

Activity Diagrams

In this Lecture you will Learn:

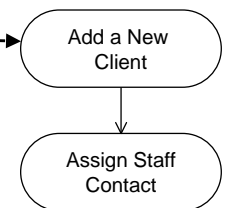
- The purpose of activity diagrams
- The notation of activity diagrams
- How to draw activity diagrams

Purpose of Drawing Activity Diagram

- To model a task (for example in business modelling)
- To describe a function of a system represented by a use case
- To describe the logic of an operation
- To model the activities that make up the life cycle in the unified process

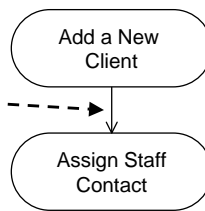
Notation of Activity Diagrams

- Activities
 - ◆ rectangle with rounded ends
 - ◆ meaningful name



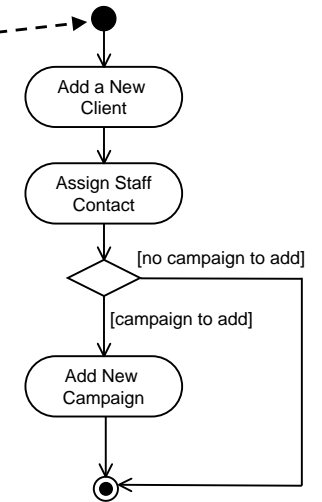
Notation of Activity Diagrams

- Transitions
 - ◆ arrows with open arrowheads



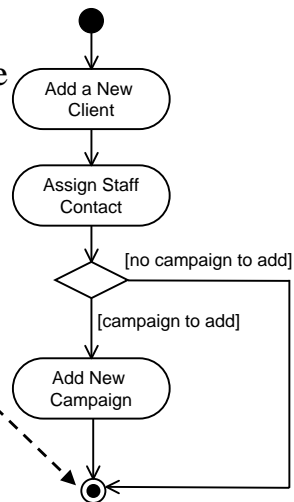
Notation of Activity Diagrams

- Start State
 - ◆ black circle



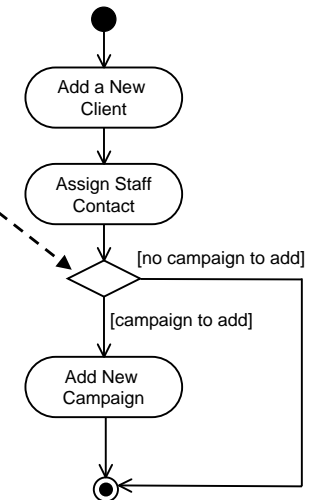
Notation of Activity Diagrams

- Final State
 - ◆ black circle in white circle



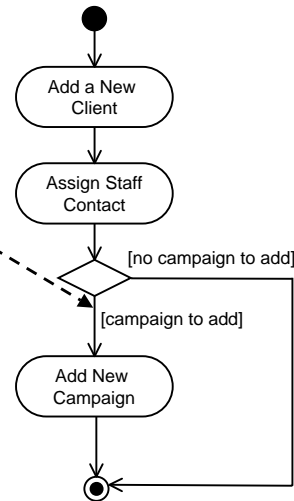
Notation of Activity Diagrams

- Decision Points
 - ◆ diamond



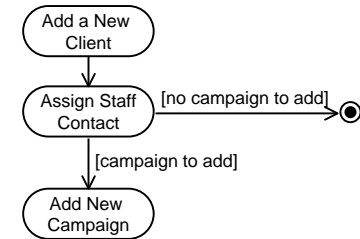
Notation of Activity Diagrams

- Guard Conditions
 - ◆ in square brackets



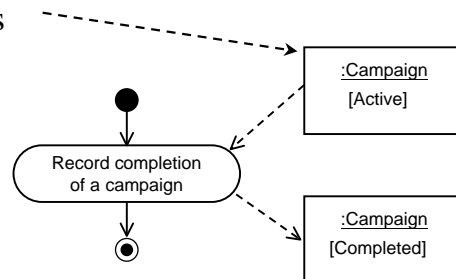
Notation of Activity Diagrams

- Alternative notation for branching:
 - ◆ Alternative transitions are shown leaving the activity with guard conditions
- Note that guard conditions do not have to be mutually exclusive, but it is advisable that they should be



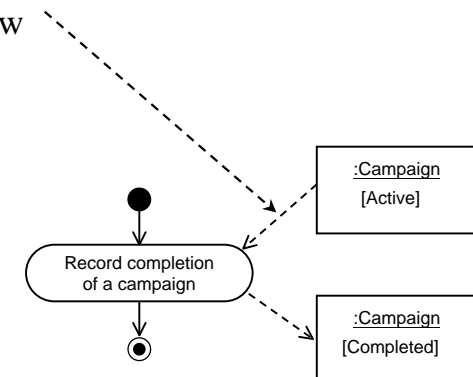
Notation of Activity Diagrams

- Objects
 - ◆ rectangle
 - ◆ with name of object underlined
 - ◆ optionally shows the state of the object in square brackets



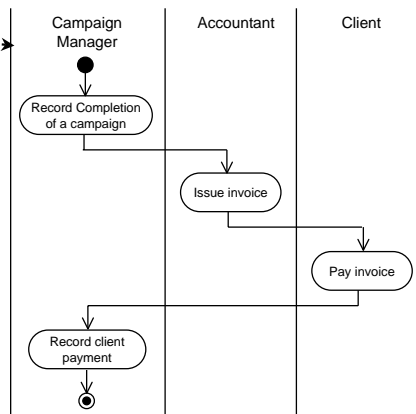
Notation of Activity Diagrams

- Object flows
 - ◆ dashed arrow



Notation of Activity Diagrams

- Swimlanes
 - ◆ vertical columns
 - ◆ labelled with the person, organisation or department responsible for the activities in that column



Class Exercise

- What is the notation used for an activity in a UML activity diagram?

Class Exercise

- What links activities in an activity diagram?

Class Exercise

- In what two ways can a decision be represented in a UML activity diagram?

Class Exercise

- What are the two special states shown in an activity diagram?

Class Exercise

- What is meant by guard condition?

Class Exercise

- What is an object flow and what is the notation?

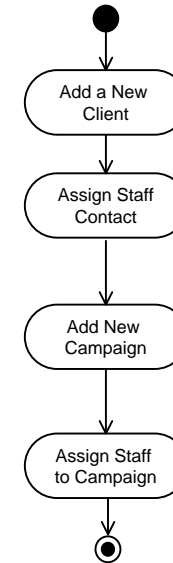
Drawing Activity Diagrams

- What is the purpose?
 - ◆ This will influence the kind of activities that are shown
- What is being shown in the diagram?
 - ◆ What is the name of the business process, use case or operation?
- What level of detail is required?
 - ◆ Is it high level or more detailed?

Drawing Activity Diagrams

- Identify activities
 - ◆ What happens when a new client is added in the system?
 - ◆ Add a New Client
 - ◆ Assign Staff Contact
 - ◆ Add New Campaign
 - ◆ Assign Staff to Campaign
- Organise the activities in order with transitions

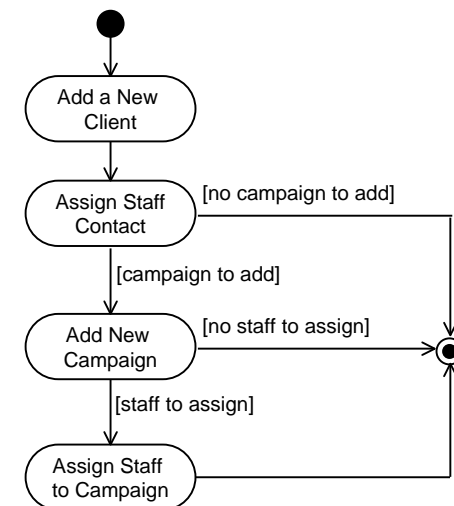
Drawing Activity Diagrams



Drawing Activity Diagrams

- Identify any alternative transitions and the conditions on them
 - ◆ sometimes there is a new campaign to add for a new client, sometimes not
 - ◆ sometimes they will want to assign staff to the campaign, sometimes not
- Add transitions and guard conditions to the diagram

