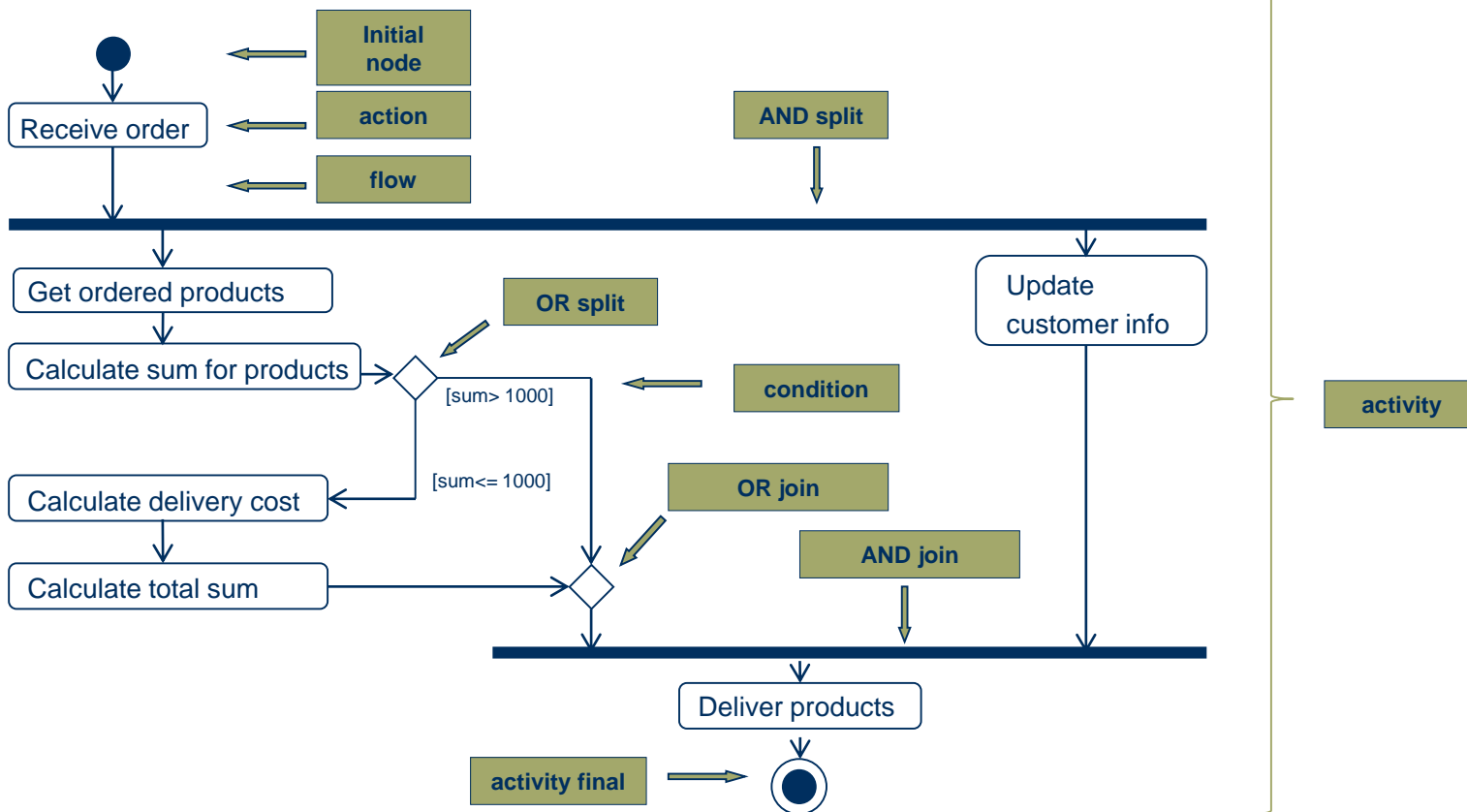# More about Processes Modelling with UML Activity Diagram

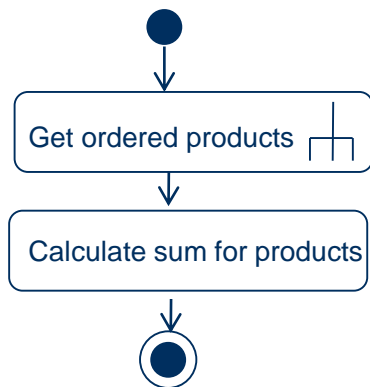Erik Perjons

Completed example

More about UML Activity Diagram

Action vs. Activity

- An **activity diagram** can include both **activities** and **actions**

- **Action** is a named element which represents a single atomic step within an activity, that is, an action cannot be further decomposed

- **Activity** represents a behavior that is composed of activities and/or actions
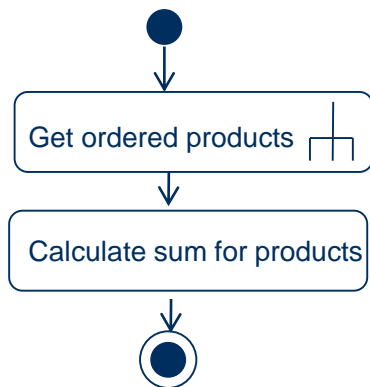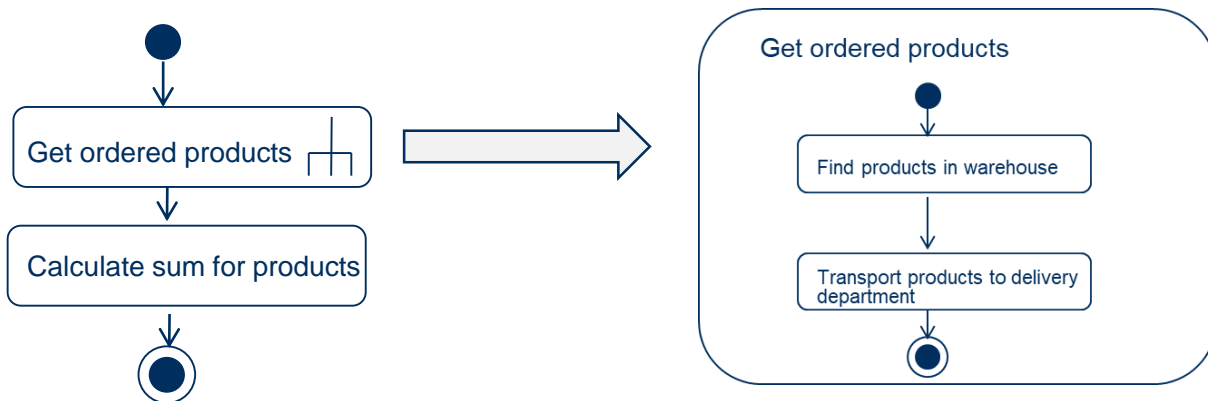
Action vs. Activity

