

Activity Diagram

4/2019

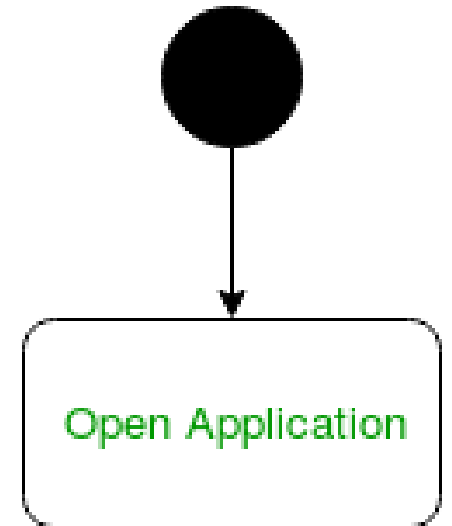
- What is Activity Diagram?

Activity Diagram

- Activity diagrams, which show the activities involved in a process or in data processing

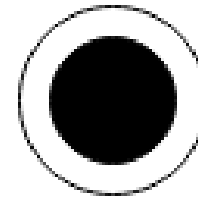
Basic component

- **Initial State**
- **Action or Activity State** – An activity represents execution of an action on objects or by objects.
- We represent an activity using **a rectangle with rounded corners**. Basically any action or event that takes place is represented using an activity.



Basic component

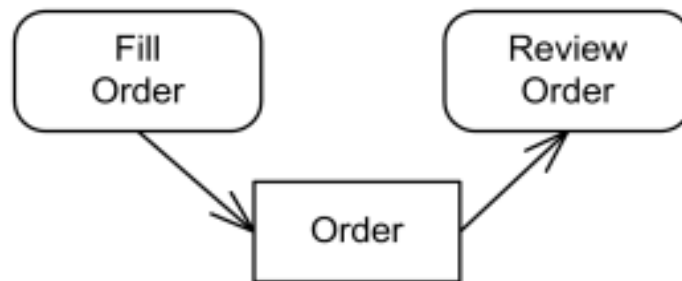
- **Final State or End State –**
The state which the system reaches when a particular process or activity ends. We use a filled circle within a circle notation to represent the final state in a state machine diagram.



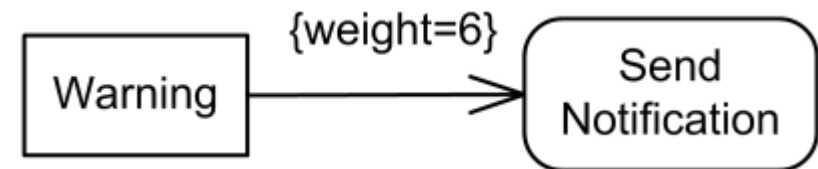
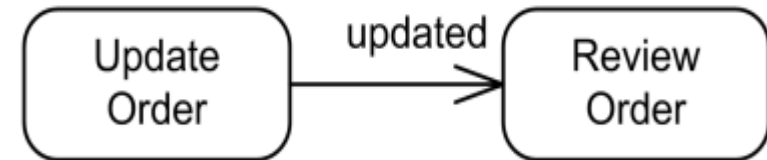
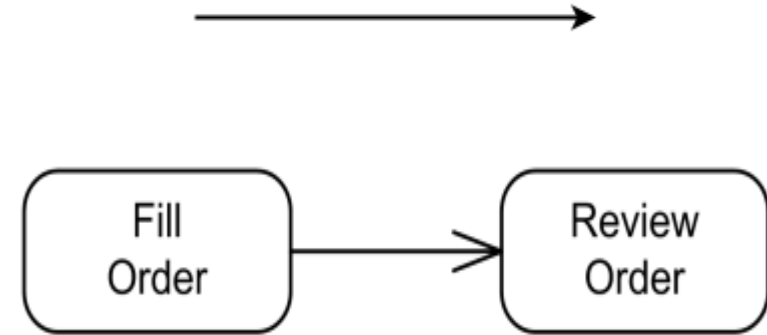
Basic component

- **Action Flow or Control flows –**

- Action flows or Control flows are also referred to as paths and edges.
- They are used to show the transition from one activity state to another.



