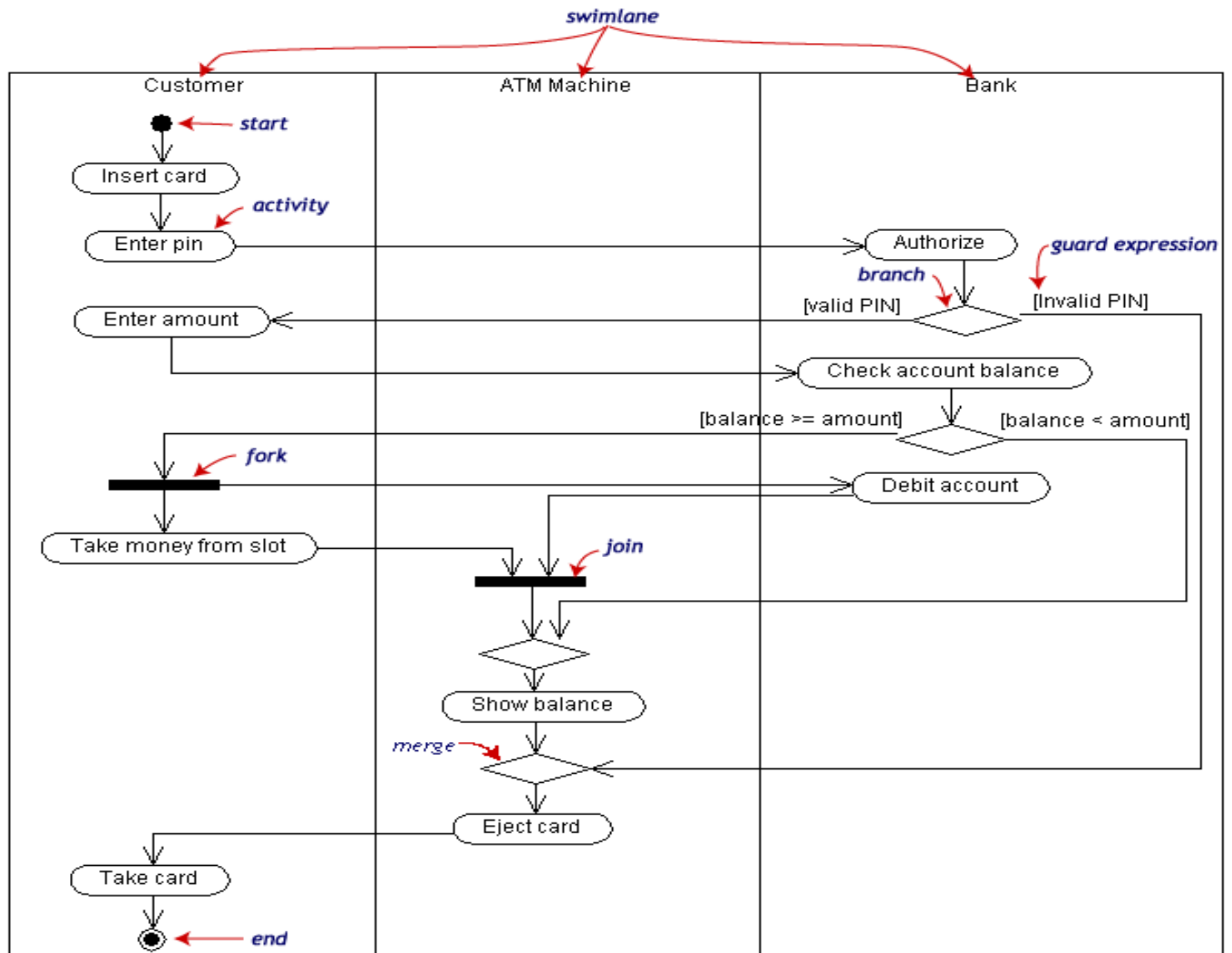
- Join nodes synchronize multiple flows
- A join may have two or more incoming transitions and one outgoing transition
 - above the join, the activities associated with each of these paths continues in parallel
 - at the join, the concurrent flows synchronize
 - each waits until all incoming flows have reached the join, at which point one flow of control continues on below the join

- Symbol:

