Processes Modelling with UML Activity Diagram
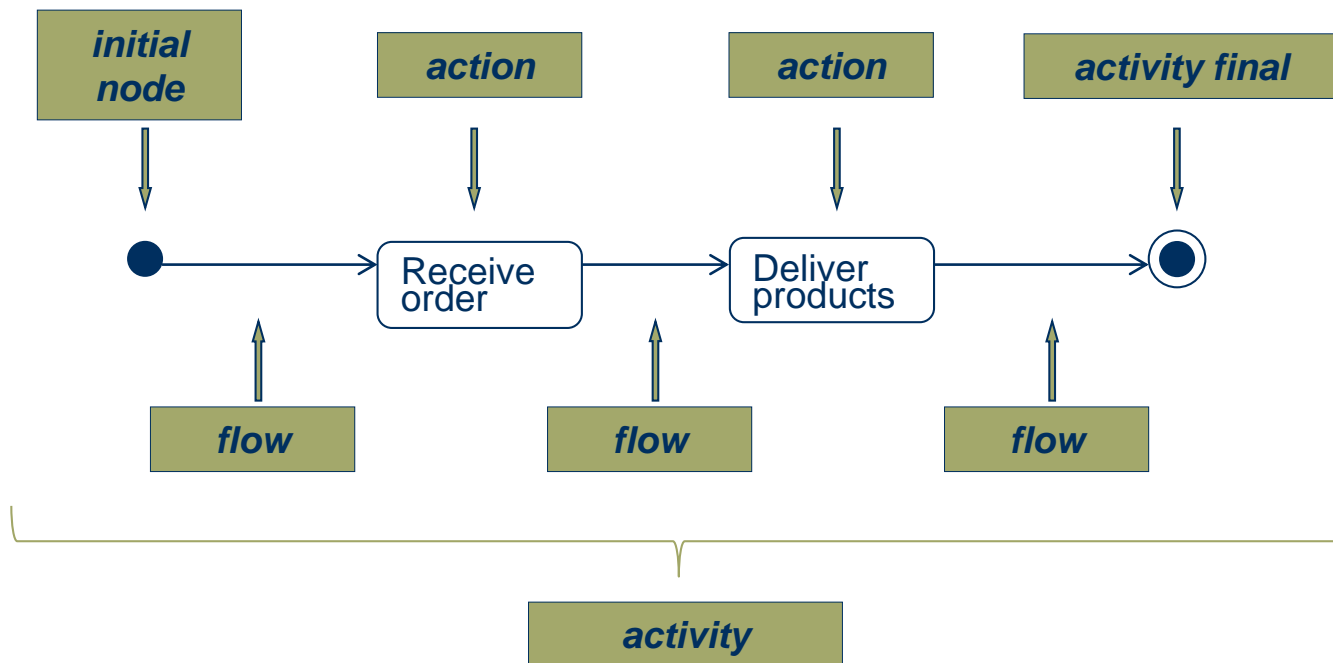
Erik Perjons

Question to answer

- How do you model business processes using a formal business process modelling language, in this case UML Activity Diagram?

UML Activity Diagram

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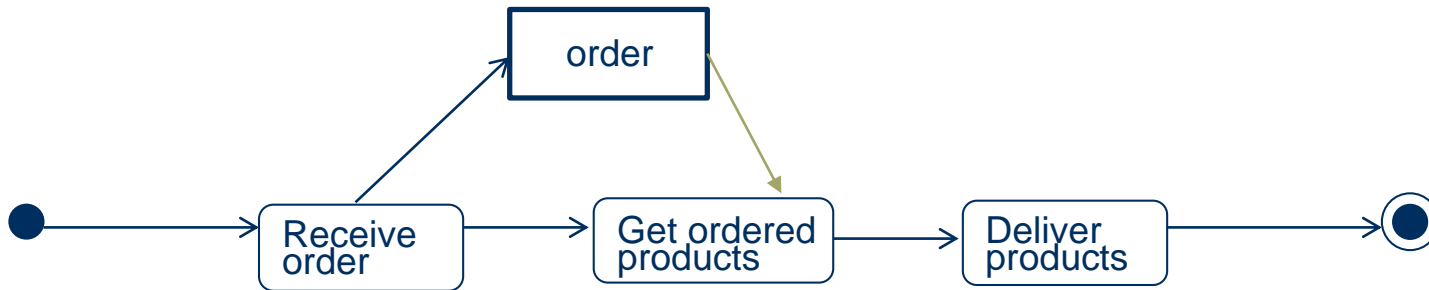Receive order → Deliver products