- An **activity diagram** can include both **activities** and **actions**

- **Action** is a named element which represents a single atomic step within an activity, that is, an action cannot be further decomposed

- **Activity** represents a behavior that is composed of activities and/or actions

```
           ●
           │
           ▼
  ┌─────────────────────┬──┐
  │ Get ordered products │  │
  └─────────────────────┴──┘
           │
           ▼
  ┌─────────────────────┐
  │ Calculate sum for products │
  └─────────────────────┘
           │
           ▼
           ◉
```

Action vs. Activity

- An **activity diagram** can include both **activities** and **actions**

- **Action** is a named element which represents a single atomic step within activity, that is, an action cannot be further decomposed

- **Activity** represents a behavior that is composed of activities and actions

Action vs. Activity

- **Activity** represents a behavior that is composed of individual elements that are actions and/or activities
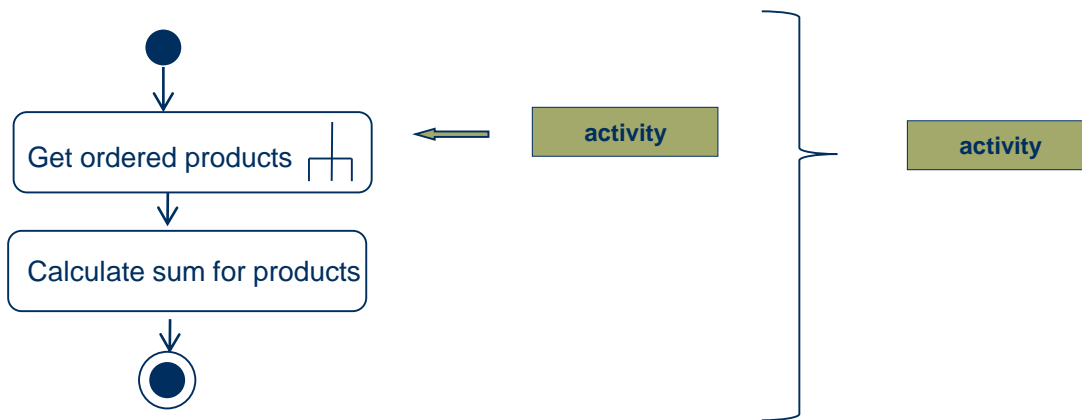
Token

- The modelling element "**token**" is shorthand for **control and data values** that **flow through an activity**

- **A token could represent many things:** an specific order, a case, a patient which can flow through an activity
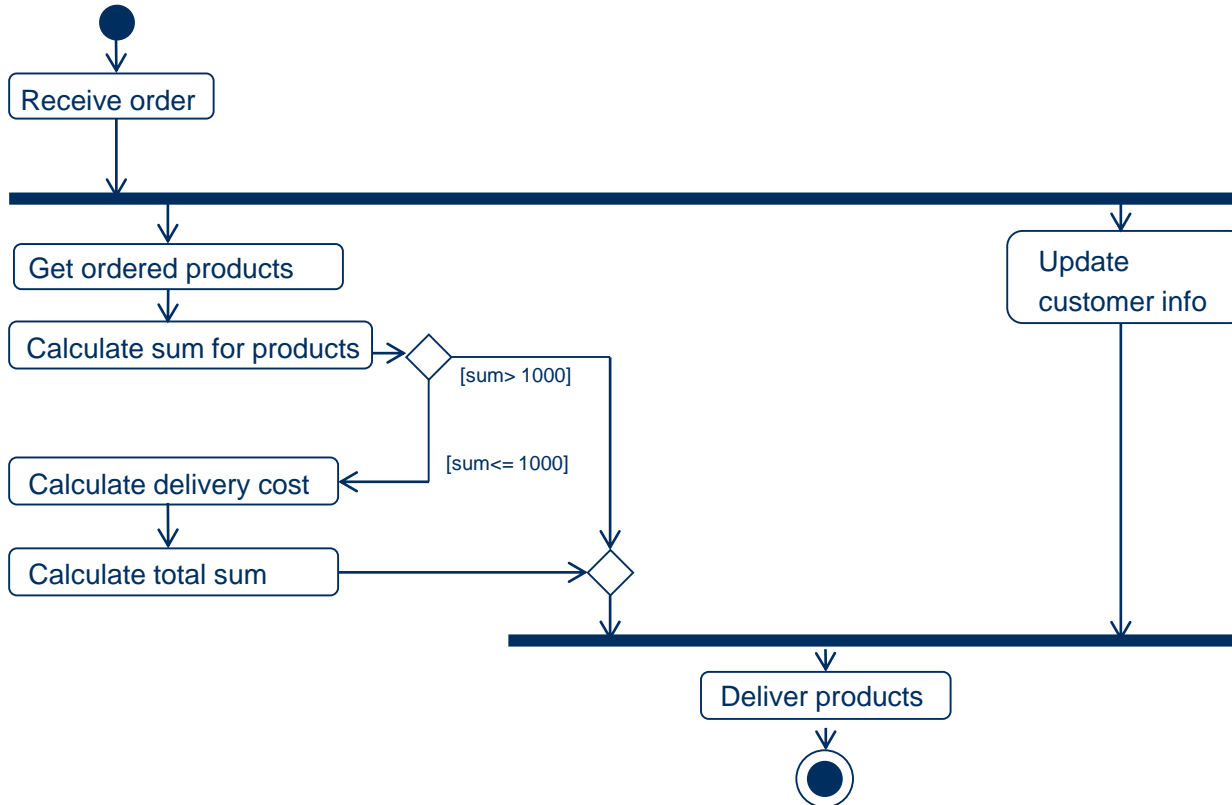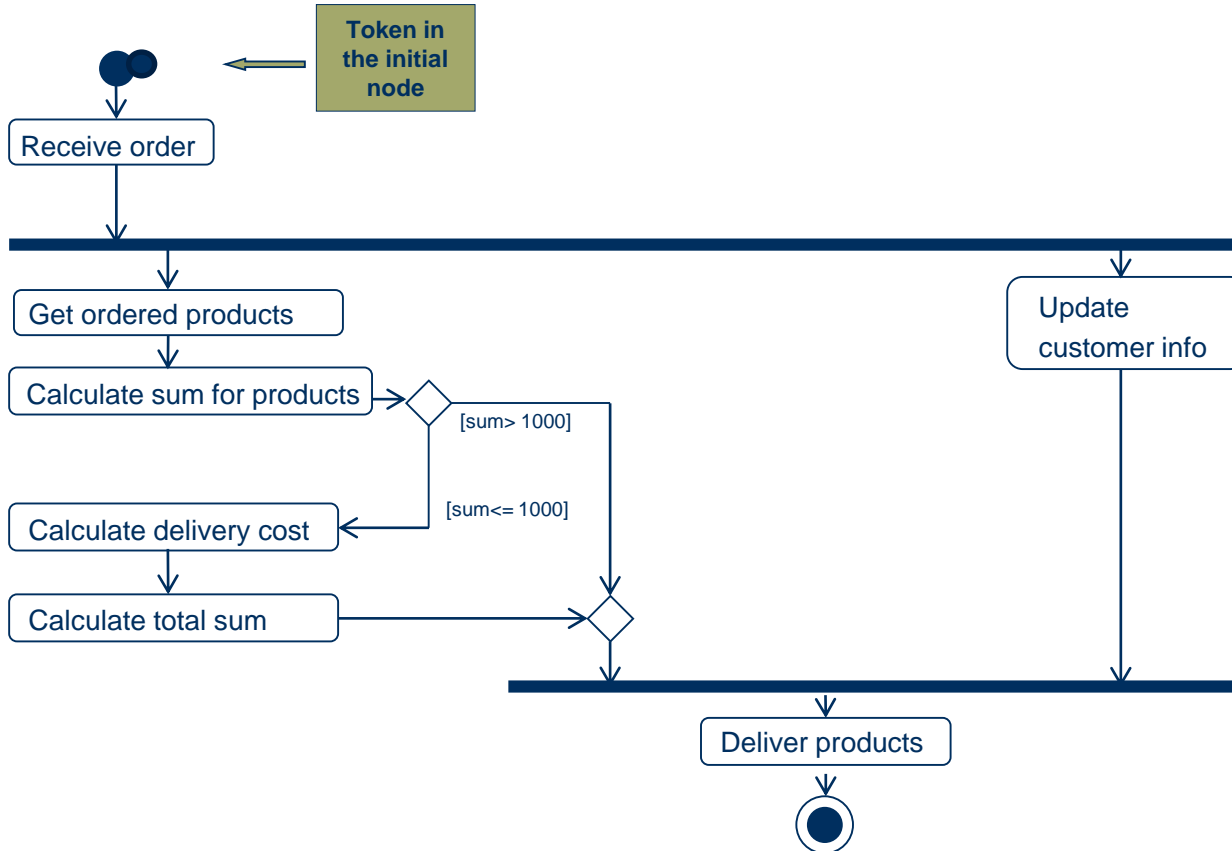
Token