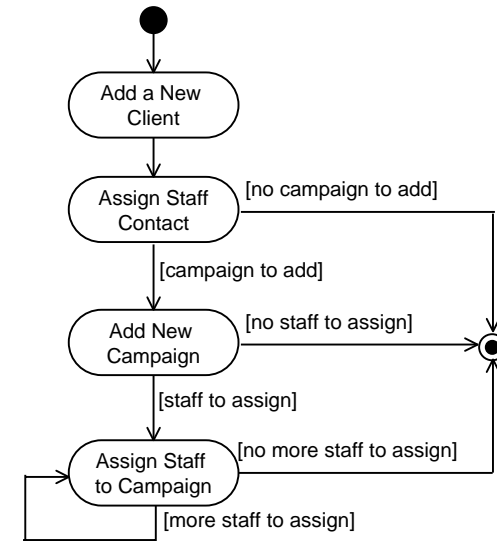
Drawing Activity Diagrams



Drawing Activity Diagrams

- Identify any processes that are repeated
 - ◆ they will want to assign staff to the campaign until there are no more staff to add
- Add transitions and guard conditions to the diagram

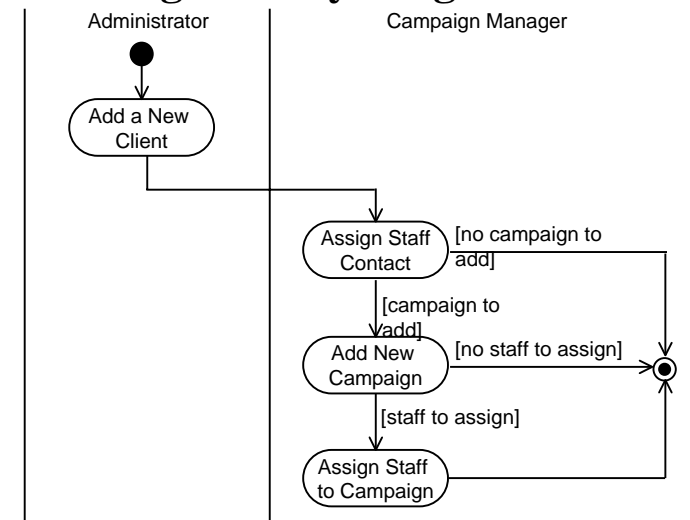
Drawing Activity Diagrams



Drawing Activity Diagrams

- Are all the activities carried out by the same person, organisation or department?
- If not, then add swimlanes to show the responsibilities
- Name the swimlanes
- Show each activity in the appropriate swimlane

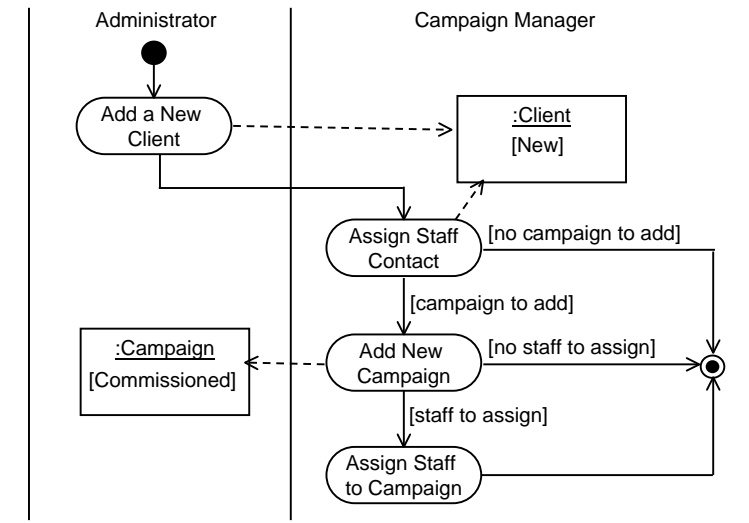
Drawing Activity Diagrams



Drawing Activity Diagrams

- Are there any object flows and objects to show?
 - ◆ these can be documents that are created or updated in a business activity diagram
 - ◆ these can be object instances that change state in an operation or a use case
- Add the object flows and objects

Drawing Activity Diagrams



Example of Activity Diagram

- Activity diagram with object operation signatures as activities