UML Activity Diagram

The Control Flow

- The flow symbol (i.e. the arrow) represents the order of actions. For example, the action "Receive order" should be carried out before the action "Get ordered products"

- The order of actions in an activity (or process) is sometimes called the control flow (which differs from the data or information flow)
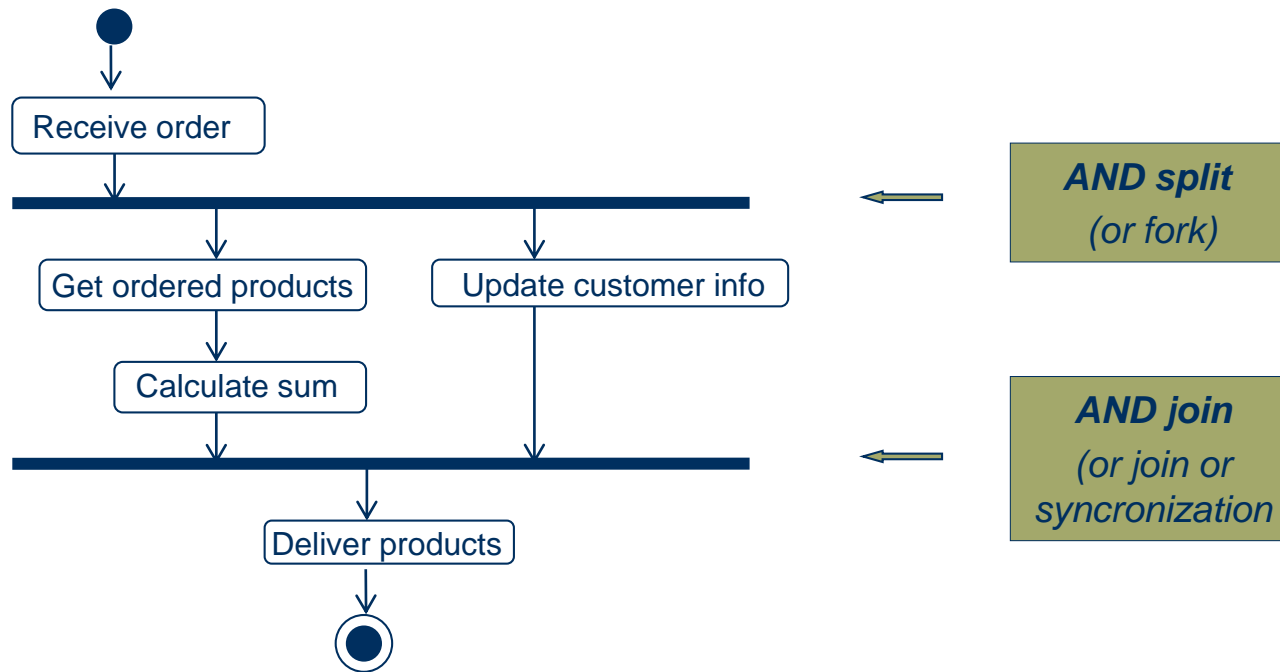
● → Receive order → Get ordered products → Deliver products → ◉

The Information Flow

- It is also possible in UML Activty Diagram to model the flow of data or information