- **Token is consumed and produced in each actions/activity** in the diagrams.

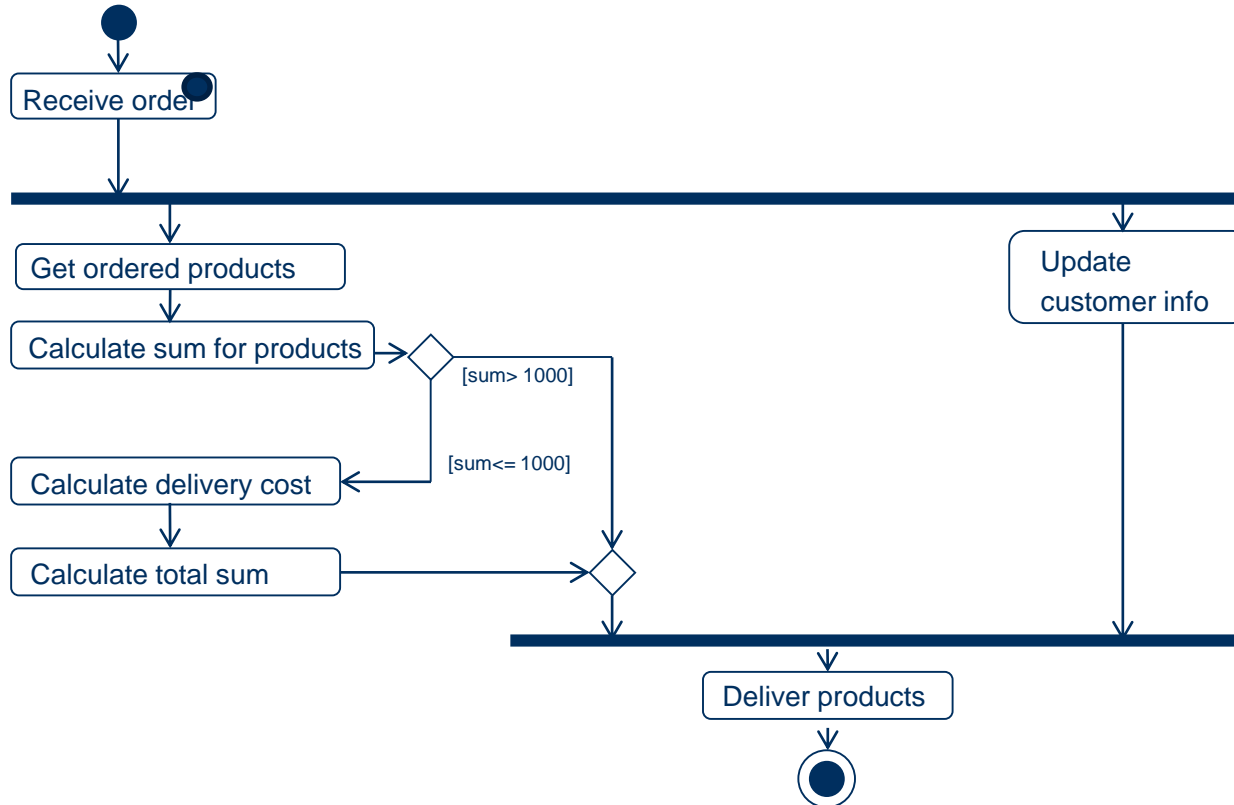- **Guideline:** Use tokens to see if the