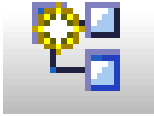


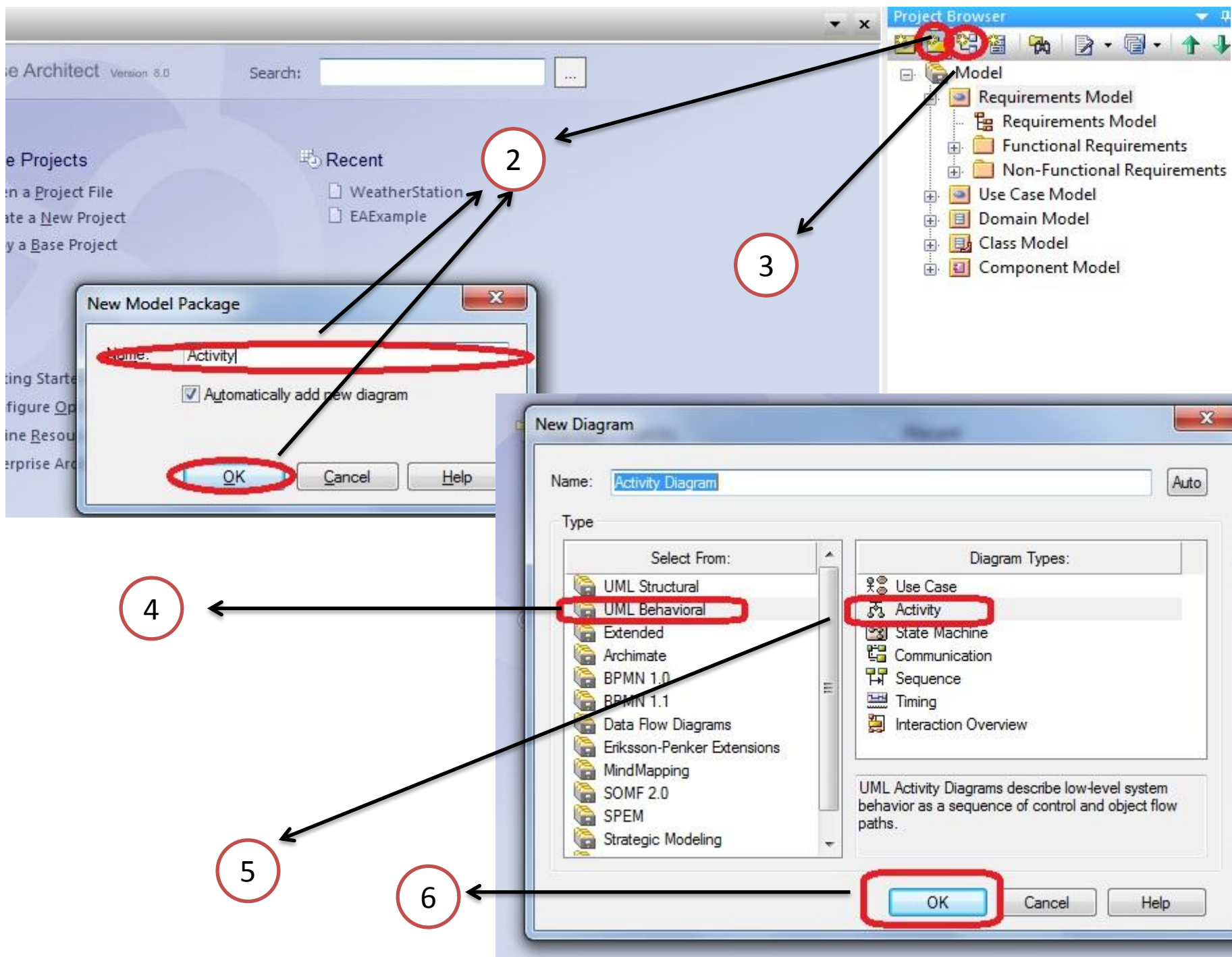
Example

Withdraw money from a bank account through an ATM.



