

## Workflows

### ■ Workflow

- The movement of tasks or documents through a *process* (called "work")

- after <http://en.wikipedia.org/wiki/Workflow>

## Workflows II

### ■ A workflow contains much information:

- Who performs tasks
- How the tasks are ordered
- How relevant information flows to tasks
- How the tasks are tracked

- after <http://en.wikipedia.org/wiki/Workflow>

## Workflows have Components

- Each component contains 3 descriptions:
  - Input
  - Output
  - Transformation
- If the output description of one component matches the input description of another...
  - Then they may be connected

## What is the Standard for Workflow Diagrams?

### 1. The official UML standard does not contain the string "workflow diagram"

("workflow" occurs 5x)

### 2. Quote: "The infancy of workflow diagramming standards"

I did something foolish recently... I criticized someone for an analysis diagram that, I felt, didn't use "standard" workflow notations.

Granted, the diagram looked very different from the kinds of diagrams that have been coming out of workflow tools, and it definitely wasn't compliant with UML Activity diagrams, but that still didn't give me the right to be critical. How can I tell someone to "follow a standard" when a standard doesn't exist?" Source:

<http://blogs.msdn.com/nickmalik/archive/2004/10/05/238344.aspx>

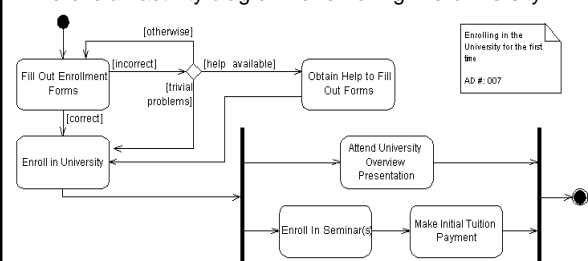
## Making Workflow Diagrams Official

- There is a type of workflow diagram that is standardized
  - UML Activity Diagrams
- Activity diagrams are
  - "the object-oriented equivalent of flow charts and data-flow diagrams" - <http://www.agilemodeling.com/style/activityDiagram.htm>
  - Let's look at an example...

## UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

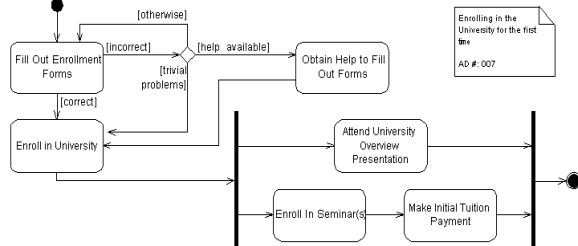
Here is an activity diagram for enrolling in a university



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

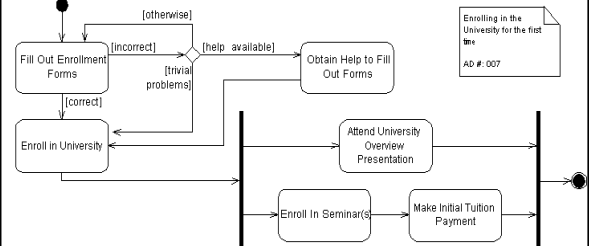
It has a starting point, shown by a dot



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

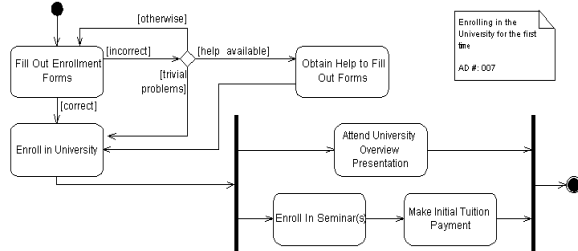
Starting in the upper left is readable



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Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

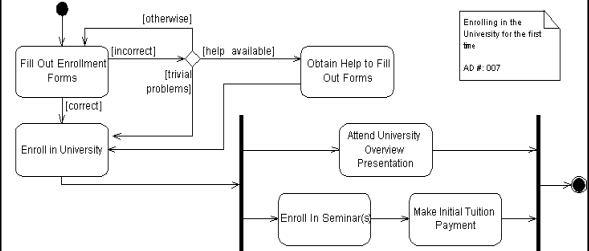
It has an endpoint, a circled dot



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

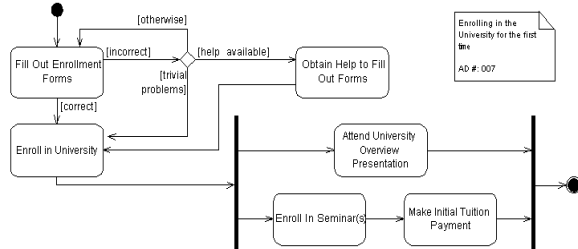
It has activities. Note the similarity to DFD activities



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

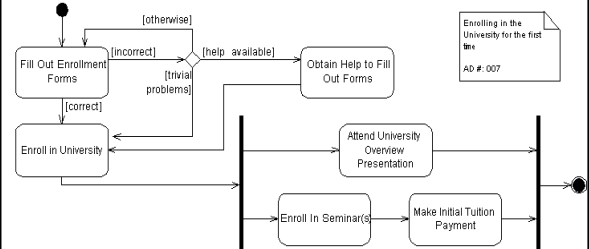
Note no activity performs a "miracle" (no input)



