What an Activity Diagram actually shows

An Activity Diagram shows the FLOW of activities in a process. Five things it captures:

- **Start and end states**: where the process begins and ends
- **Activities**: the work being done
- **Decision points**: if/else branches
- **Parallel paths**: activities that happen simultaneously
- **Responsibility**: who does what (with swimlanes)

Activity diagrams live in Chapter 3, Section 3.6 (System Design). They often pair with sequence diagrams for the same workflow, the sequence diagram shows who-talks-to-who in time order; the activity diagram shows the overall flow with branches.

For the general activity diagram guide covering all UML conventions, see our Activity Diagram guide. This post applies those conventions to an e-commerce checkout worked example.

The 8 elements of every activity diagram

Eight building blocks. Memorize these.

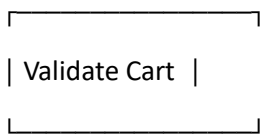
1. Initial node (filled black circle)

Where the flow starts. Every activity diagram has exactly ONE initial node.

● (single filled black circle)

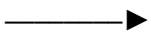
2. Activity / Action (rounded rectangle)

A step in the process, the actual work being done. Named with a verb phrase: "Validate Cart," "Process Payment," "Send Confirmation."



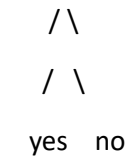
3. Control flow (arrow)

A directed arrow connecting activities. Shows the order in which activities execute.



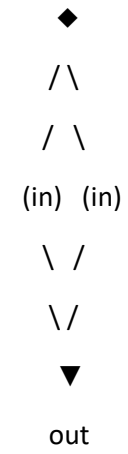
4. Decision node (diamond)

A branch point with one input and multiple outputs. Each output arrow is labeled with the condition under which it's taken.



5. Merge node (diamond going opposite way)

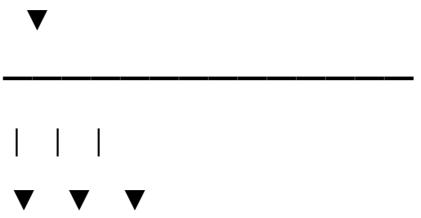
A diamond with multiple inputs and one output. Used to bring branches back together.



Don't confuse merge with decision. Decision splits flow; merge combines flow without making a choice.

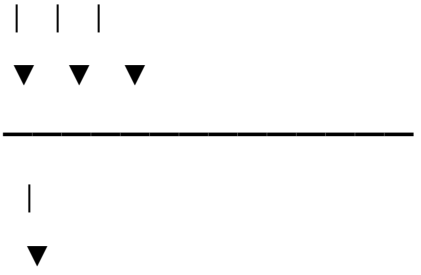
6. Fork (thick horizontal bar splitting)

One input flow, multiple output flows that run IN PARALLEL.



7. Join (thick horizontal bar merging)

Multiple input flows, one output flow. Waits for ALL inputs to complete before continuing.



Fork and join are usually paired, fork splits, join recombines.

8. Final node (circle with X inside or filled circle)

Where the flow ends. An activity diagram can have multiple final nodes (different end states).

◉ (circle with filled center)

Swimlanes: who does what

A swimlane is a vertical column representing an actor or responsibility area. Activities placed in a swimlane are performed by that actor.

For e-commerce checkout, typical swimlanes:

- **Customer**: the user clicking through the checkout
- **E-commerce System**: the backend handling cart and orders
- **Payment Gateway**: external service like PayMaya, GCash, Stripe
- **Warehouse / Inventory**: backend handling stock and fulfillment

Without swimlanes, your activity diagram shows "what happens" but not "who does it." Panels look for swimlanes in capstone activity diagrams. Skipping them is a common reason the chapter gets sent back.

The complete activity diagram

Here's the complete representation of activity diagram with swimlanes: