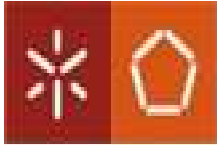


Vão permitir especificar com maior detalhe os fluxos das actividades/funcões identificadas de forma genérica nos use cases. As actividades são, ao mais alto nível, actividades de negócio.



- ▣ São muito usados na modelação dos **Processos de Negócio**, indicando as **tarefas/actividades** que devem ser realizadas por cada Actor;
- ▣ São usados na modelação de **workflows**, que são processos operacionais de trabalho e informação;

O Workflow não é mais do que uma solução que permite sistematizar de forma consistente os processos ou fluxos de trabalho e informação de uma empresa, de forma a torná-los simples e transparentes aos vários intervenientes no processo.

- ▣ Depois dos Use Cases, e por não serem demasiado técnicos, os **Diagramas de Actividade (DA)**, são os segundos melhores instrumentos/modelos oferecidos pelo UML para dialogar com os clientes do projecto.



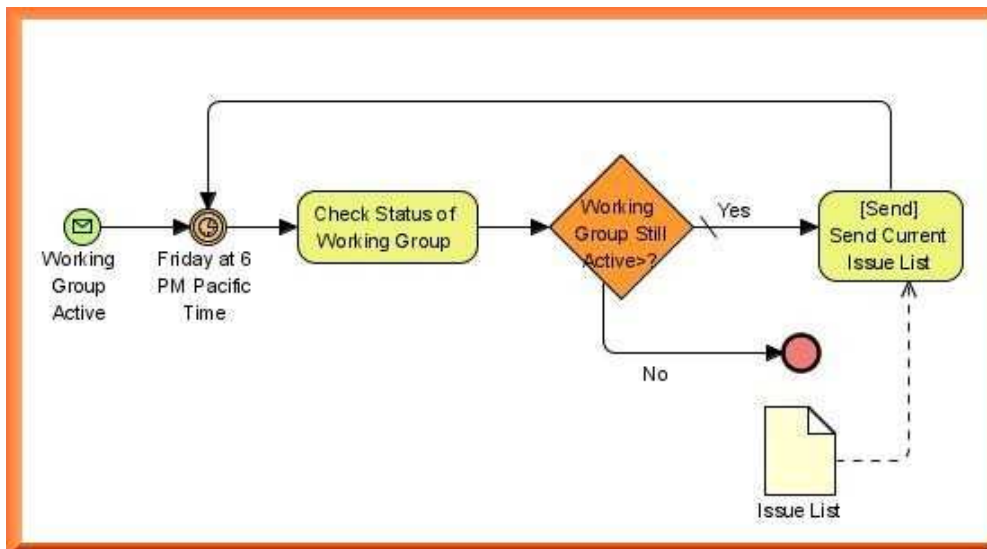
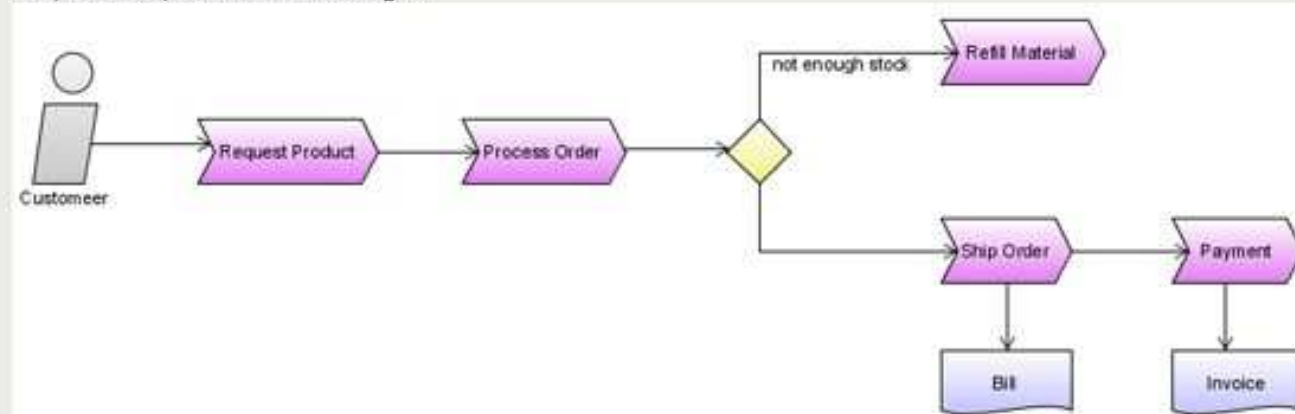
Nível de Abstracção pode ser ajustado aos objectivos ou fase

The purpose of the activity diagram is to model the procedural flow of actions that are part of a larger activity. In projects in which use cases are present, activity diagrams can model a specific use case at a more detailed level. However, activity diagrams can be used independently of use cases for modeling a business-level function, such as buying a concert ticket or registering for a college class. Activity diagrams can also be used to model system-level functions, such as how a ticket reservation data mart populates a corporate sales system's data warehouse.



Business Workflow Sample

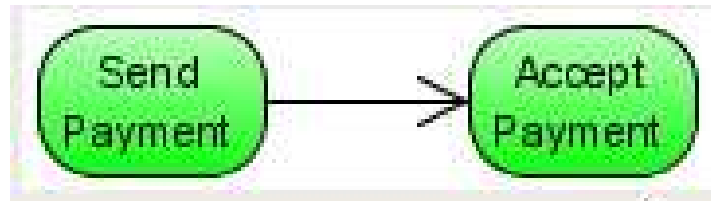
The Business Workflow Diagram is a generic diagram which contains common business workflow shapes for you to represent to flow logic.



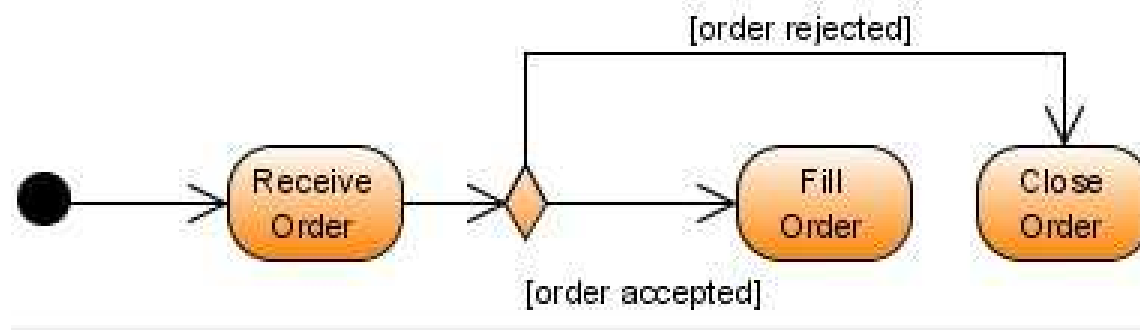
Diagramas de Actividade podem ser usados para modelar fluxos de trabalho de um dado negócio



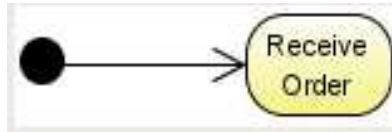
Notação – Precisamos de :



Nodos para descrição das Actividades e setas para descrição do fluxo ou sequência



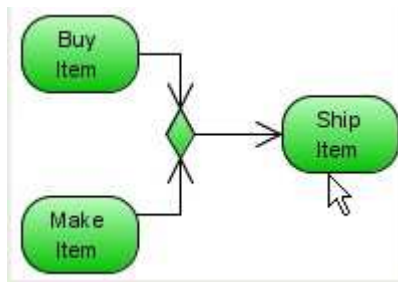
Nodos de início de actividade, nodos de decisão de fluxos alternativos e condições de teste



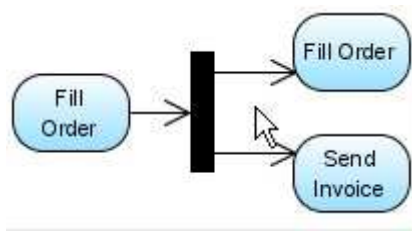
Início de actividade no diagrama
(recepção de uma encomenda)