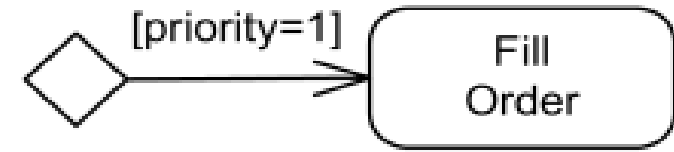
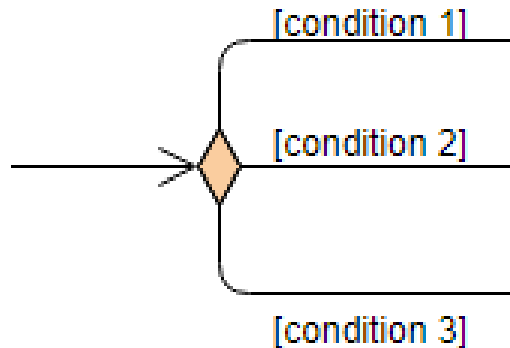
Object flow of Orders between Fill Order and Review Order actions



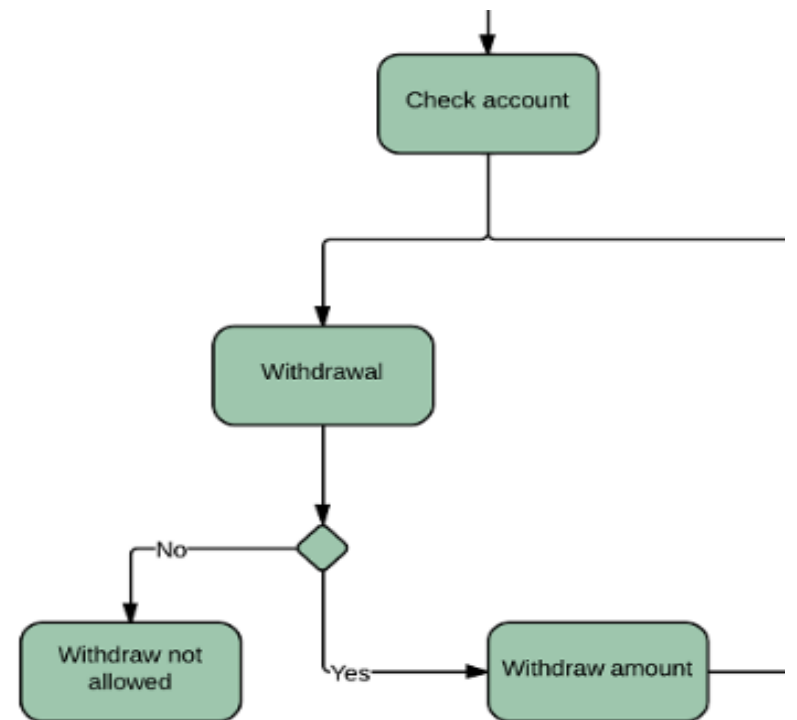
Send Notification when number of Warnings reaches 6.

Basic component

- **Decision node and Branching –**
When we need to make a decision before deciding the flow of control, we use the decision node.

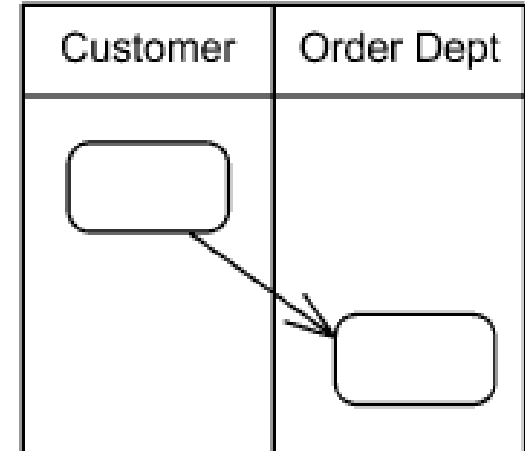
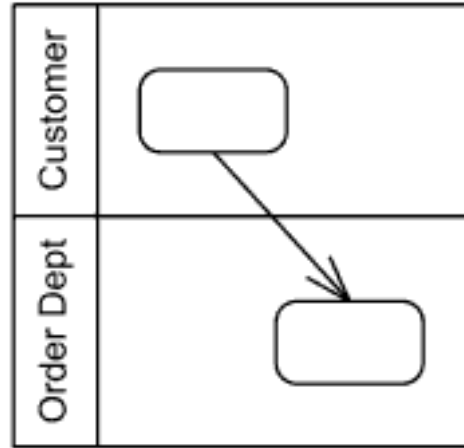


Fill Order when priority is 1



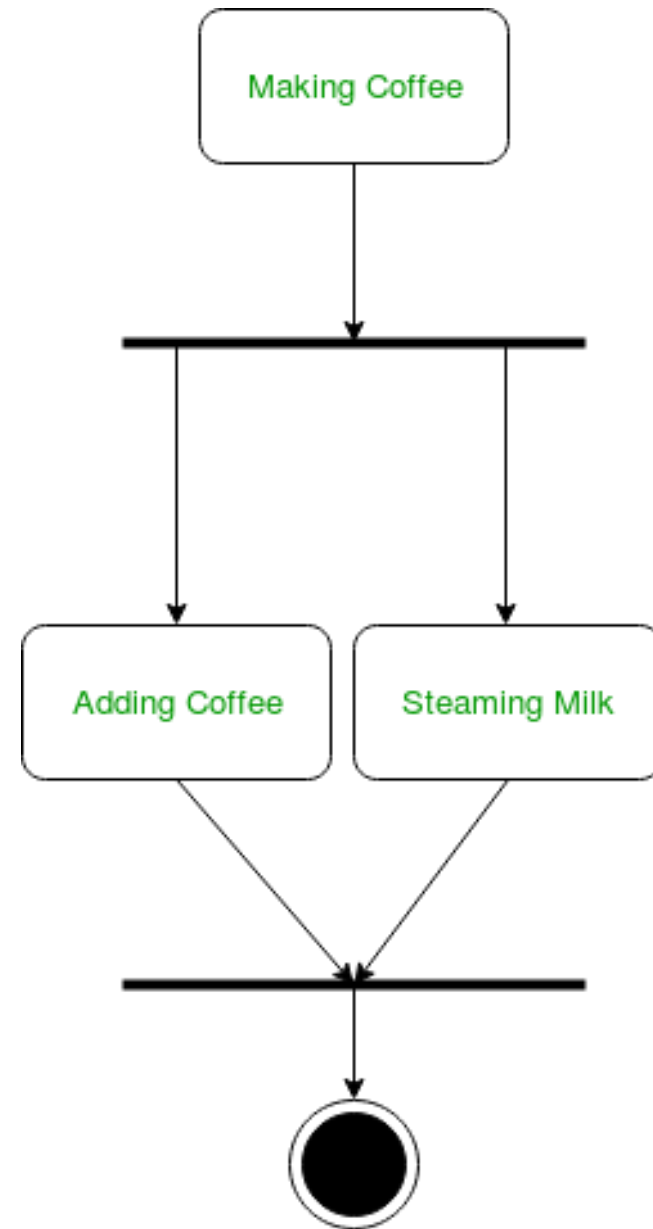
Basic component

- Swimlane notation



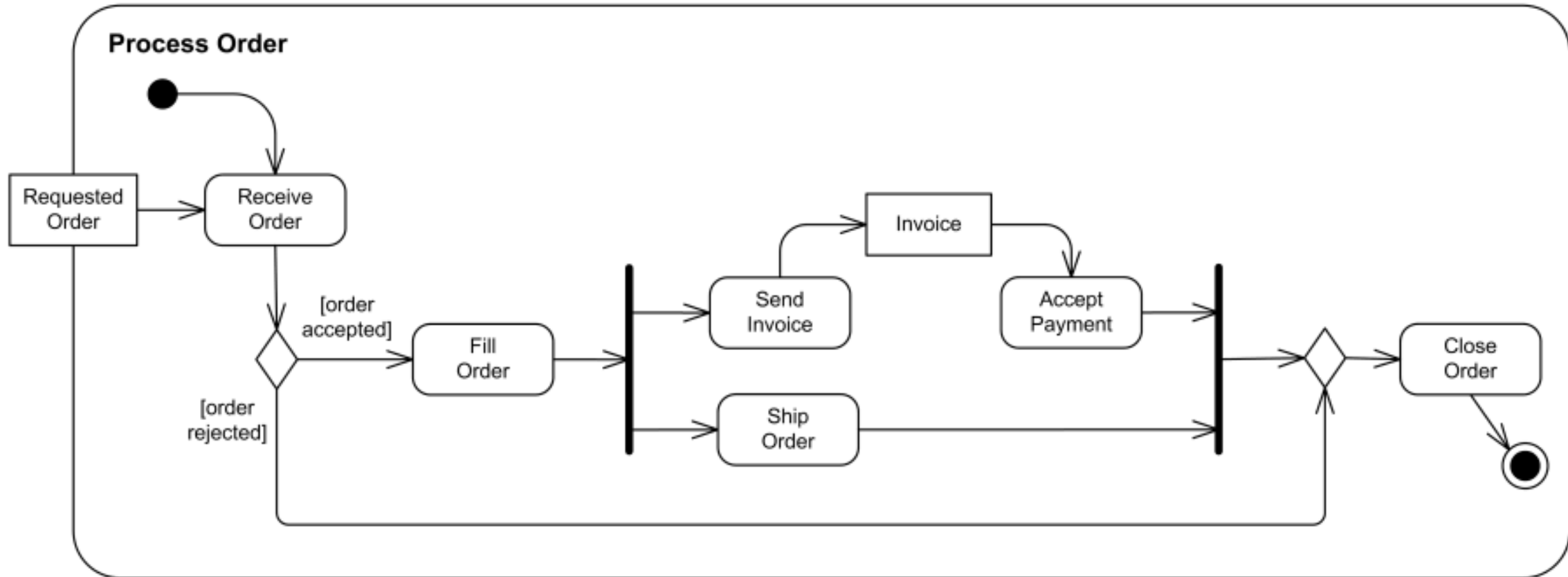
Basic component

- **Fork** – Fork nodes are used to support concurrent activities.
- **Join** – Join nodes are used to support concurrent activities converging into one. For join notations we have two or more incoming edges and one outgoing edge.



Example [1]

An example of business flow activity to process purchase order.



This example does not use partitions, so it is not clear who is responsible for fulfilling each specific action.

<https://www.uml-diagrams.org/shopping-process-order-uml-activity-diagram-example.html?context=activity-examples>

Example [2]

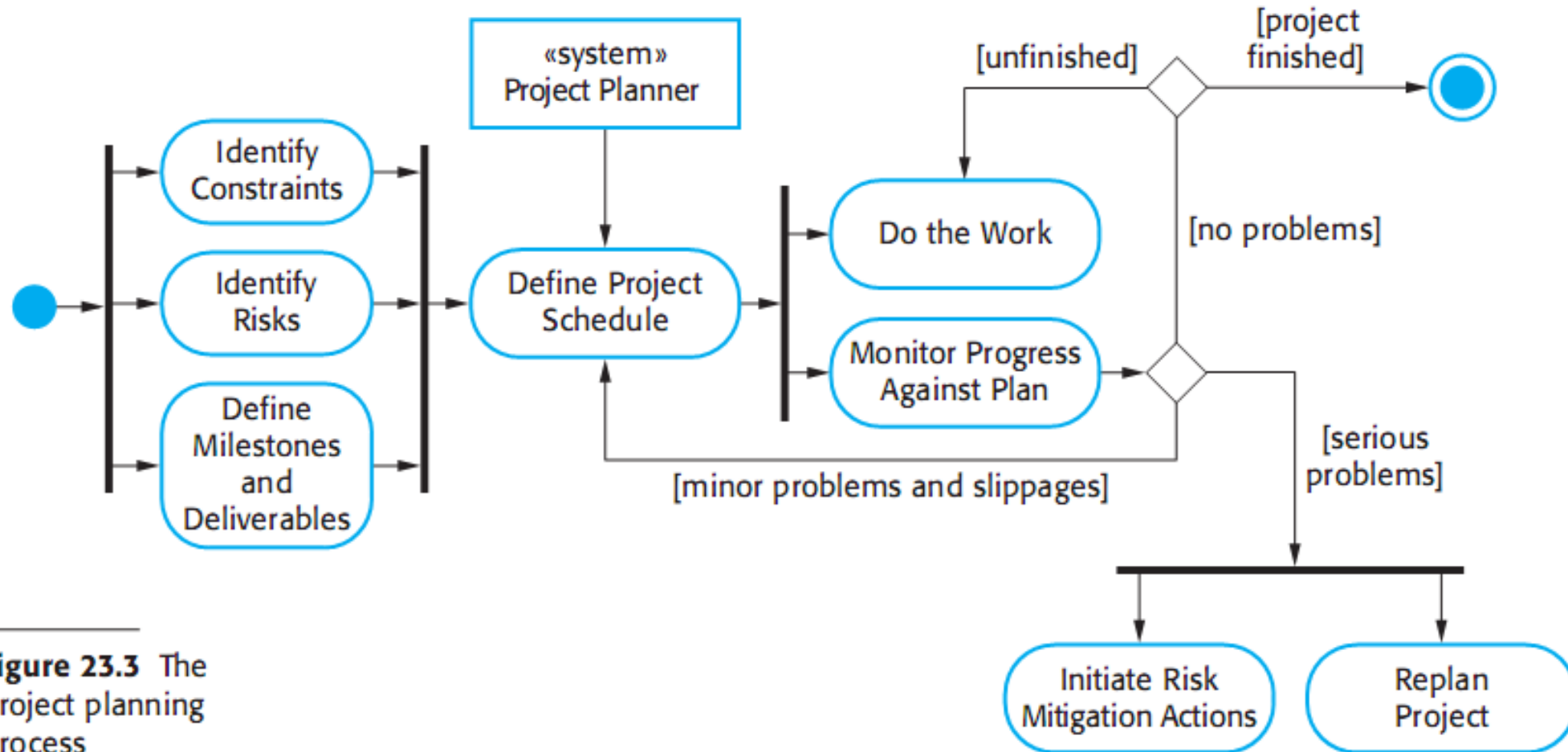


Figure 23.3 The project planning process

Example [3]

- <https://www.uml-diagrams.org/google-sign-on-uml-activity-diagram-example.html>

In-class activity

- Login

Submit Project

- Diagram
- Description

Note [1]

- Đủ start và final
- Mỗi activity là hình chữ nhật bo góc
 - Là một action
- Có thể dùng swimming lane để tách vai trò
- Dùng decision node (hình thoi) để rẽ nhánh
 - Trên các nhánh ra là điều kiện rẽ nhánh
 - Trong lòng hình thoi không có nội dung (**khác flow chart**)
 - (Có thể có activity ngay trước để tạo ra kết quả dùng làm điều kiện rẽ nhánh)
- Không dùng decision node để gom các nhánh rẽ!

Note [2]

- Dùng fork node (song song, thanh ngang/dọc) khi có các hoạt động đồng thời xảy ra
 - Nếu chỉ một số trong các hoạt động này xảy ra thì dùng rẽ nhánh
 - Và dùng join node (thanh ngang/dọc) để gom các nhánh song song
- Không dùng join node (thanh ngang/dọc) để gom các nhánh rẽ!

Note [3]

- State diagram và activity diagram cho use-case?
 - Không phải vẽ theo use-case!!!
- State diagram vs. activity diagram
 - State diagram: chọn đối tượng cần làm rõ về trạng thái và các bước chuyển trạng thái của đối tượng
 - Activity diagram: chọn chuỗi hoạt động cần làm rõ của một vấn đề
- Diagram cần ref.
 - Tên
 - Cho cái gì? (chức năng, đối tượng, ...)