activity diagram is modelled correctly
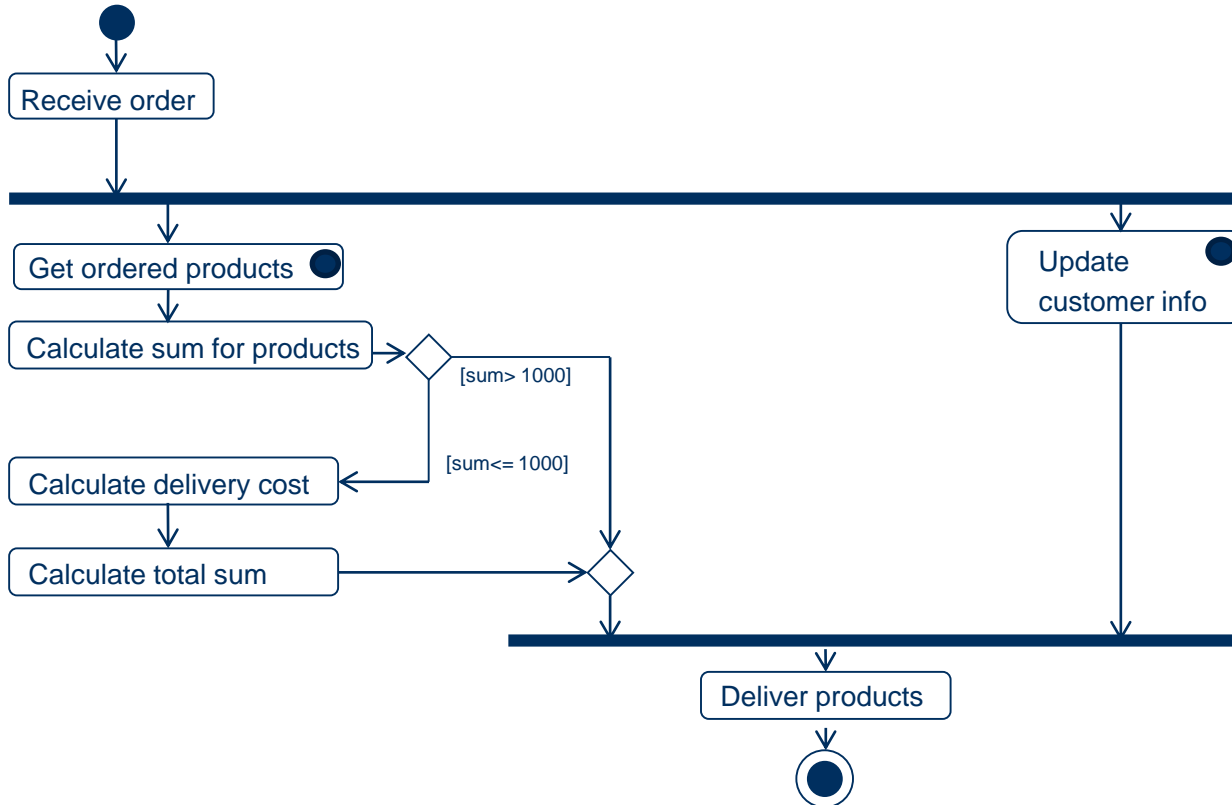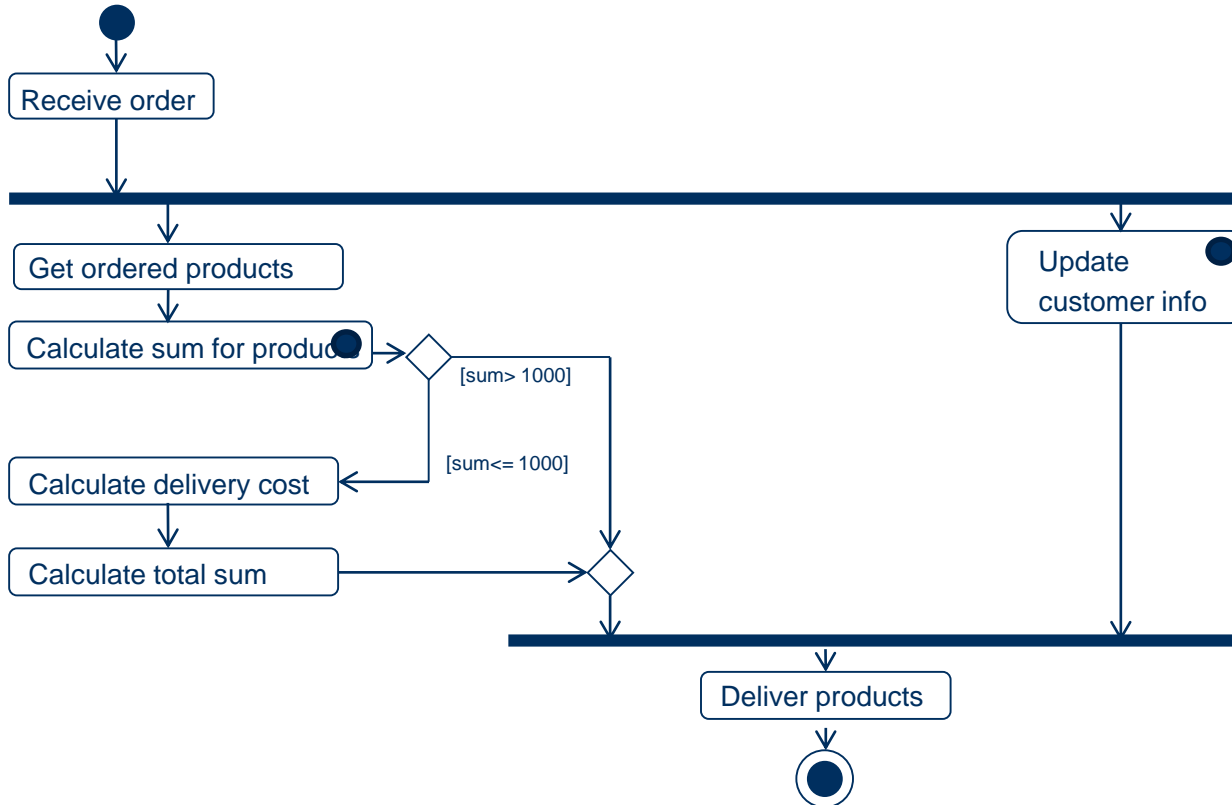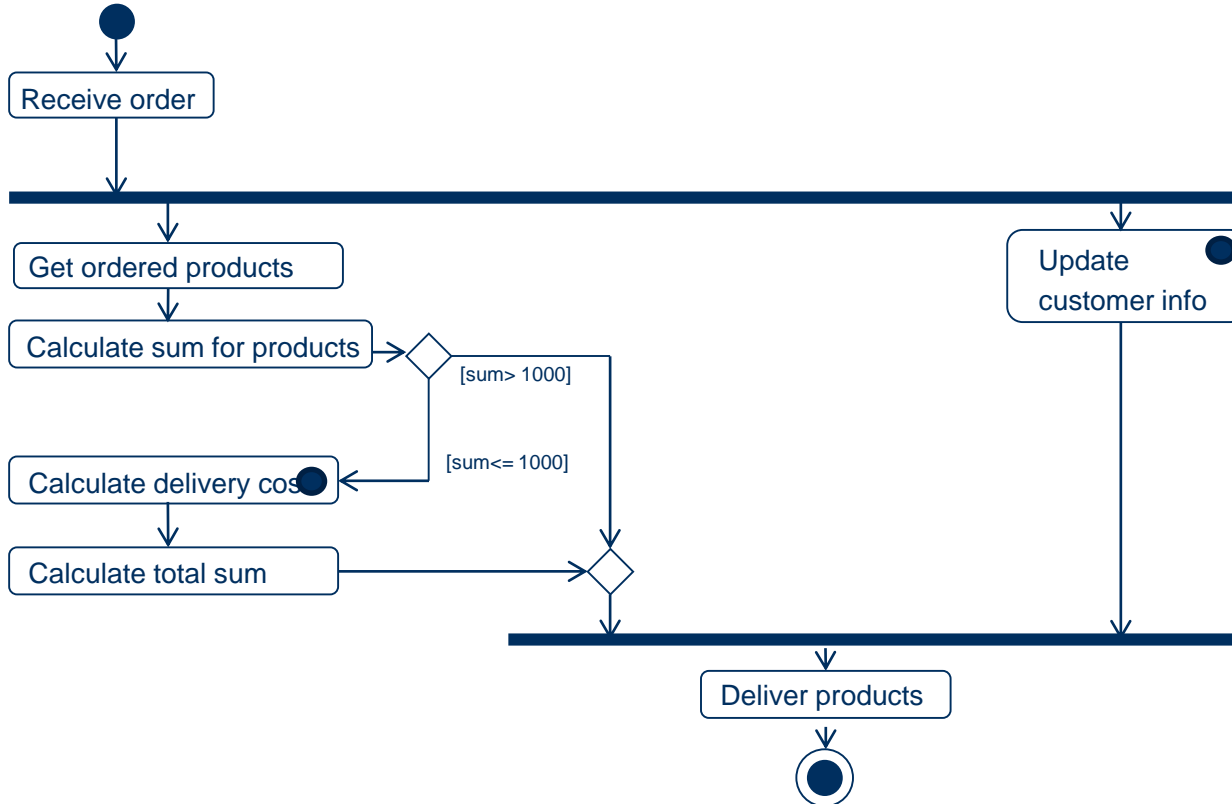
Token