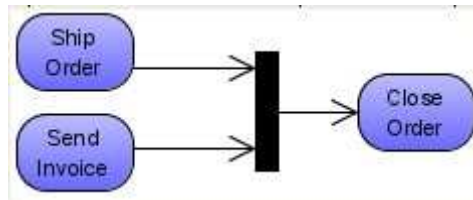
Fim de Actividades: Nodo final



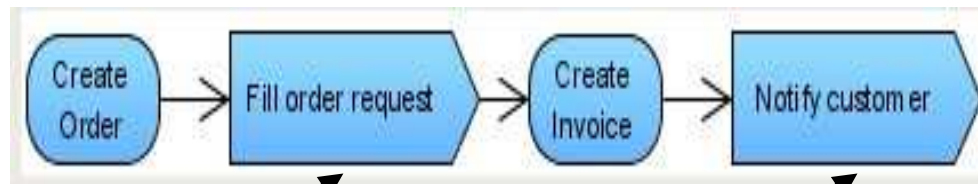
Merge: junção de fluxos alternativos



Fork: Actividades em paralelo

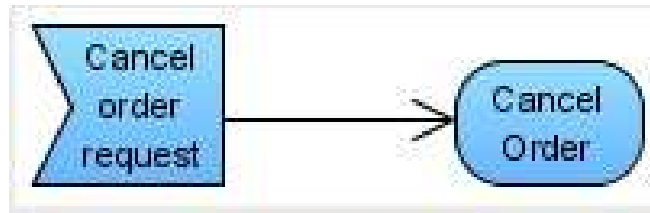


Join: Sincronização de actividades

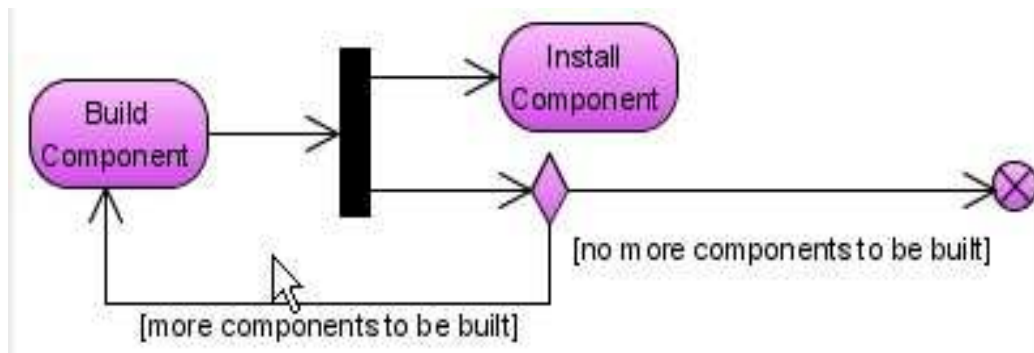


Acções que criam **sinais** que podem iniciar actividades ou mudar estados

←
←
sinais



Acções de espera de eventos/sinais, ou seja, de sincronização



Ciclo e Fim de Fluxo de Actividade

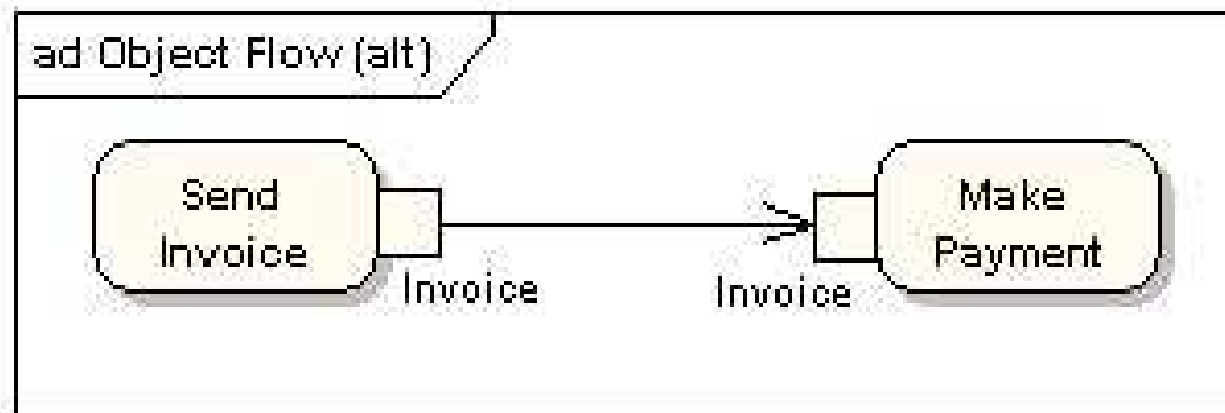


Excepção e tratamento

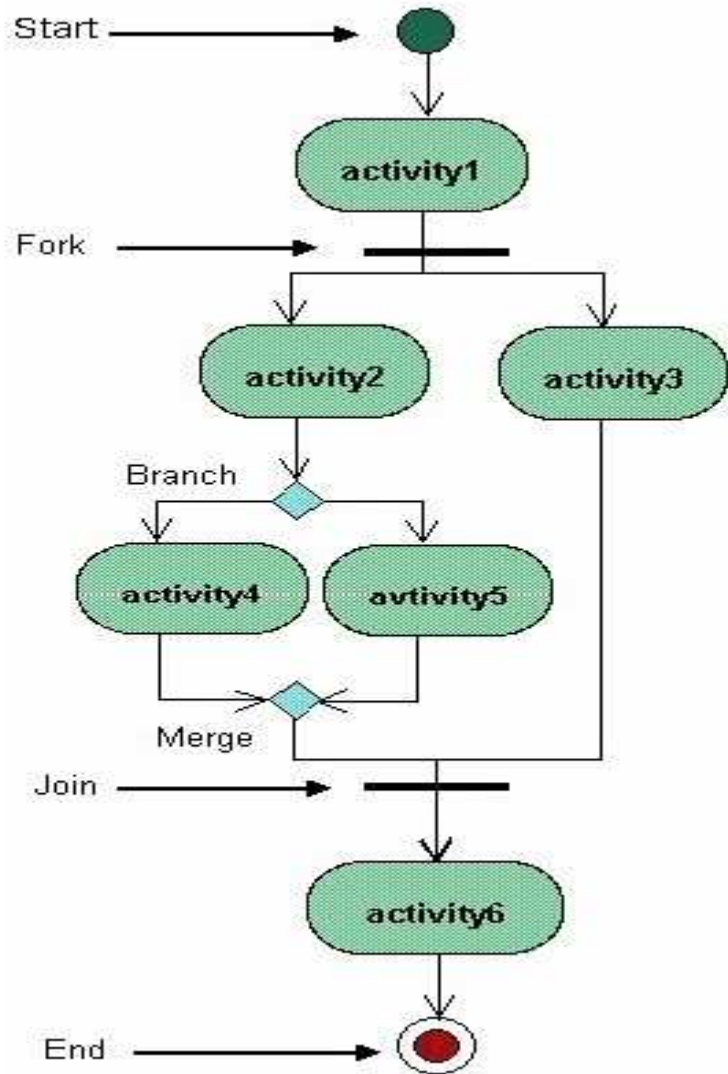


Depois de preencher uma encomenda, uma ficha de encomenda passa a existir no fluxo

Object Flow: fluxo de objectos entre nodos



Alternativa notacional

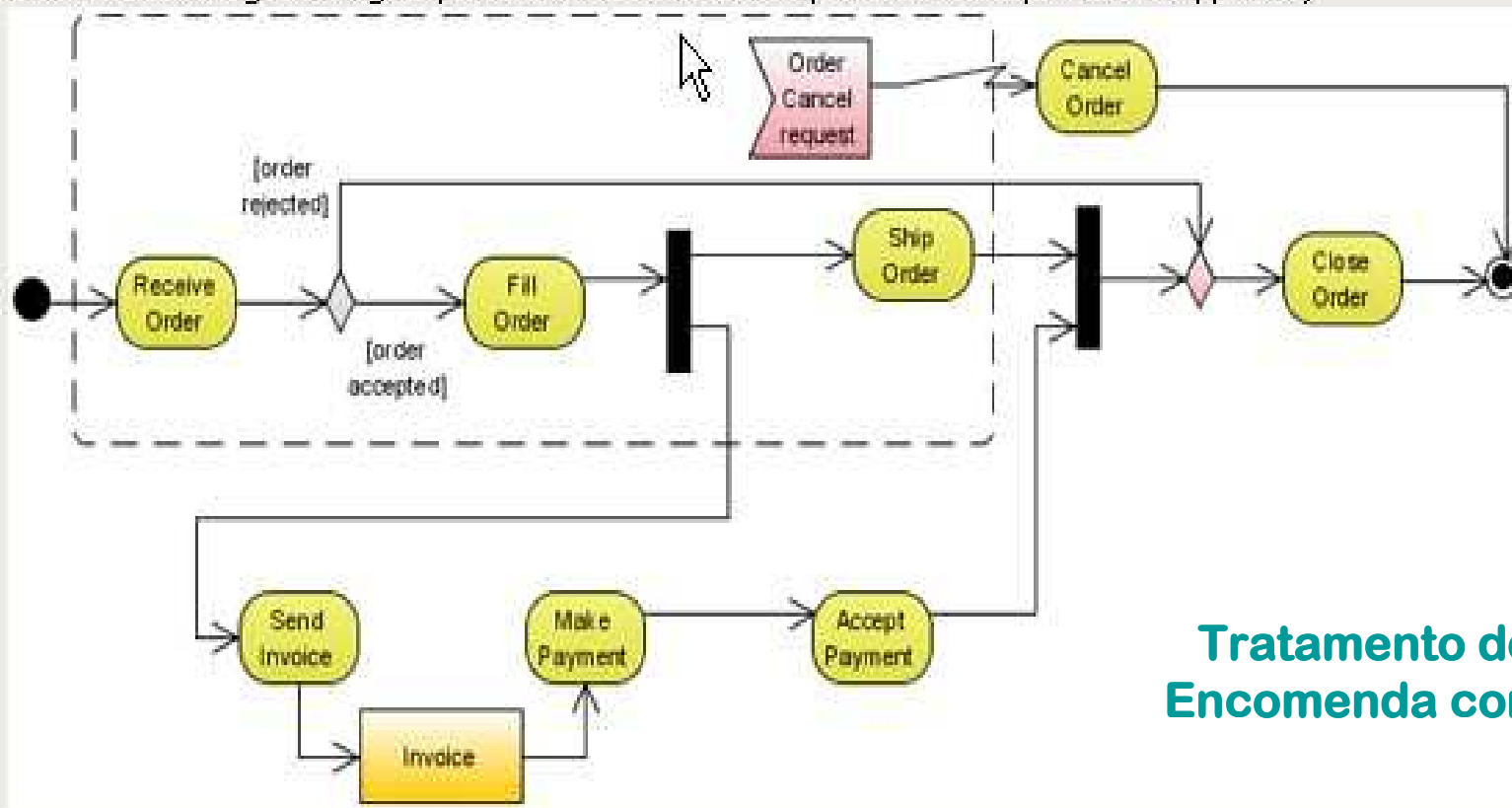


1ª síntese da notação fundamental para escrever Diagramas de Actividade



InterruptibleActivityRegion

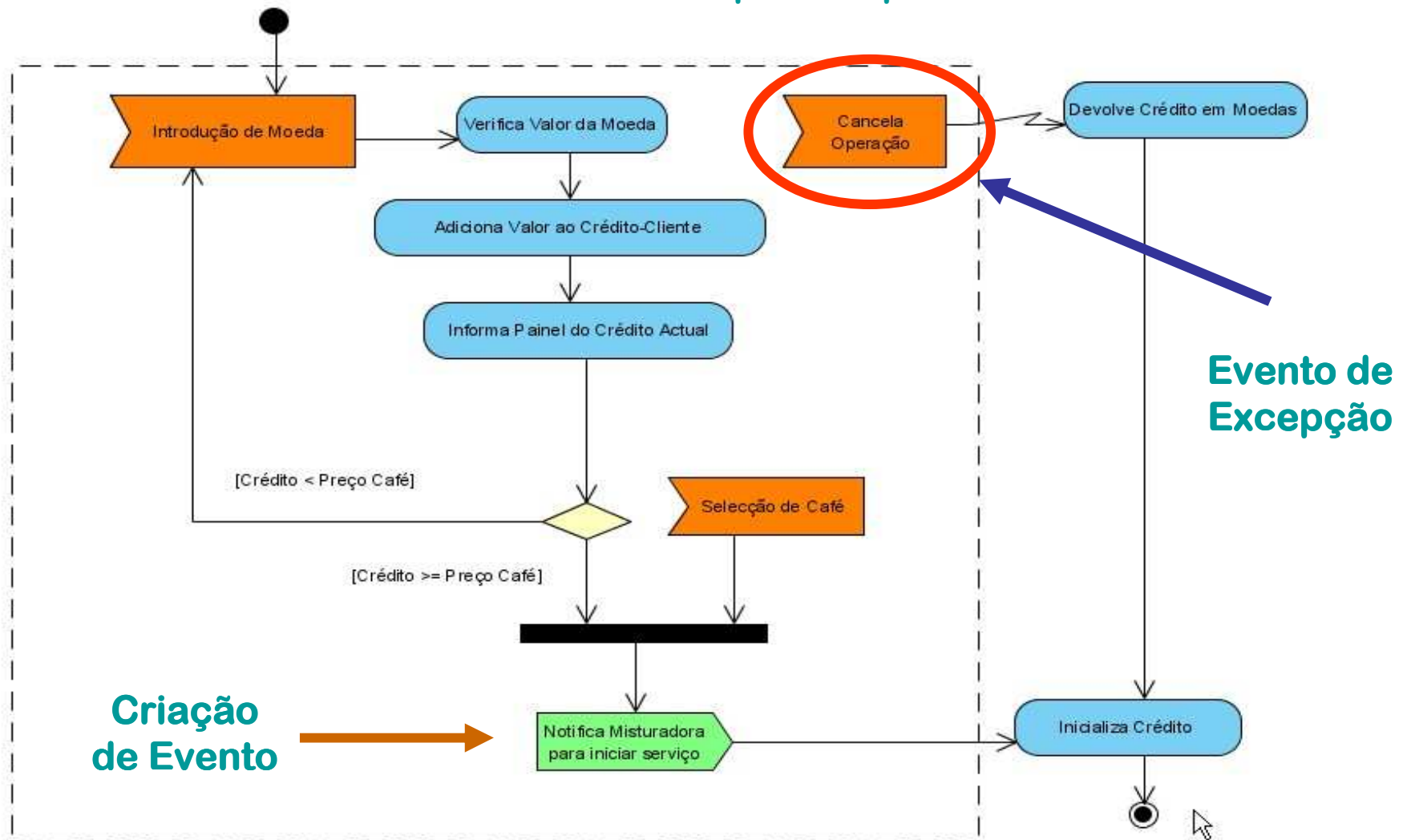
An interruptible region contains activity nodes. When a token leaves an interruptible region via edges designated by the region as interrupting edges, all tokens and behaviors in the region are terminated. (OMG Unified Modeling Language Specification - UML 2.0 Superstructure Specification, p. 409)



Tratamento de uma
Encomenda comercial



Exemplo: Máquina de Café



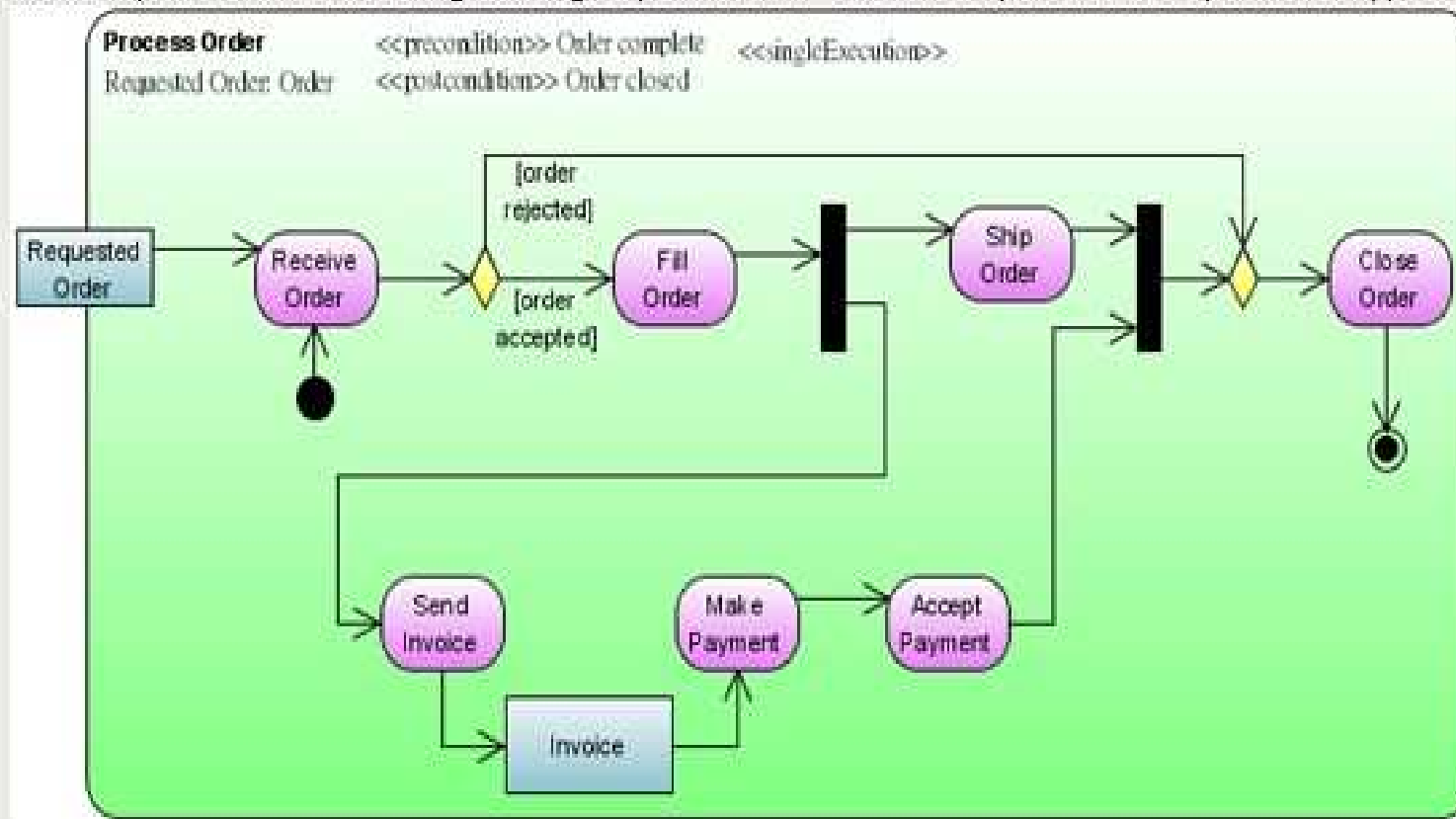
Criação de Evento

Evento de Excepção



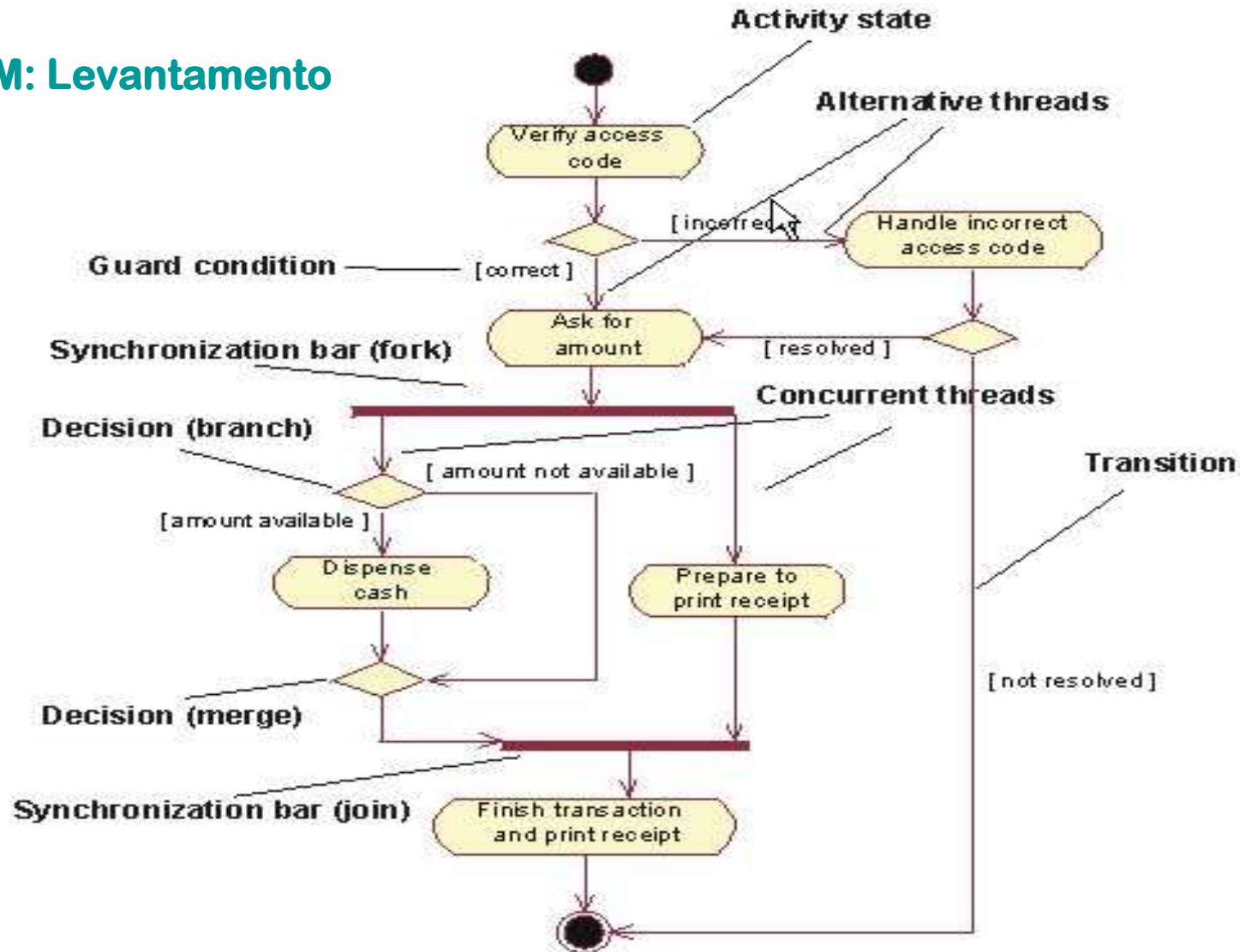
Activity

An activity specifies the coordination of executions of subordinate behaviors, using a control and data flow model. The subordinate behaviors coordinated by these models may be initiated because other behaviors in the model finish executing, because objects and data become available, or because events occur external to the flow. (OMG Unified Modeling Language Specification - UML 2.0 Superstructure Specification, p. 341)





ATM: Levantamento





SwimLanes: função.

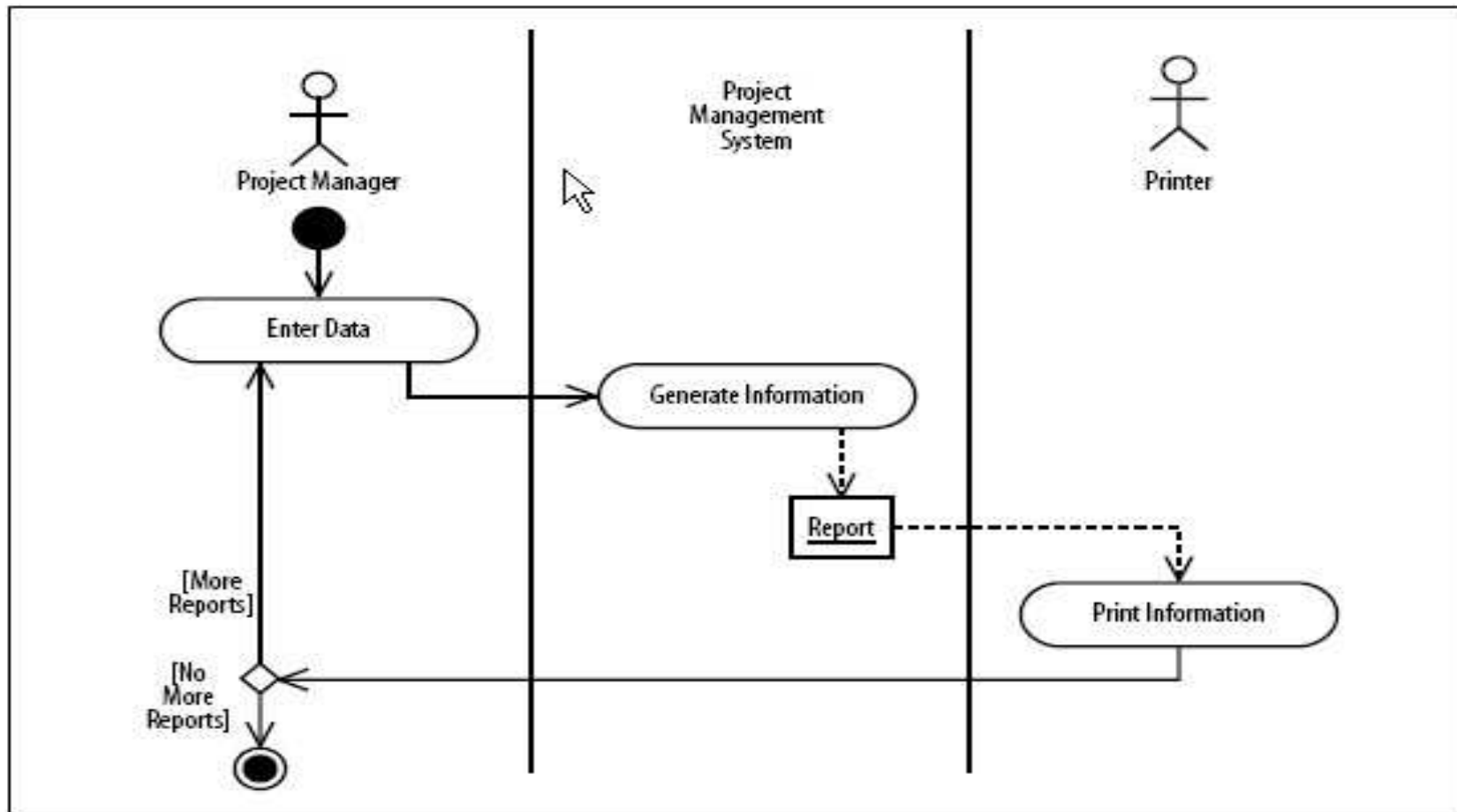
Swimlanes

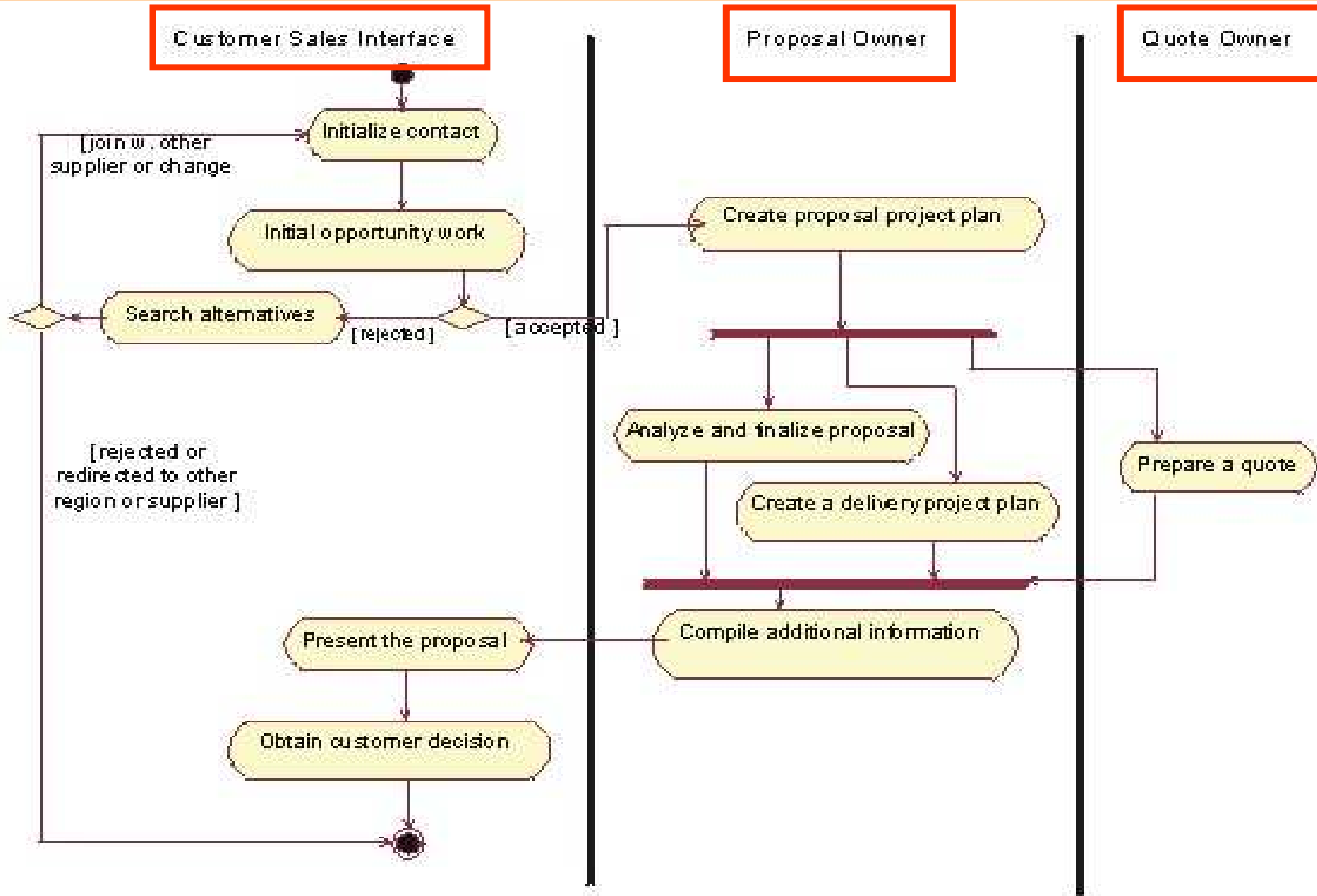
In activity diagrams, it is often useful to model the activity's procedural flow of control between the objects (persons, organizations, or other responsible entities) that actually execute the action. To do this, you can add swimlanes to the activity diagram (swimlanes are named for their resemblance to the straight-line boundaries between two or more competitors at a swim meet).