- The flow of data or information is shown as a labeled box, and it model explicitly the input to and output from actions
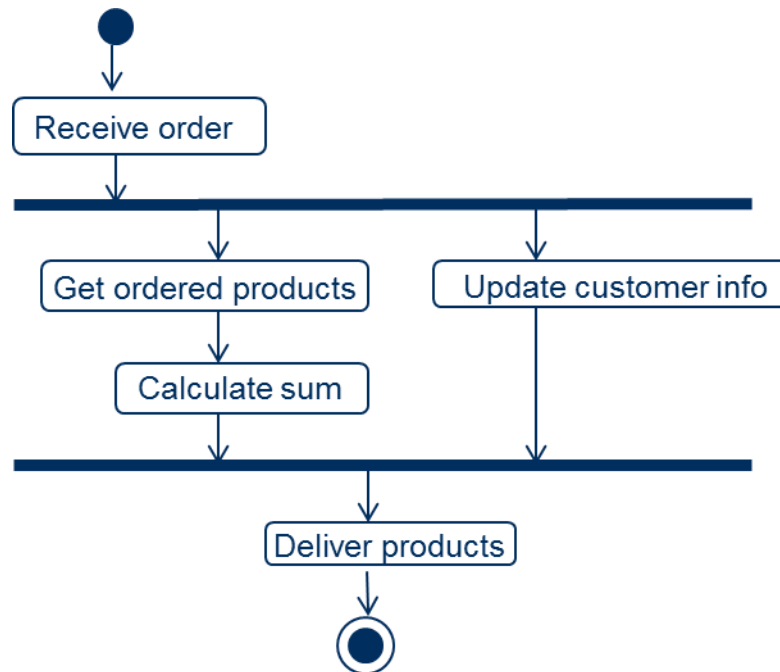
Control flow: Parallel behaviour

Receive order

AND split
(or fork)

Get ordered products

Update customer info

Calculate sum

AND join
(or join or syncronization
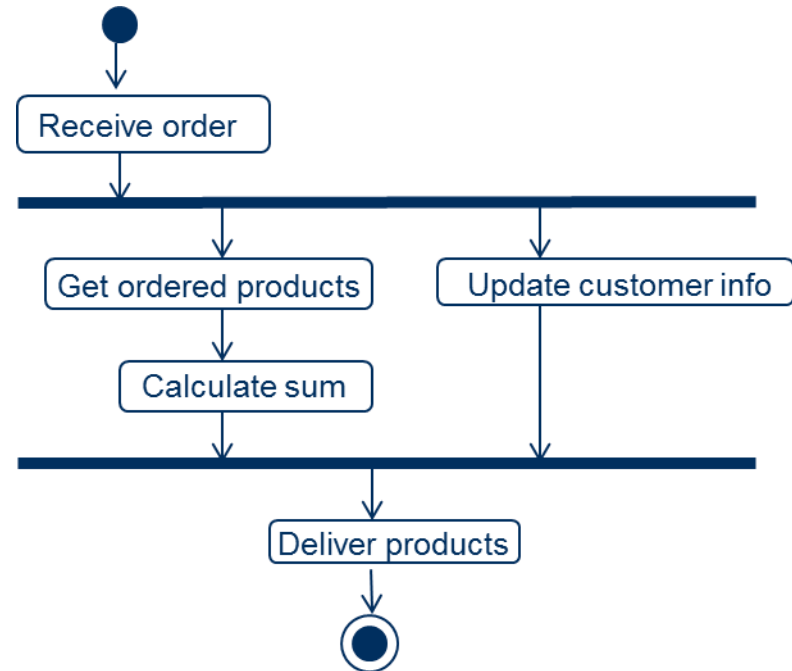
Deliver products