Receive order

Get ordered products

Calculate sum for products

[sum> 1000]

[sum<= 1000]

Calculate delivery cost

Calculate total sum

Update customer info
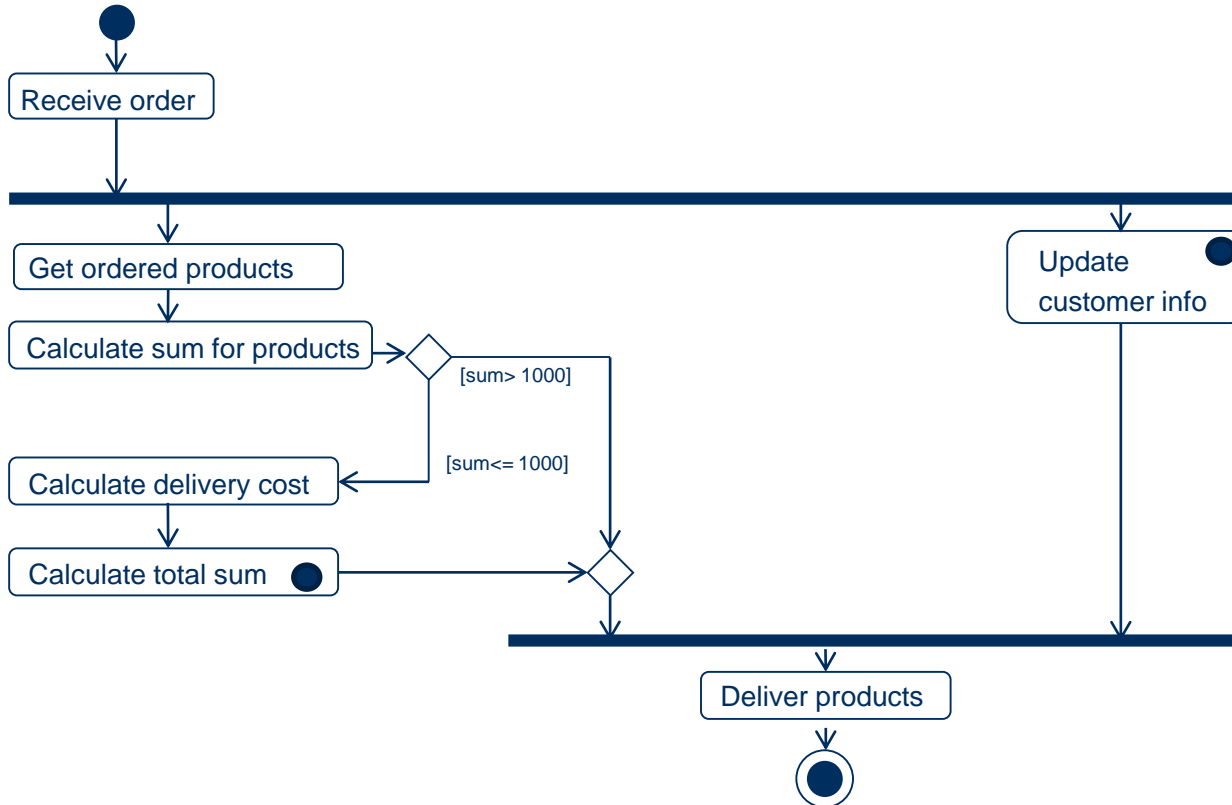
Deliver products

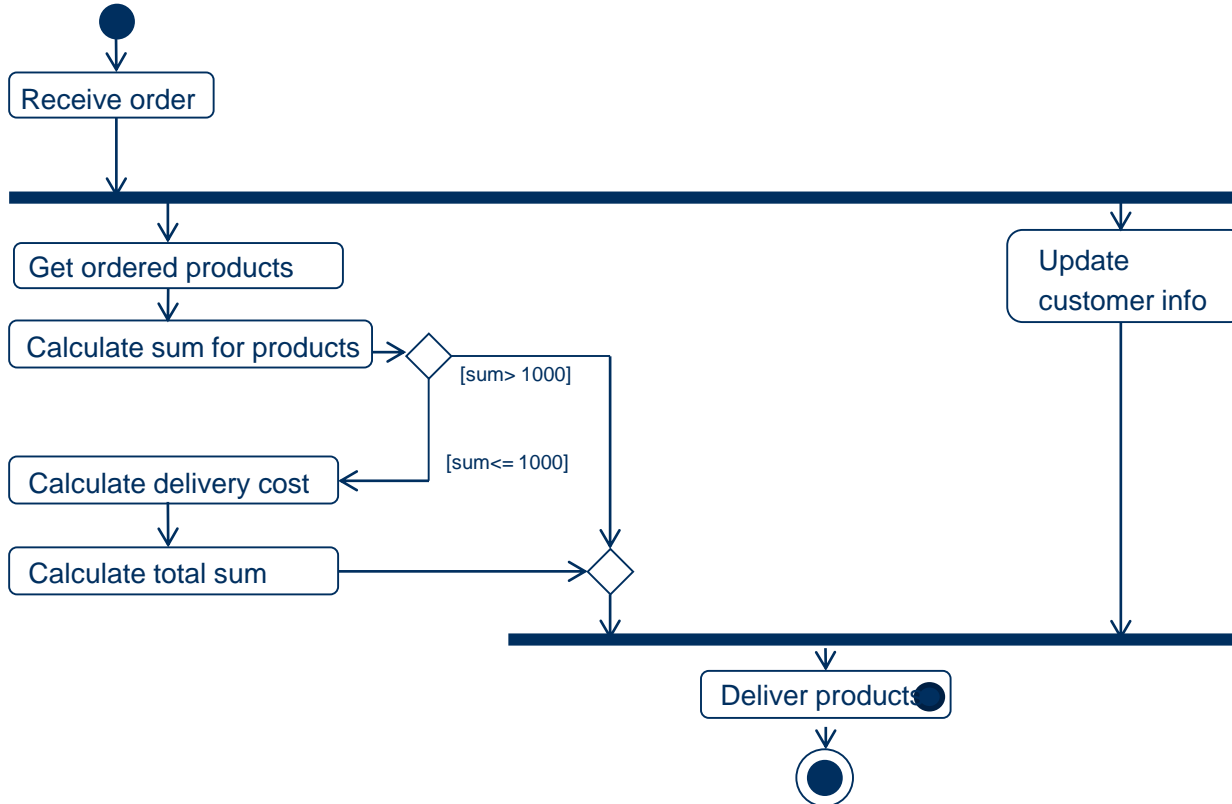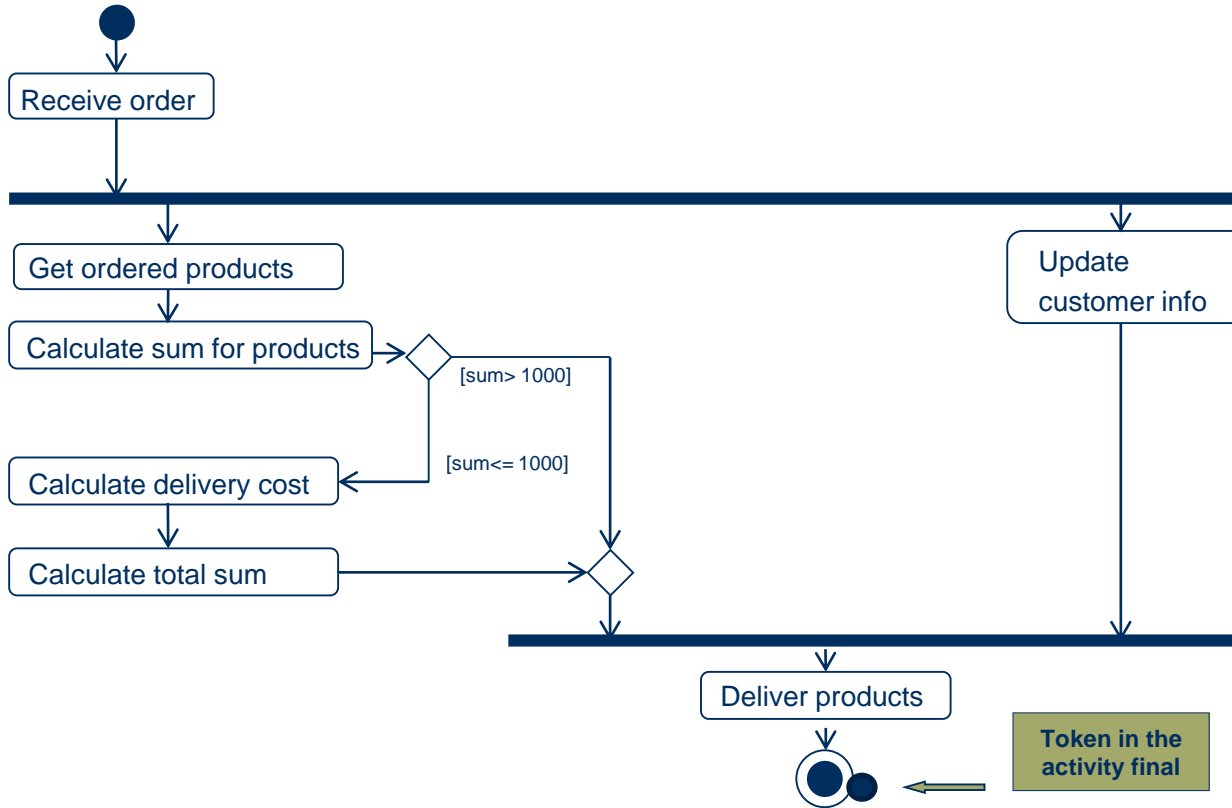# Token