SwimLanes associam-se a **Actores** ou **Funções de Negócio**



Repartição de Responsabilidades





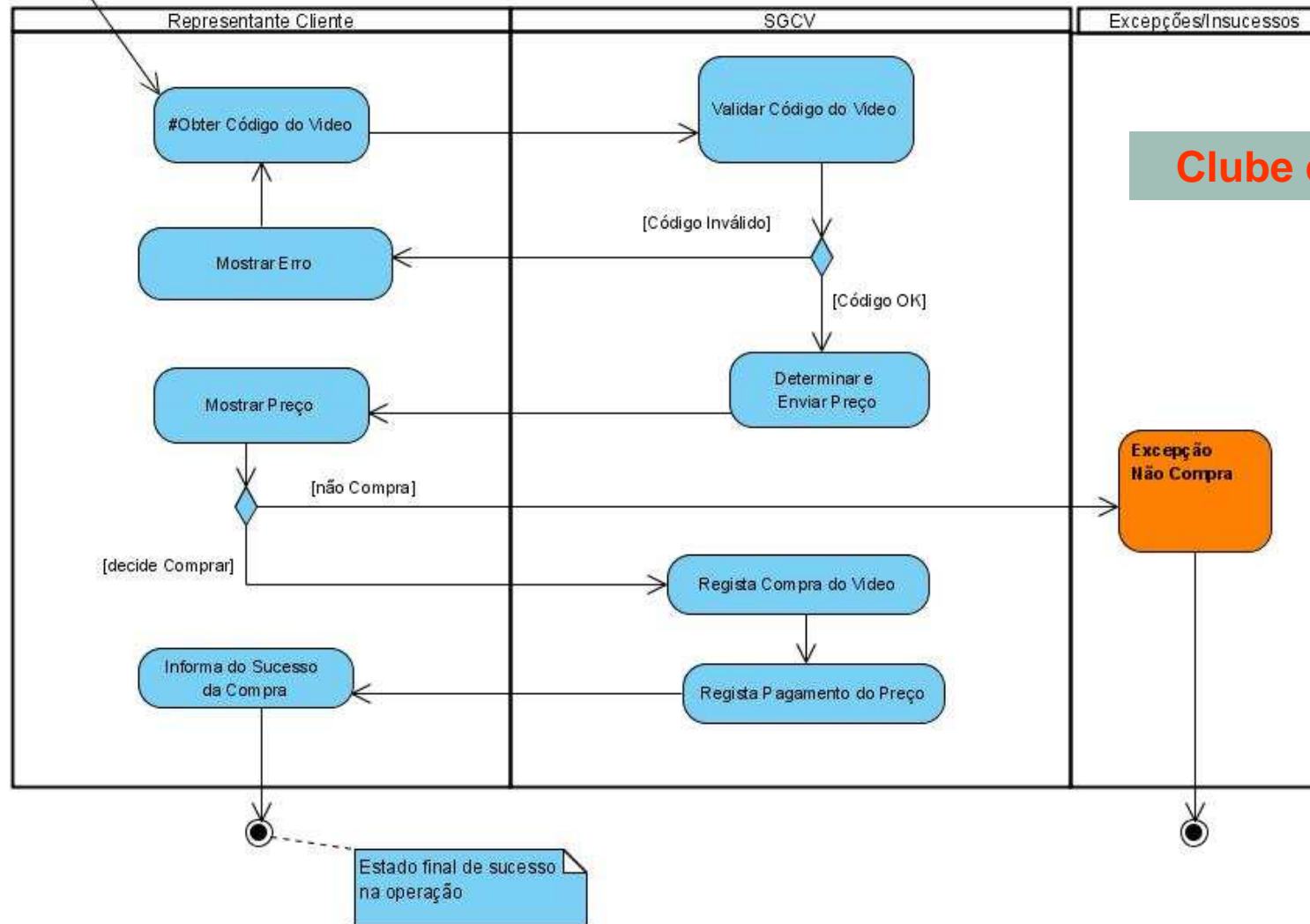


Although UML sequence diagrams can portray the same information as activity diagrams, I personally find activity diagrams best for modeling business-level functions. This is because activity diagrams show all potential sequence flows in an activity, whereas a sequence diagram typically shows only one flow of an activity. In addition, business managers and business process personnel seem to prefer activity diagrams over sequence diagrams -- an activity diagram is less "techie" in appearance, and therefore less intimidating to business people. Besides, business managers are used to seeing flow diagrams, so the "look" of an activity diagram is familiar.