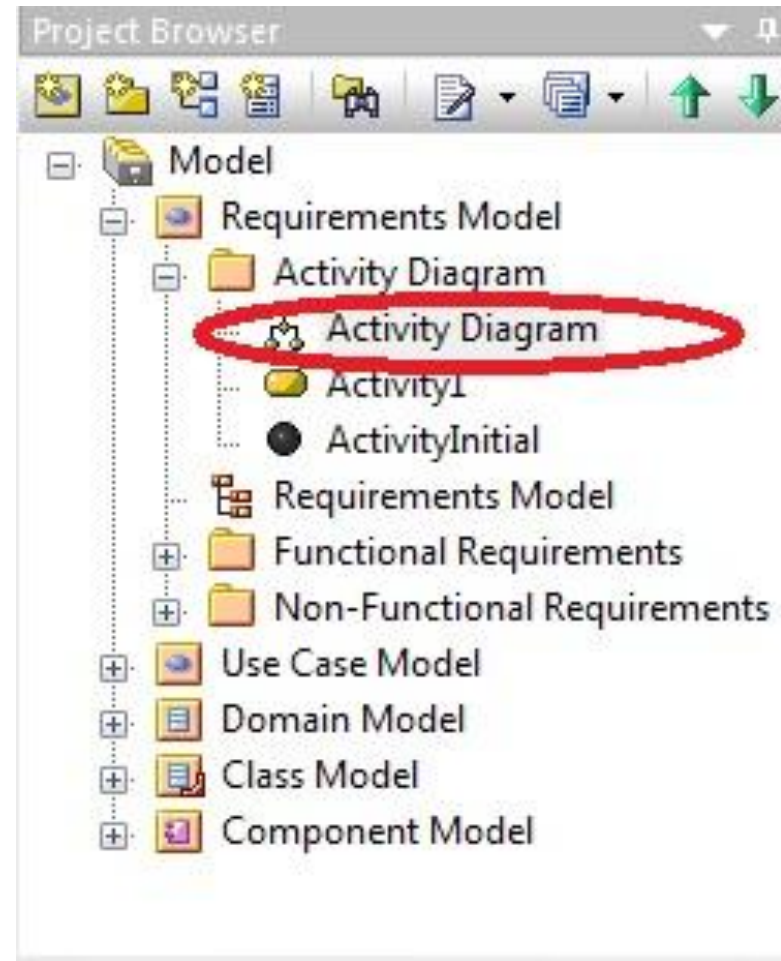
Activity Diagram in EA

1. Select a package in your project browser
2. Create a package named as Activity
3. Click on “new diagram”  icon
4. Select UML Behavioral
5. From the diagram types, select “Activity”
6. Press ‘OK’ button



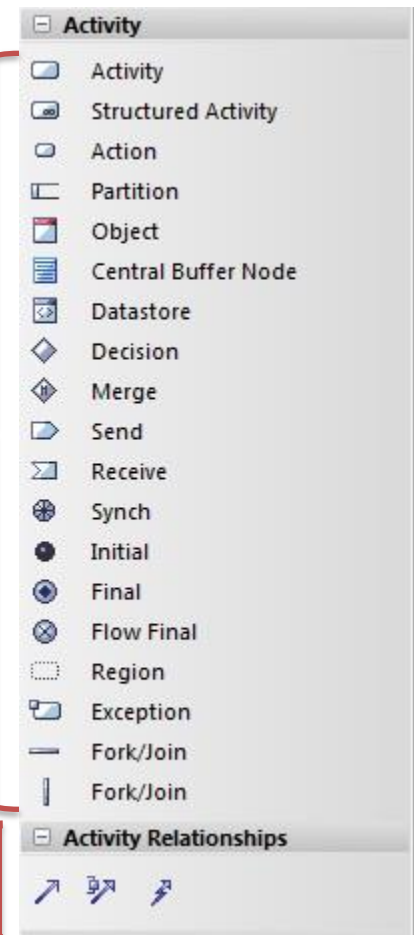
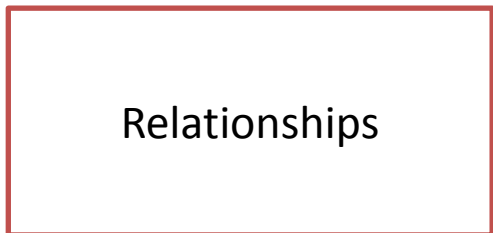
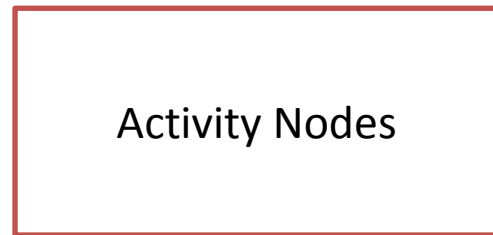
Activity Diagram in EA

Double click on Activity Diagram



Activity Diagram in EA

To add activity nodes and relations click on each node and then click on view diagram page.



Activity Diagram in EA

After adding each node ,
select an appropriate
name for the node
from the properties page

Select a
name

press

ActivityInitial : ActivityInitial

General Requirements Constraints Links Scenarios Files Tagged Values

Name: ActivityInitial

Stereotype: [dropdown] [icon]

Author: Rio

Scope: Public

Alias: [text box]

Status: Proposed

Complexity: Easy

Language: <none>

Keywords: [text box]

Phase: 1.0 Version: 1.0

Notes: [rich text editor]

B I U A [list icon] [math icon] [math icon] [globe icon]

OK Cancel Apply Help

Activity Diagram in EA

To add the relationship just **drag** from the source node and then **drop** in destination node.

Complete Example

Weather Station : View Weather Data use case