Token
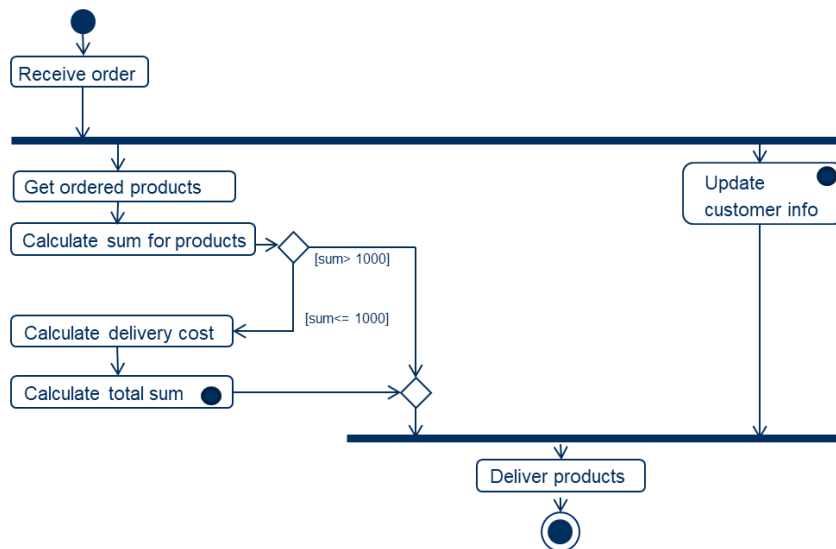
Token

Token

Token

Token

Token

Token

Process instance revisited

- A token could make the concept of process instance more understandable

- The token can be used for describing the performance of a certain process instance
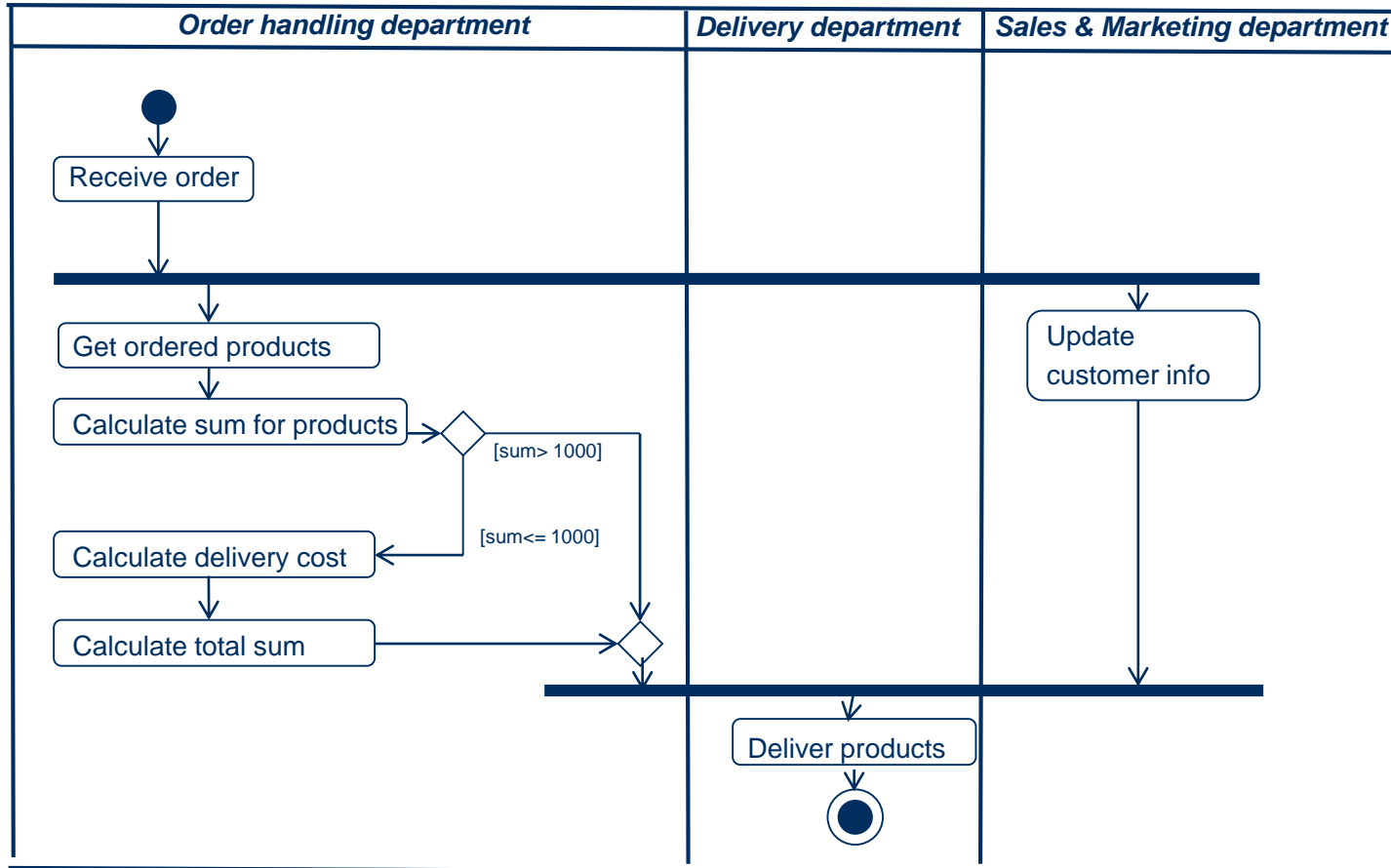
Process instance revisited