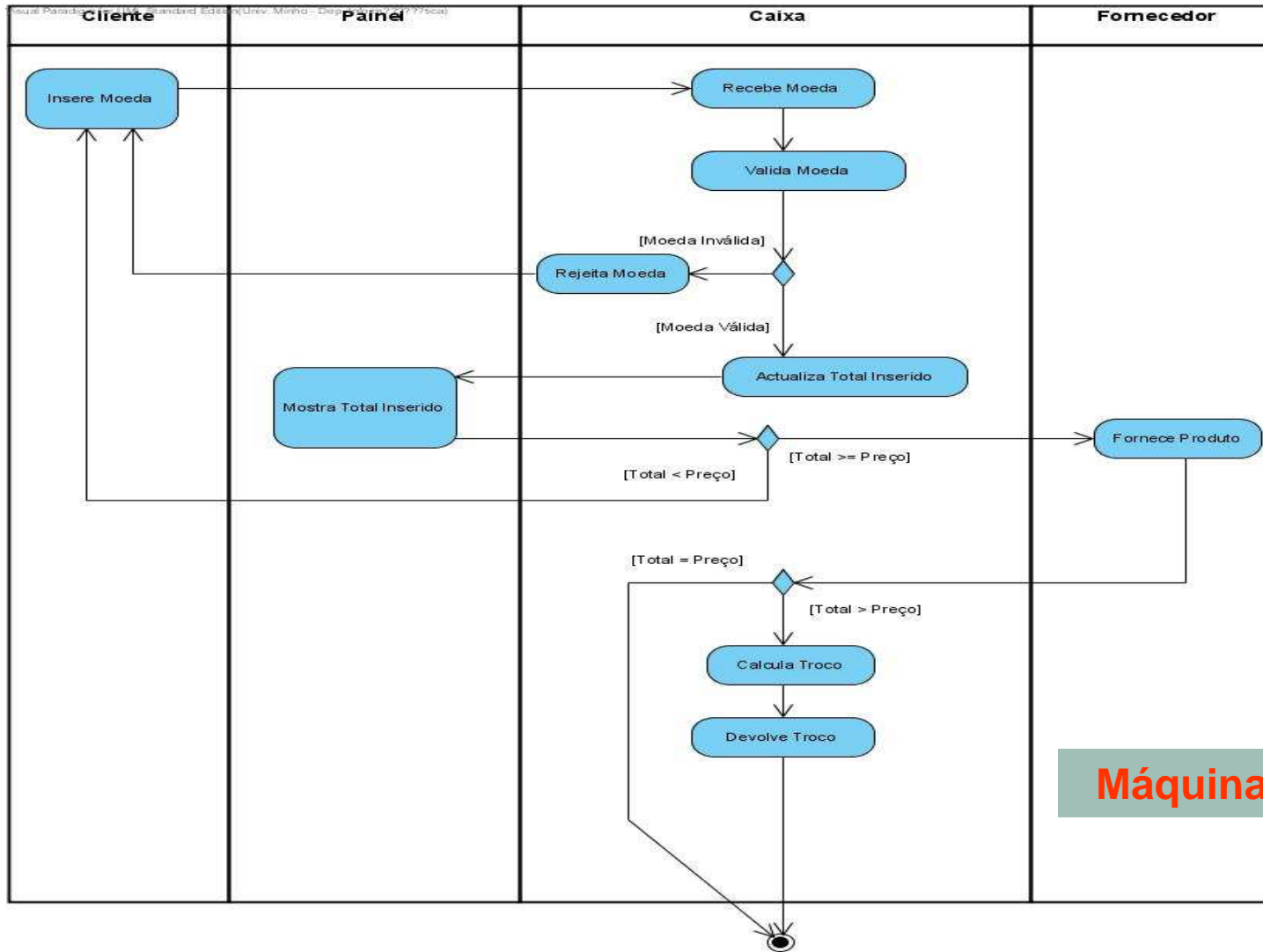
Donald Bell, IBM Global Services



Visual Paradigm for UML Standard Edition/Univ. Minho - Dep. Inform.??????.sca



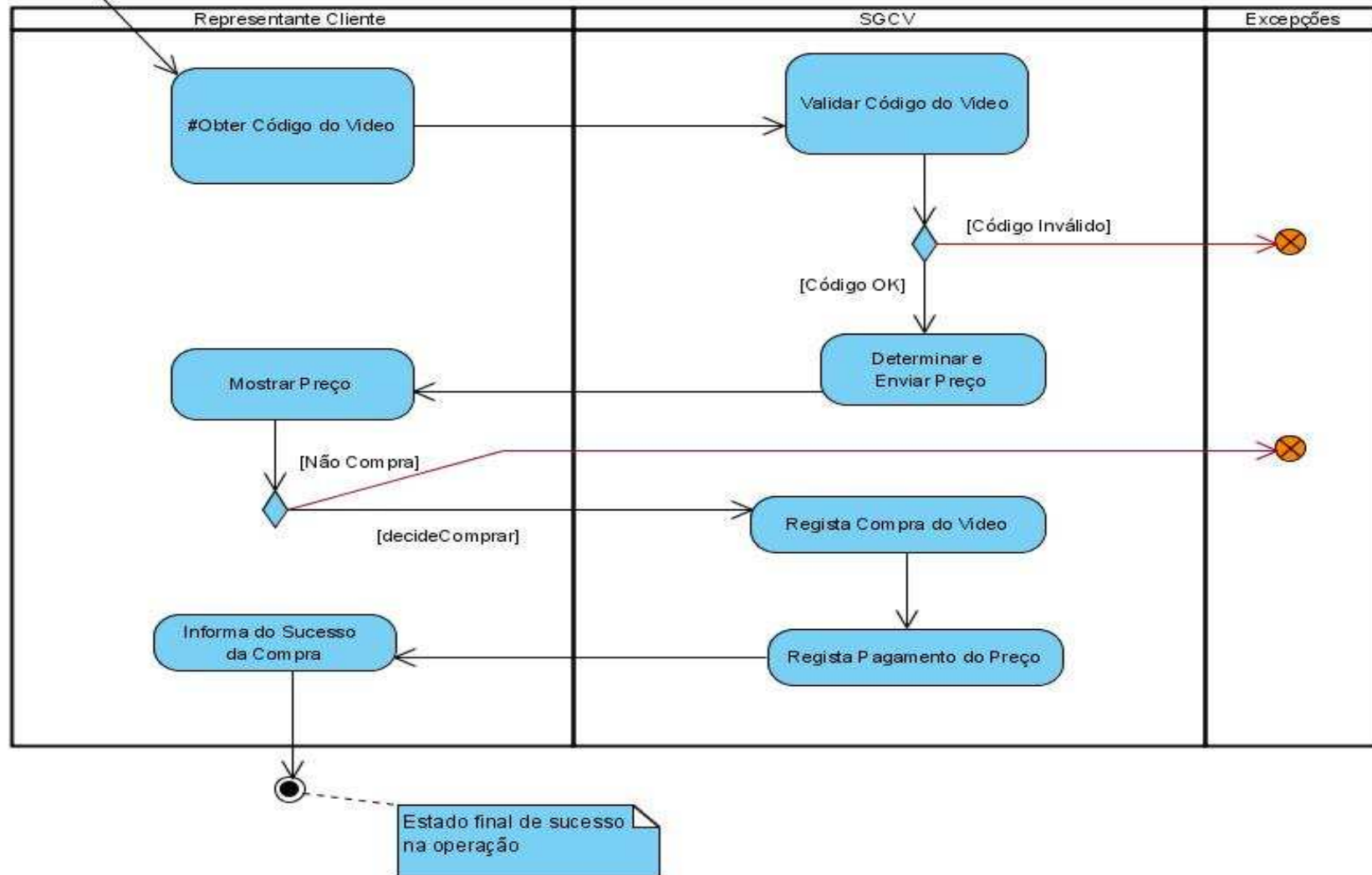
Clube de Video

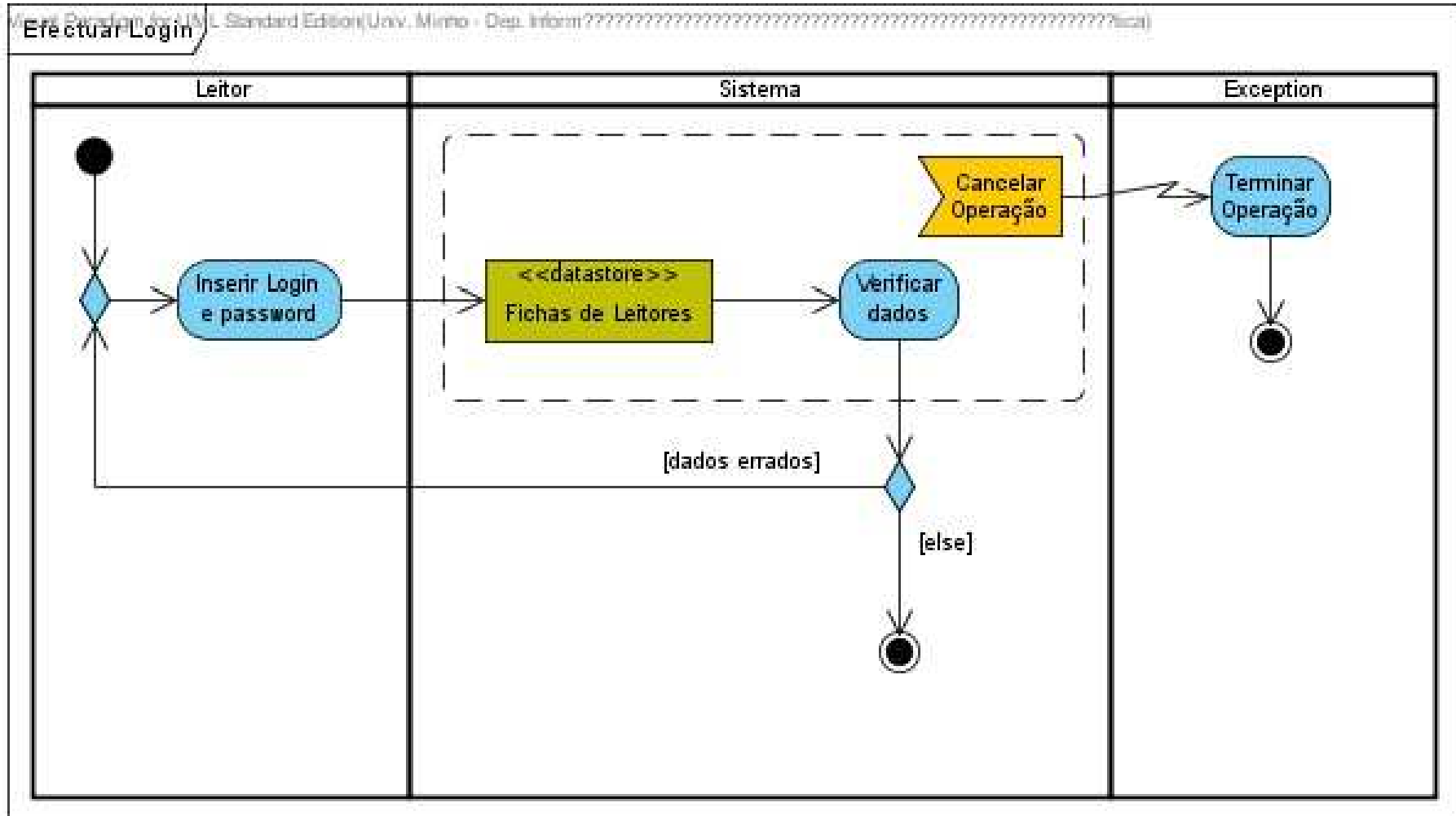


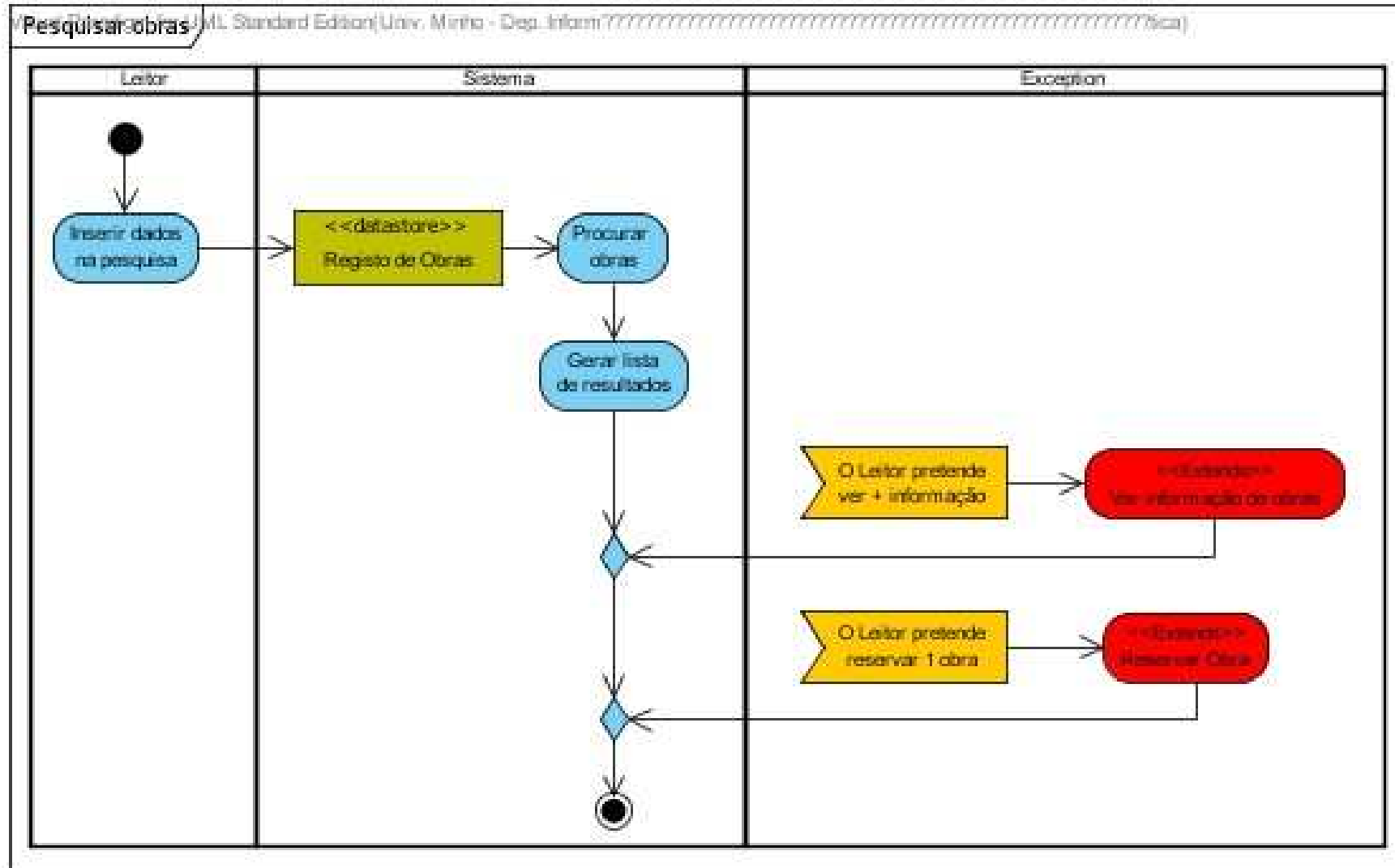
Máquina de Café



Visual Representation for UML Standard Edition (Univ. Minho - Dep. Inform.???)