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

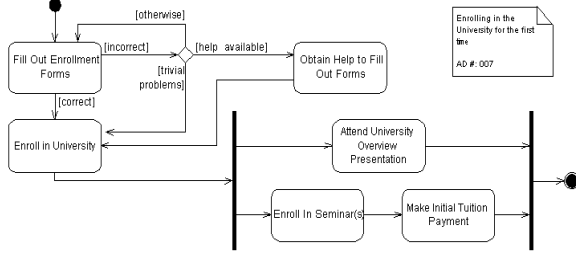
Note no activity has no output



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

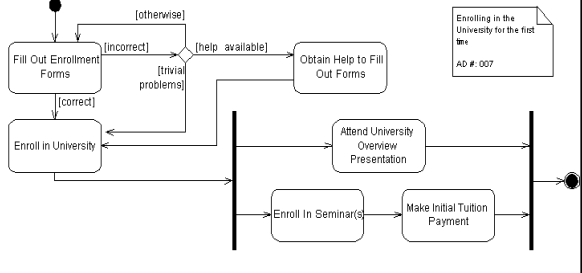
It has diamond(s) representing decision points



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

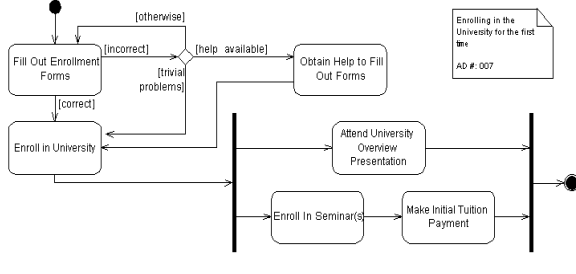
It may have "guard(s)"



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Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

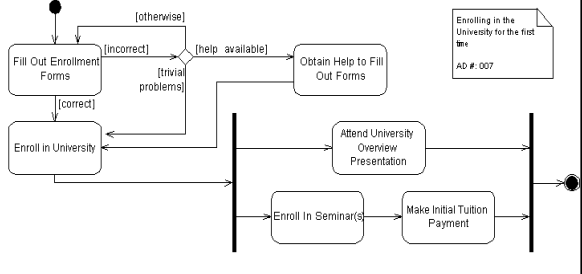
A guard is a condition for arc traversal



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

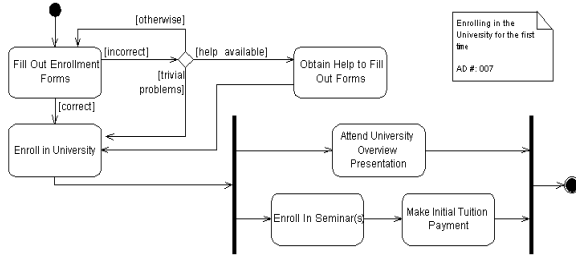
[A guard is designated with square brackets]



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

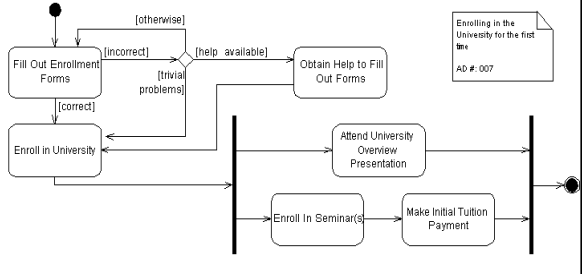
There may be parallel activities



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

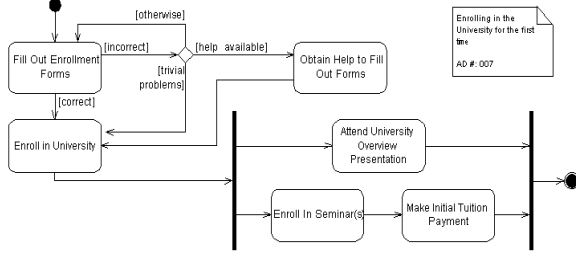
Where are the parallel activities below?



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

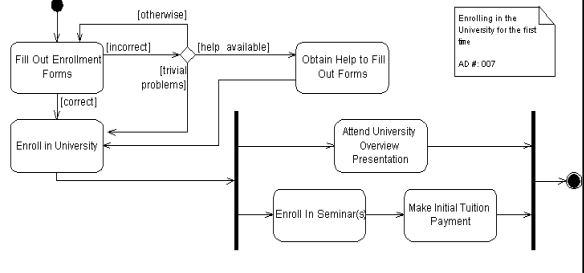
Parallel activities are indicated with “forks” and “joins”



## Characteristics of a Sample UML Activity Diagram

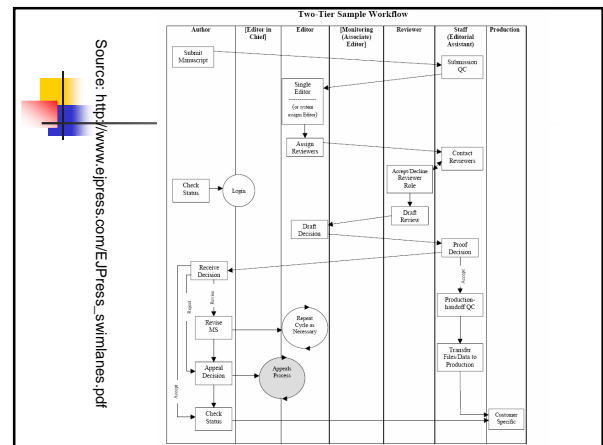
Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

Where is the fork? Where is the join?



## Characteristics of a Sample UML Activity Diagram

- There may be “swimlanes”
- Swimlanes can group activities done by the same actor
- Here are some examples



## Characteristics of a Sample UML Activity Diagram

Source: <http://www.agilemodeling.com/style/activityDiagram.htm>

Does this figure have swimlanes?