- Another way to describe a process instance could be by showing the order of actions and activties carried out by the instance, and which date and time they were carried out, as well as other data related to the process instance, see figure right
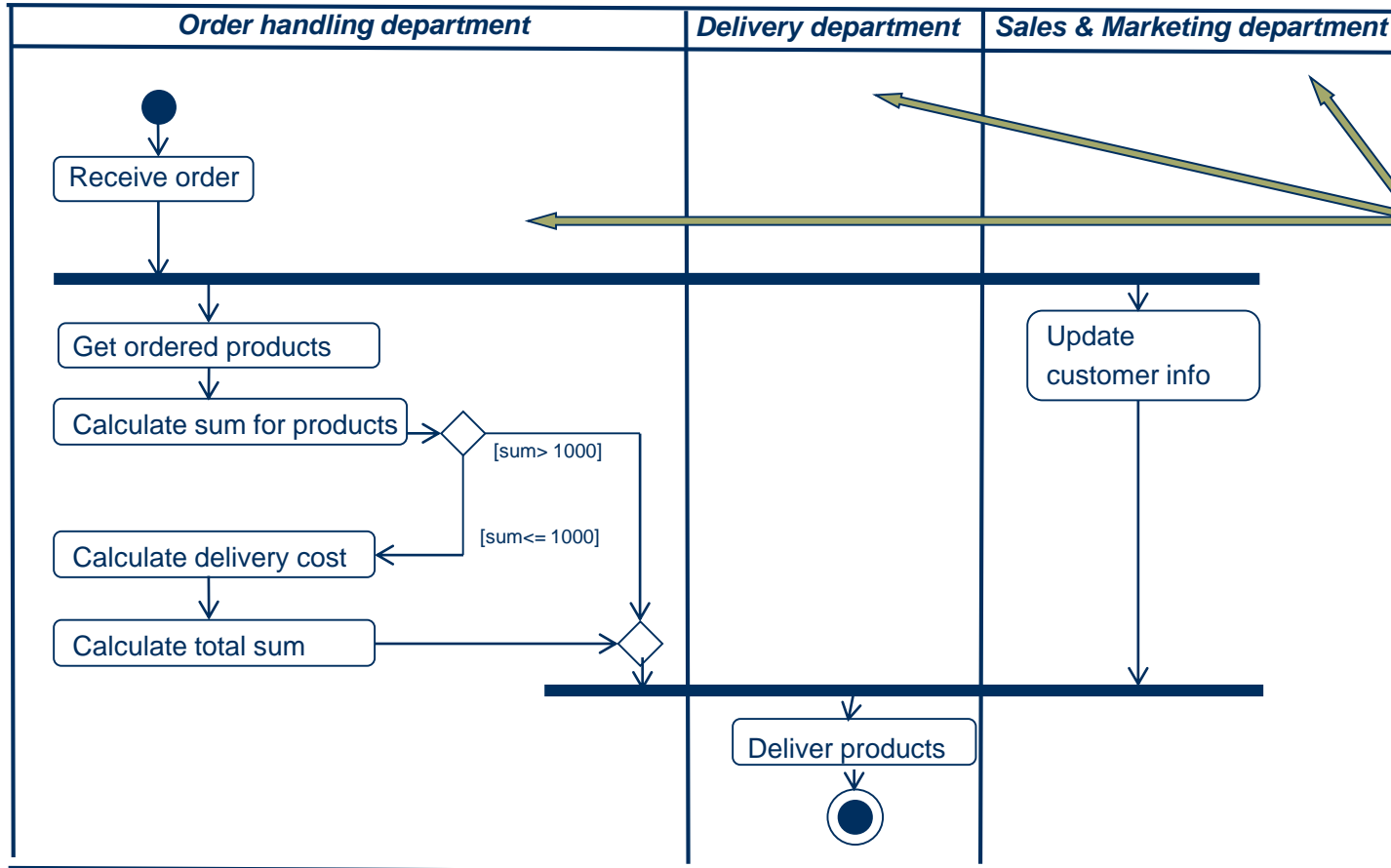
| Receive order | date: 2020-08-21; timeInterwall: 10:22:22 – 10:24:16; orderNo: 44669392; name: Anna Anderssson, kundNo: 22354; productID: 33939, 6666 |