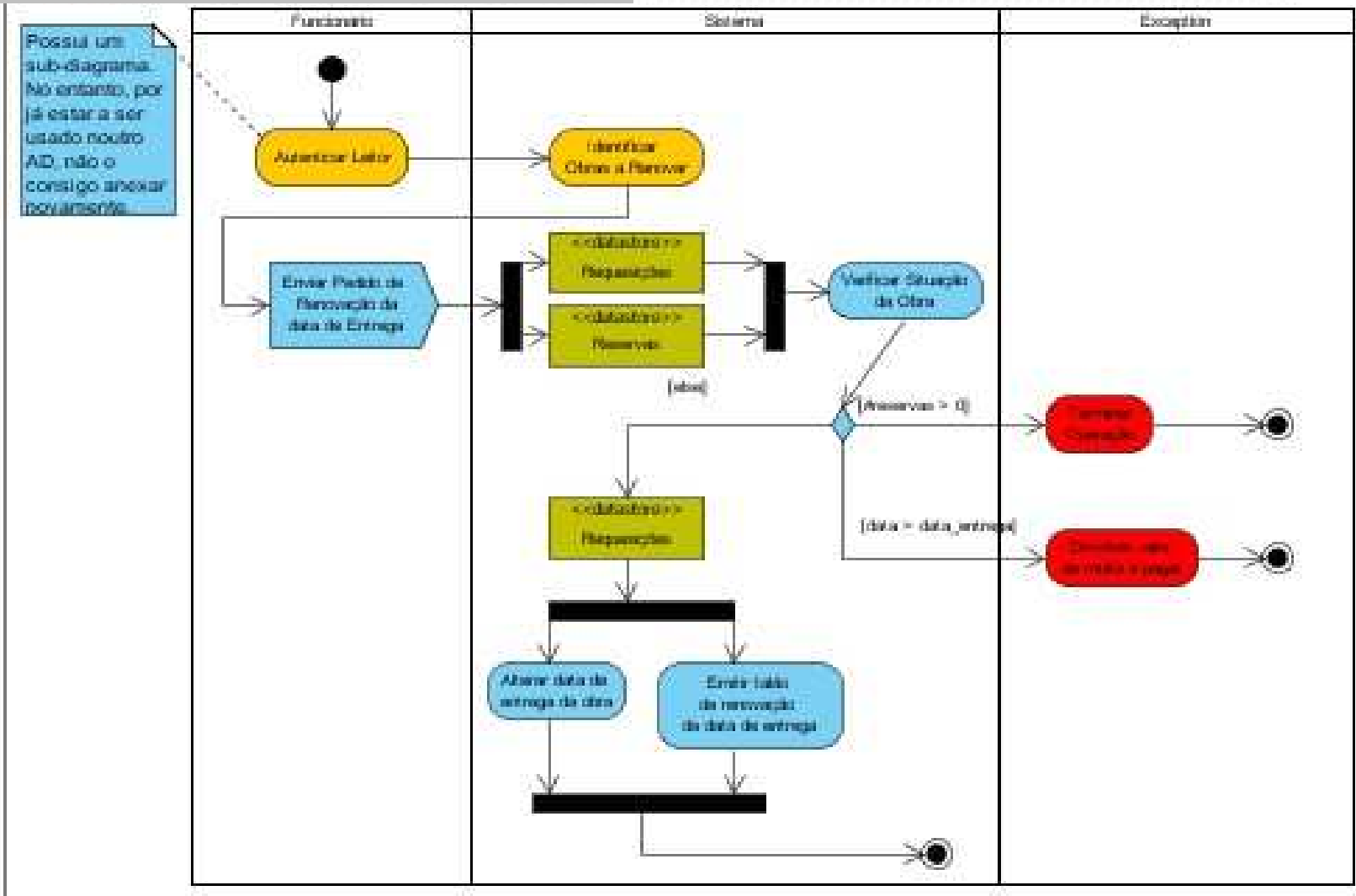






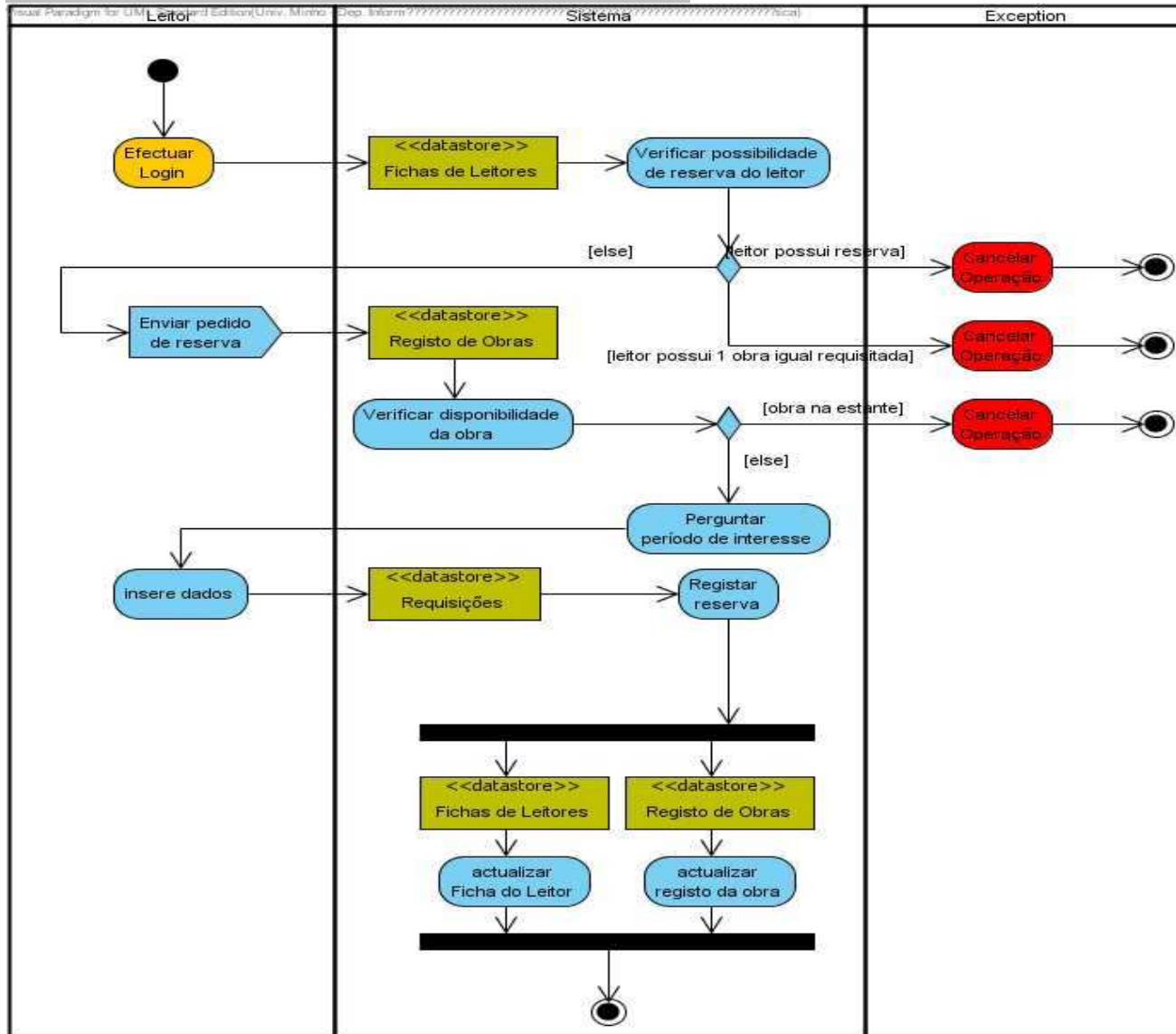


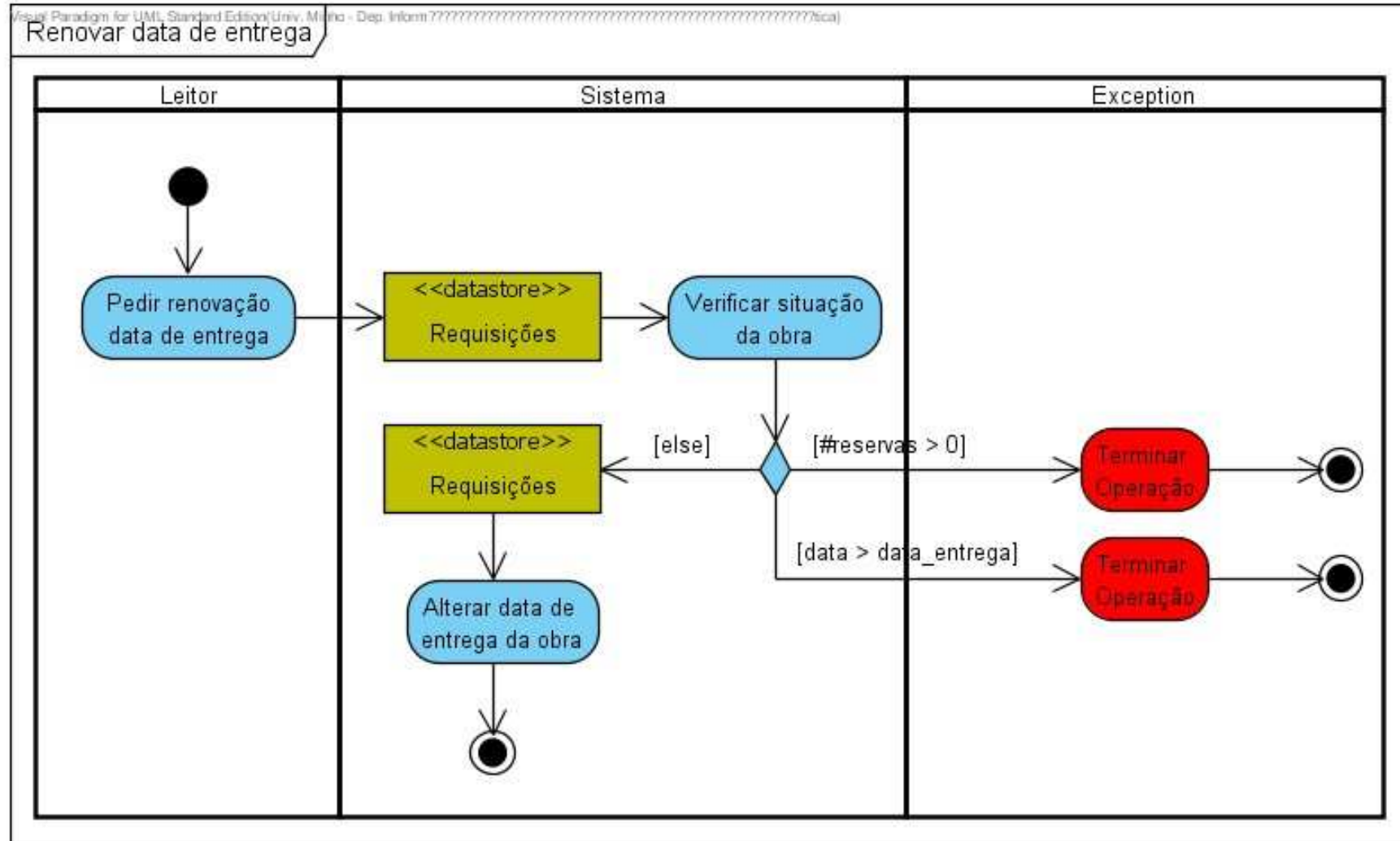
Renovar Data de Entrega

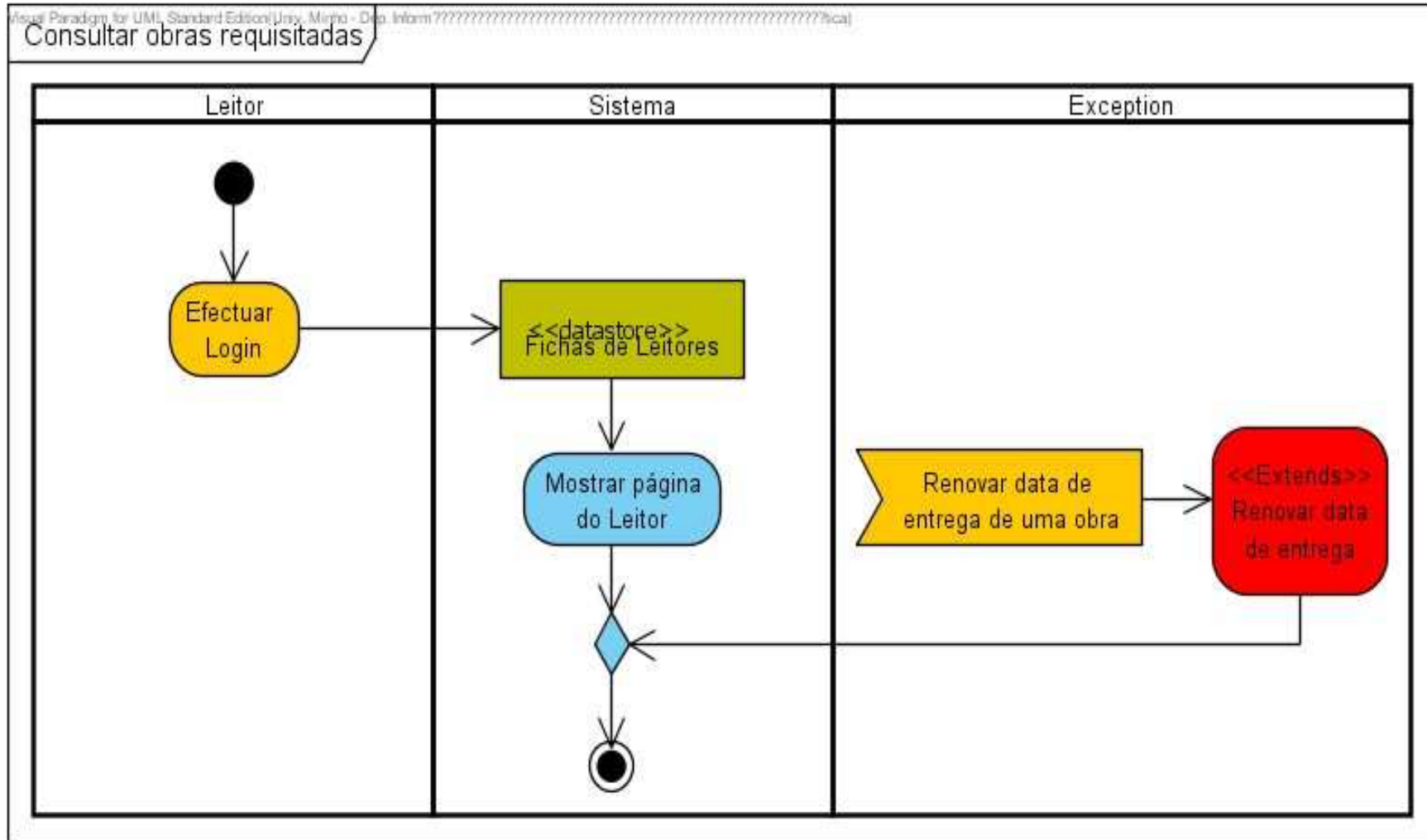


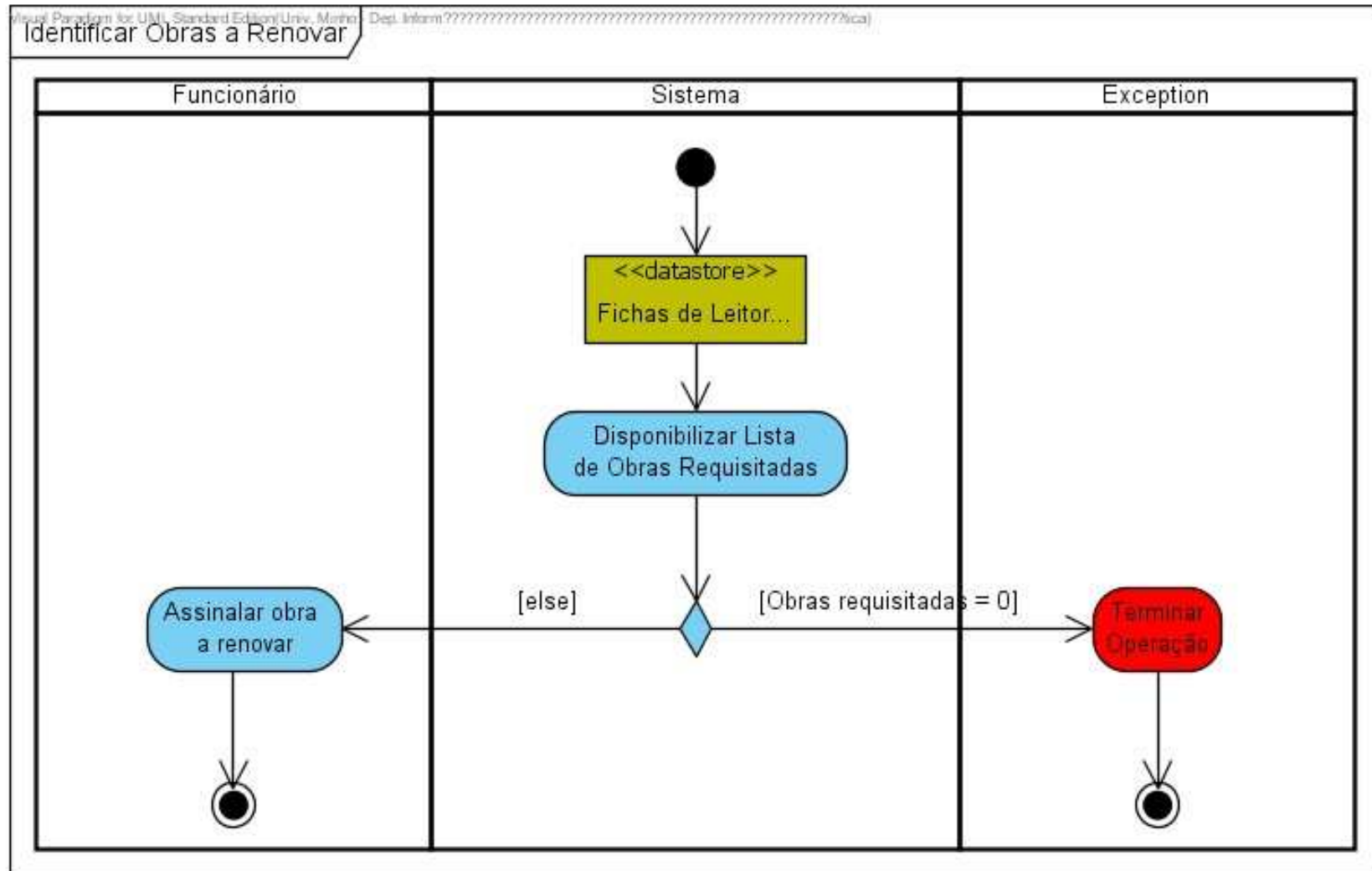


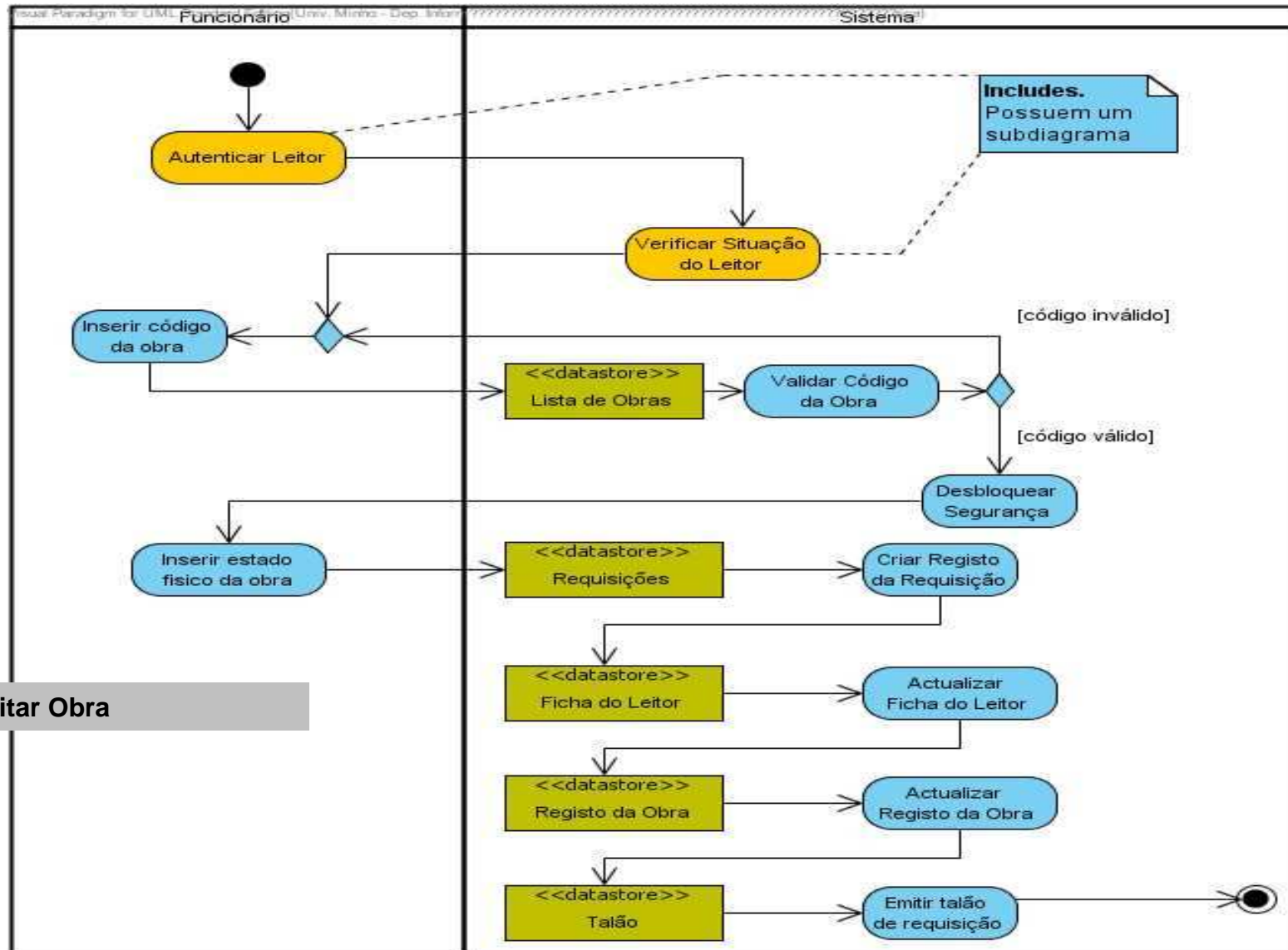
Reservar Obra





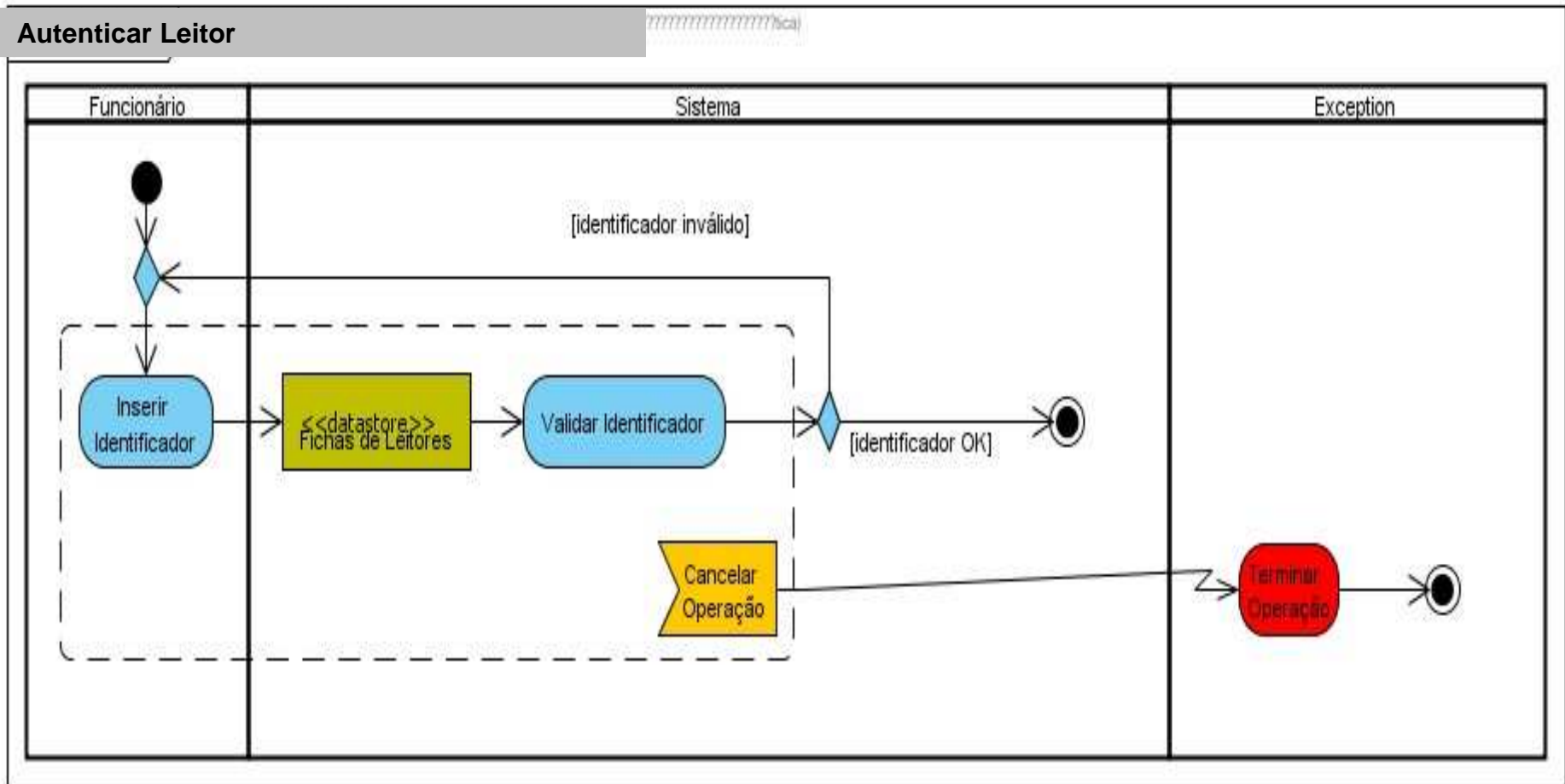






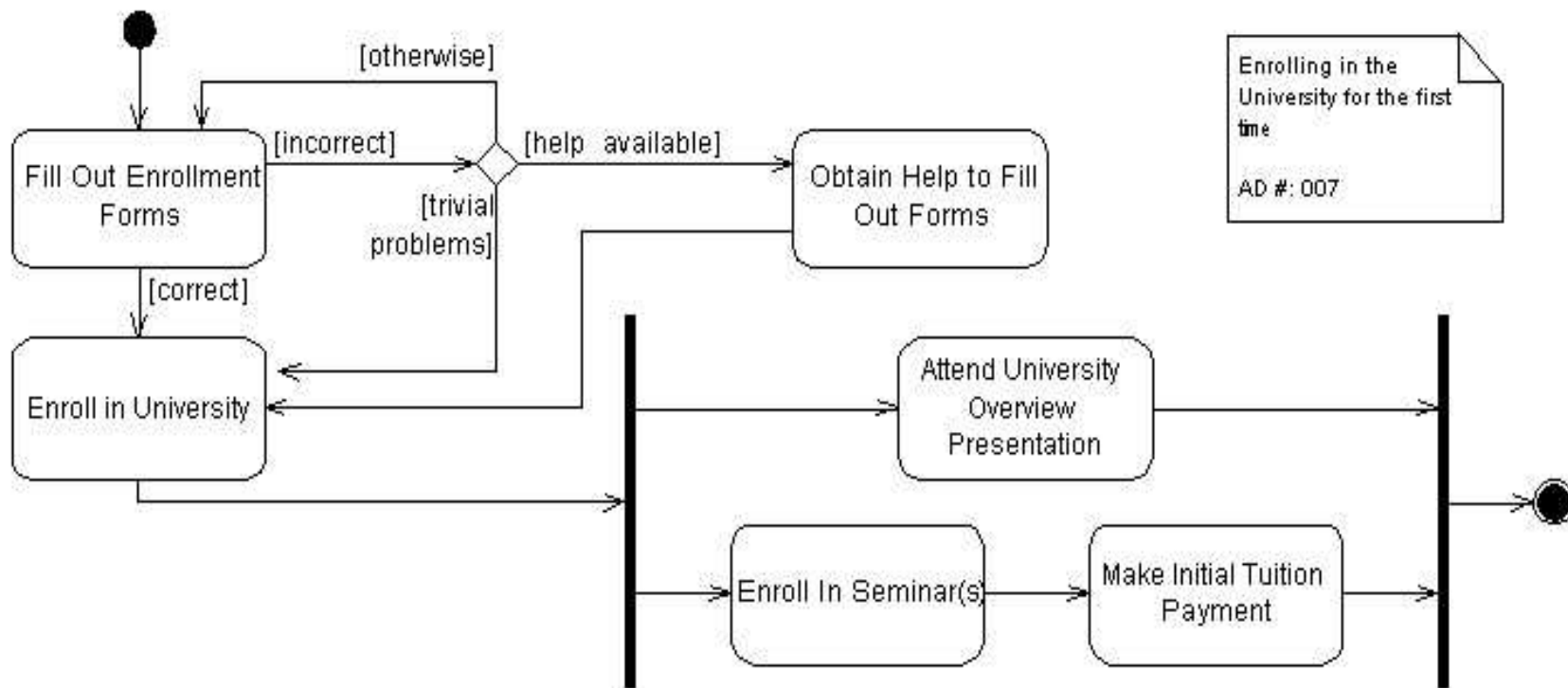


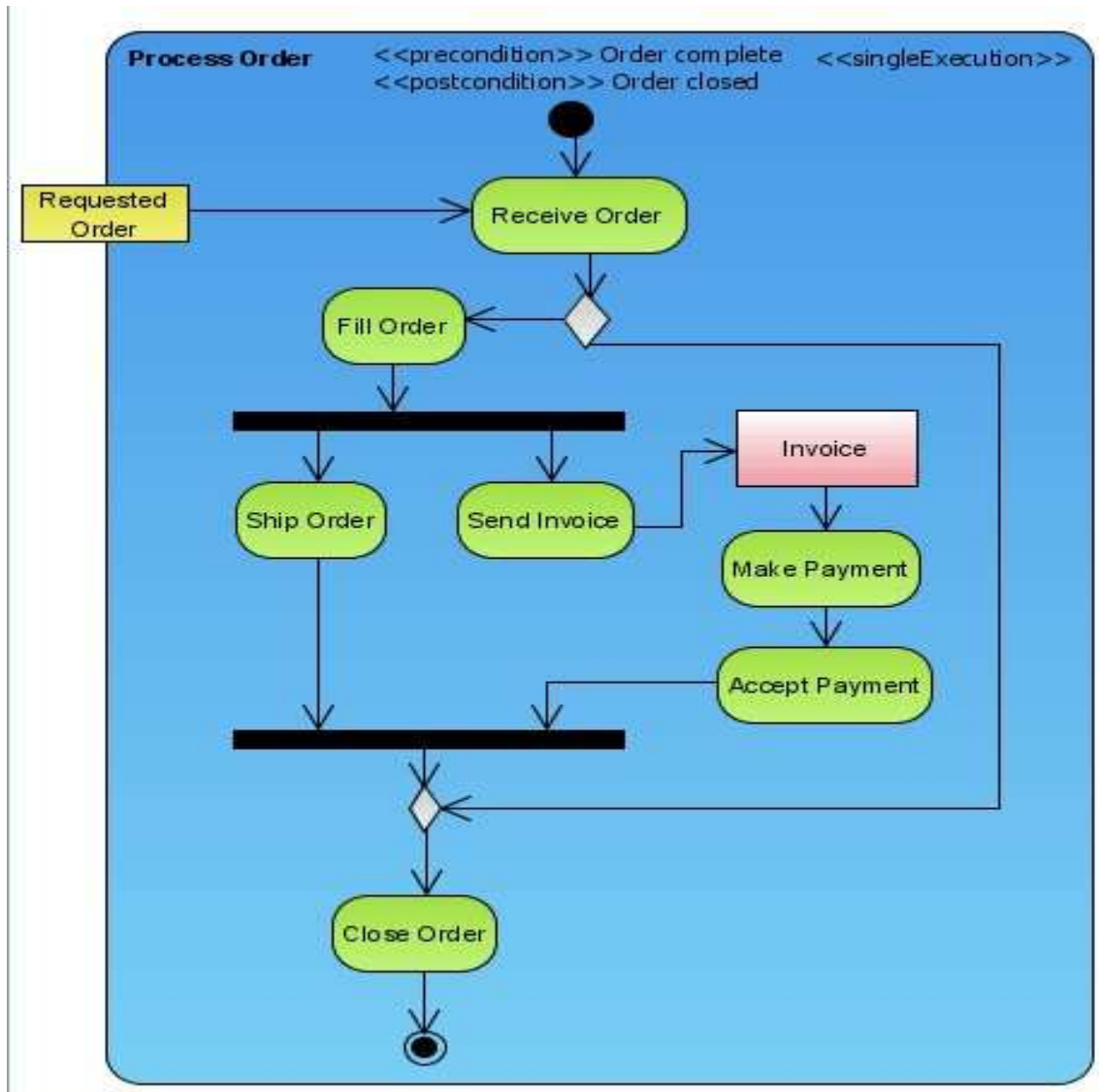
Autenticar Leitor