Control flow: Parallel behaviour

- An **AND split** has one flow in and several flows out

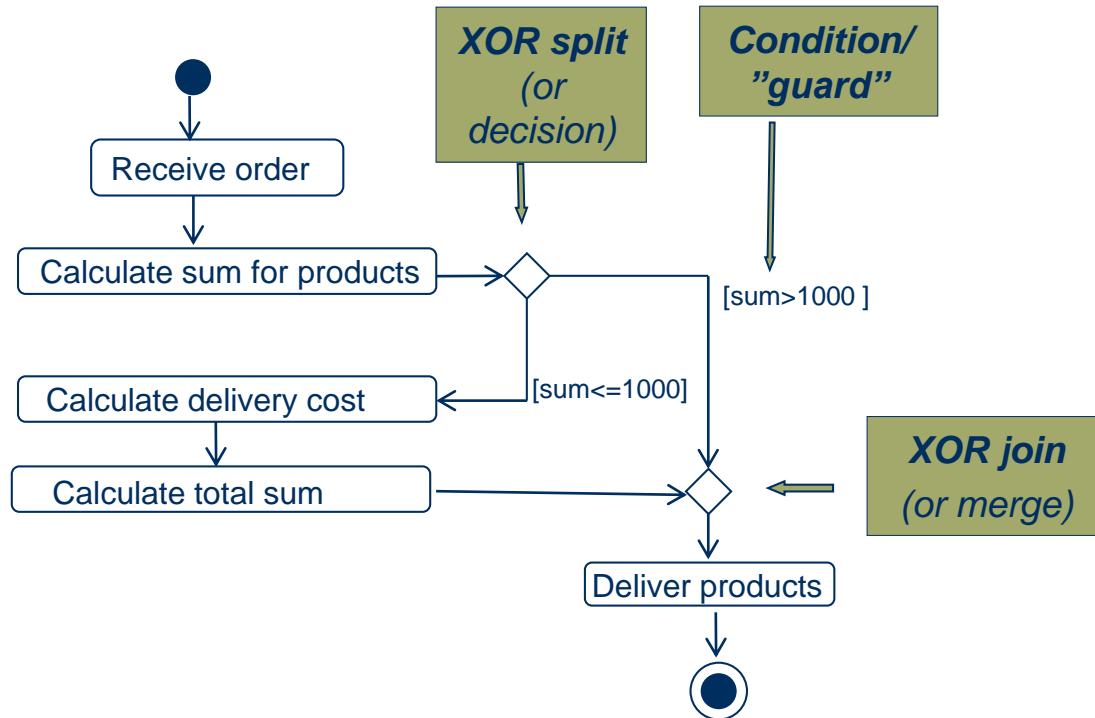- An **AND join** has several flows in and one flow out

Control flow: Parallel behaviour

- **Guidline:** Parallel behaviour can be used in two situations:

    - Situation 1: Two actions occure in the same time

    - Situation 2: Two actions can occure in any order which is not specified
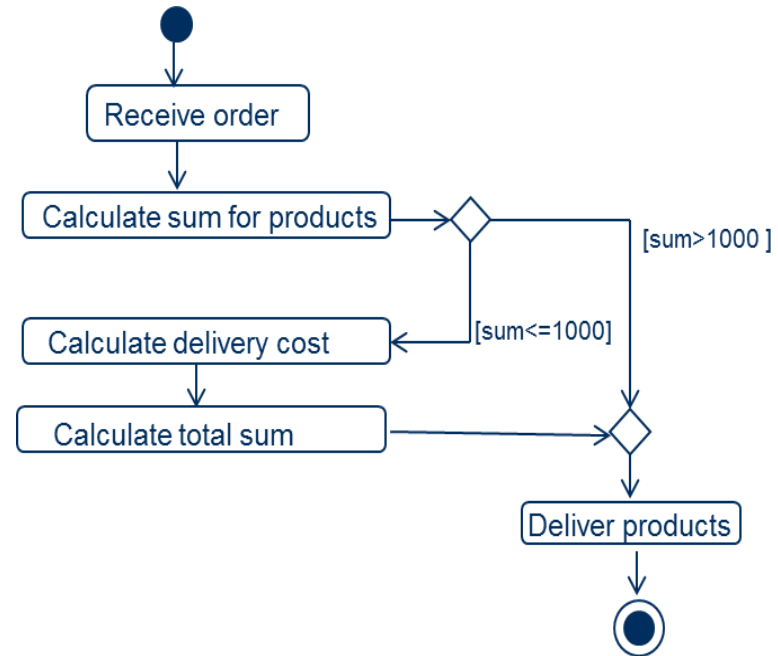
Control flow: Conditional behaviour

Control flow: Conditional behaviour

- An **XOR split** has one flow in and several flows out. The condition/guard must be true for a process instance to choose a certain path