| Update customer info | date: 2020-08-21; timeInterwall: 10:48:11 – 11:01:36 |

| Calculate sum for products | date: 2020-08-21; timeInterwall: 11:09:22 – 12:07:21, Sum: 5 000 |

| Calculate delivery cost | Not carried out |

| Calculate total sum | Not carried out |

| Deliver products | date: 2020-08-21; timeInterwall: 14:28:56 – 15:01:23 |

Swimlanes/Lanes/Partitions

Swimlanes/Lanes/Partitions

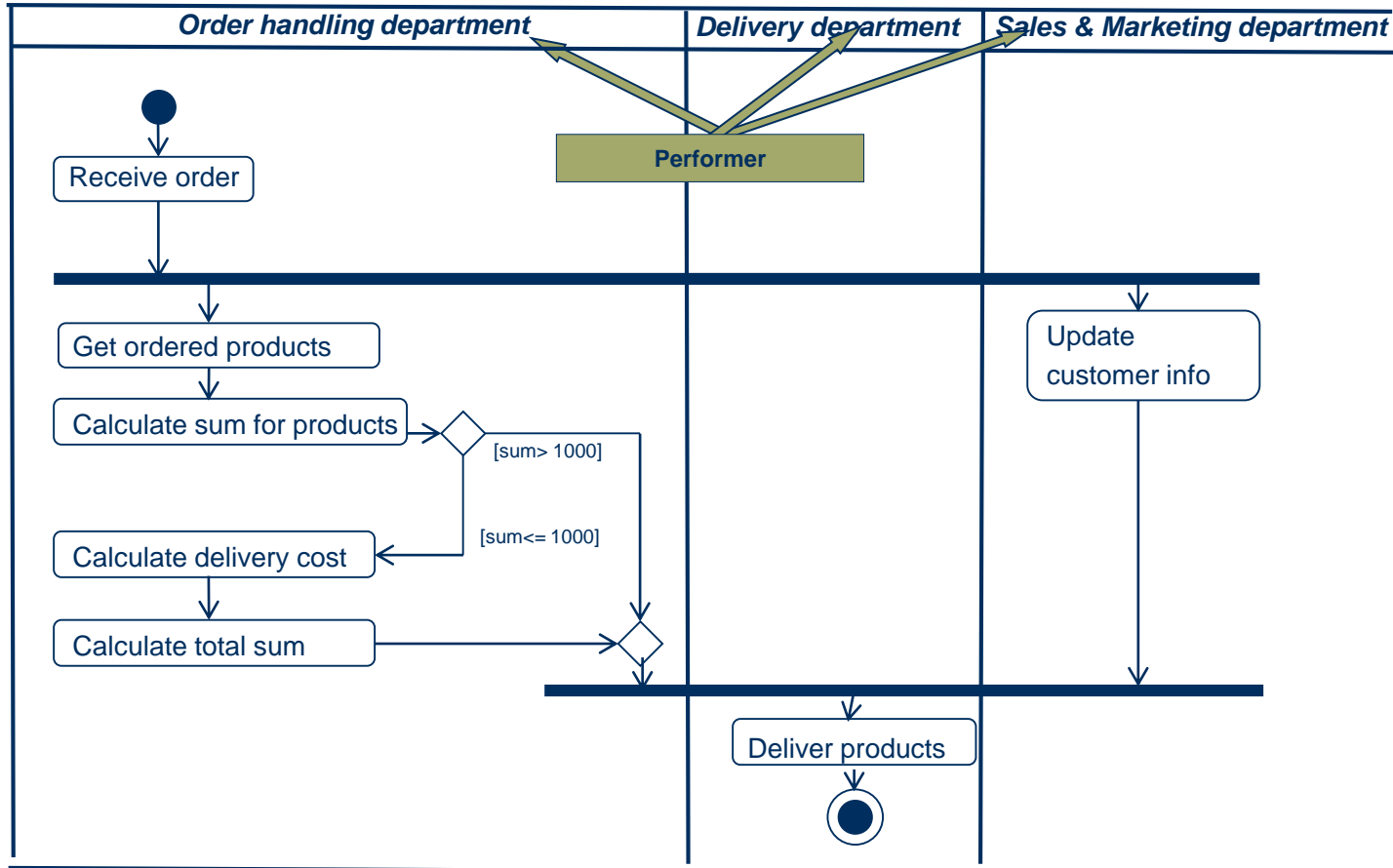| Order handling department	Delivery department	Sales & Marketing department
Receive order		
Get ordered products		Update customer info
Calculate sum for products [sum> 1000]		
Calculate delivery cost [sum<= 1000]		
Calculate total sum		
	Deliver products	

Swimlanes/ Lanes/ Partitions

Pool

Note, the terms Swimlane. Lane and Pool are not used in UML Activity Diagram but in other modelling languages. UML use the term Partition

Swimlanes/Lanes Partitions

Swimlanes/Lanes Partitions