Matrícula numa Universidade e inscrição nas disciplinas



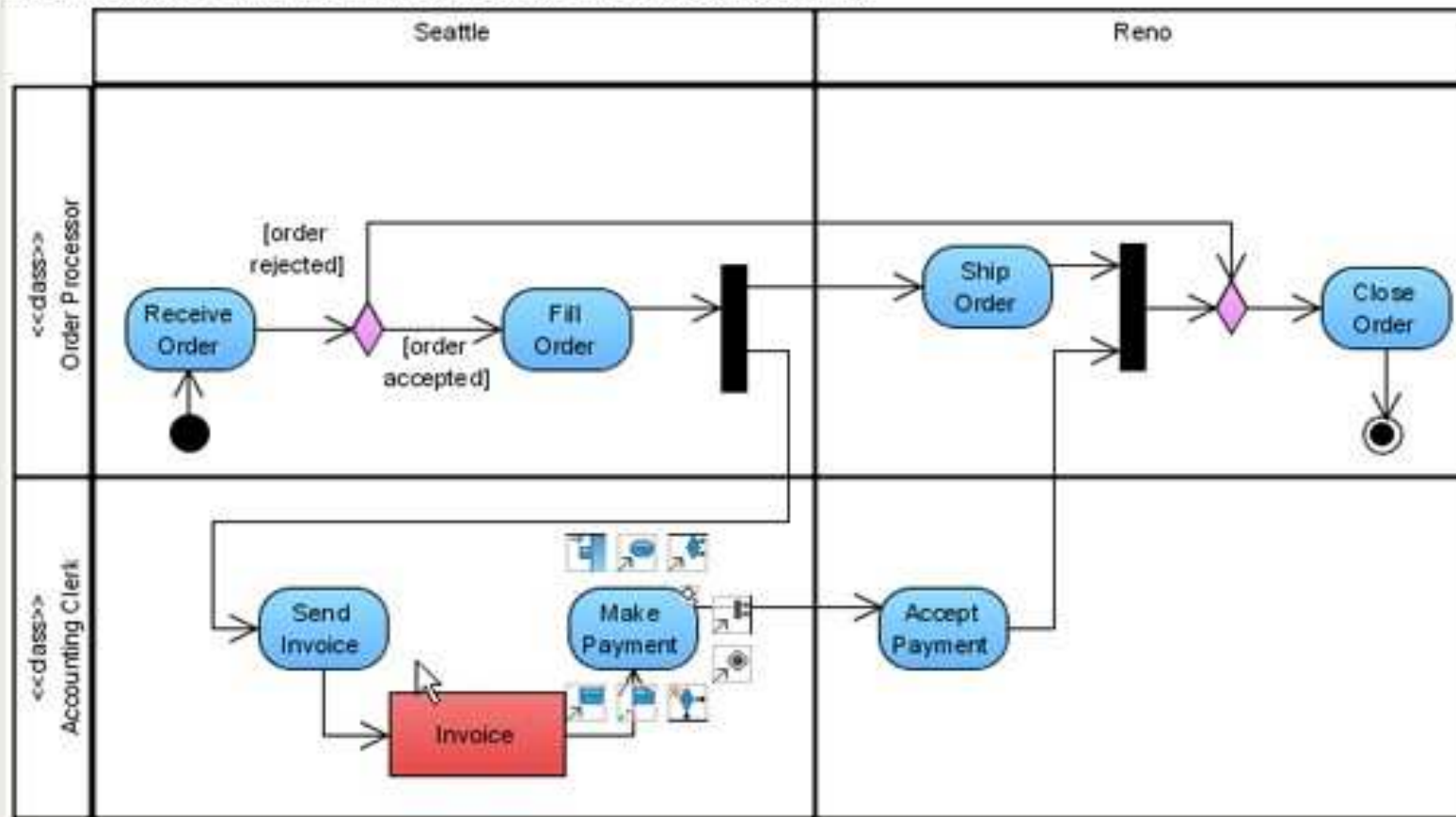


Processamento de
Encomenda (VP)



ActivityPartition

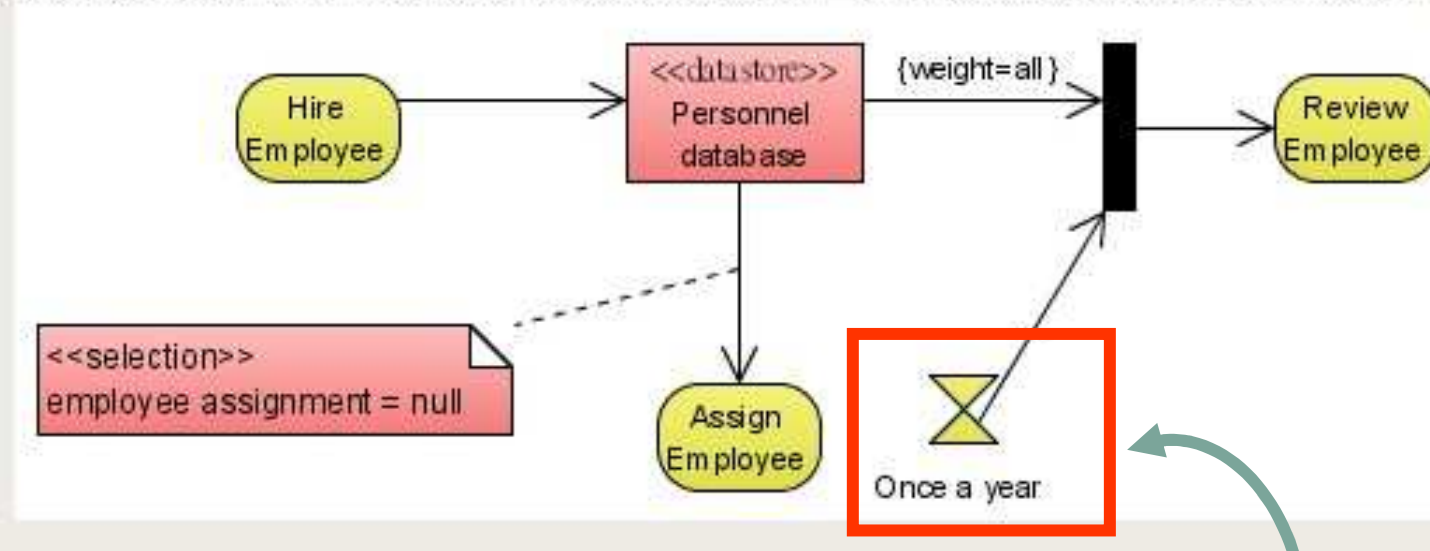
Partitions divide the nodes and edges to constrain and show a view of the contained nodes. Partitions can share contents. They often correspond to organizational units in a business model. They may be used to allocate characteristics or resources among the nodes of an