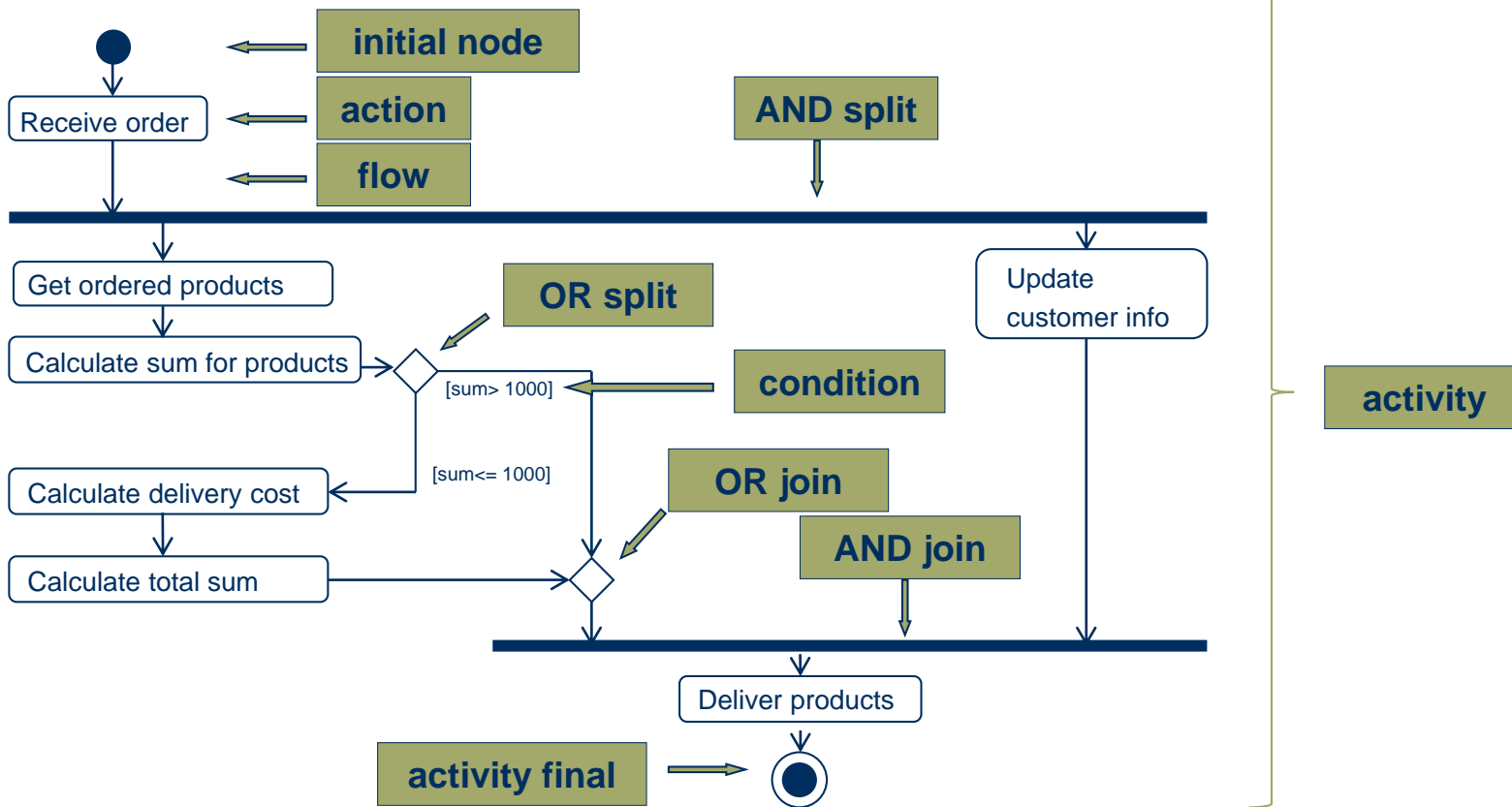- An **XOR join** has several flows (edges) in and one flow out

Guidelines

- **Guideline:** UML does not use the terms AND split and AND join, and OR split and OR join (UML use the terms forks, join, decision and merge), but I recommend the use of these terms, because they are easy to remember and can be used in different business process languages

- **Guideline:** If possible, each AND split should be followed by an AND join later in the activity (process)

- **Guideline:** If possible, each OR split should be followed by an OR join later in the activity (process)

More Guidelines

- **Guidelines:** Start an activity with one initial node (although UML Activity Diagram does not forbid to have several initial nodels in an activity) – since it a common requirement for business processes models to have one start node

- **Guideline:** Several activity final nodes can be used

Completed example

Question to answer

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Medverkande

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