activity. (OMG Unified Modeling Language Specification - UML 2.0 Superstructure Specification, p. 367)



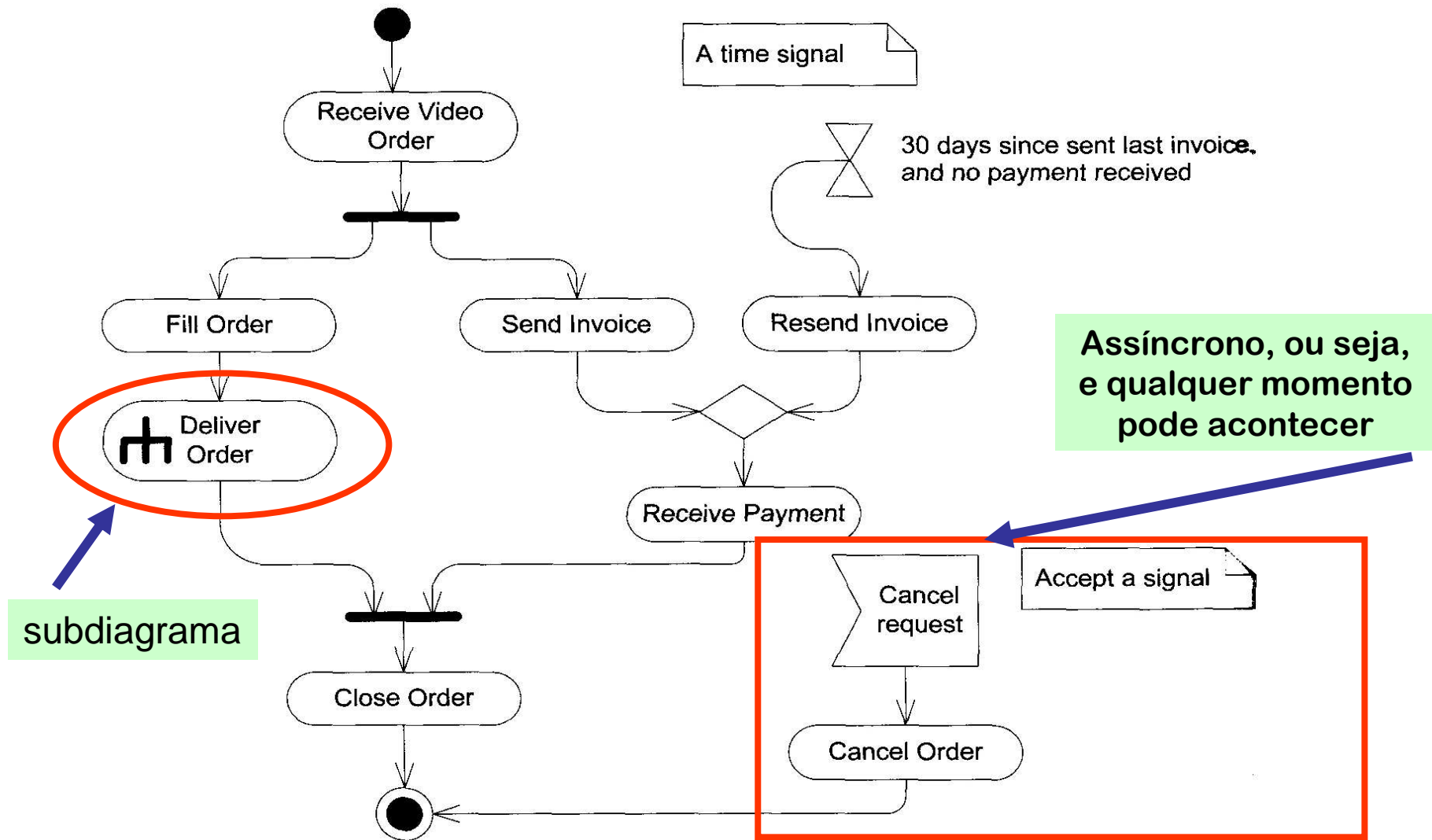


DataStore

A data store keeps all tokens that enter it, copying them when they are chosen to move downstream. Incoming tokens containing a particular object replace any tokens in the object node containing that object. (OMG Unified Modeling Language Specification - UML 2.0 Superstructure Specification, p. 386)

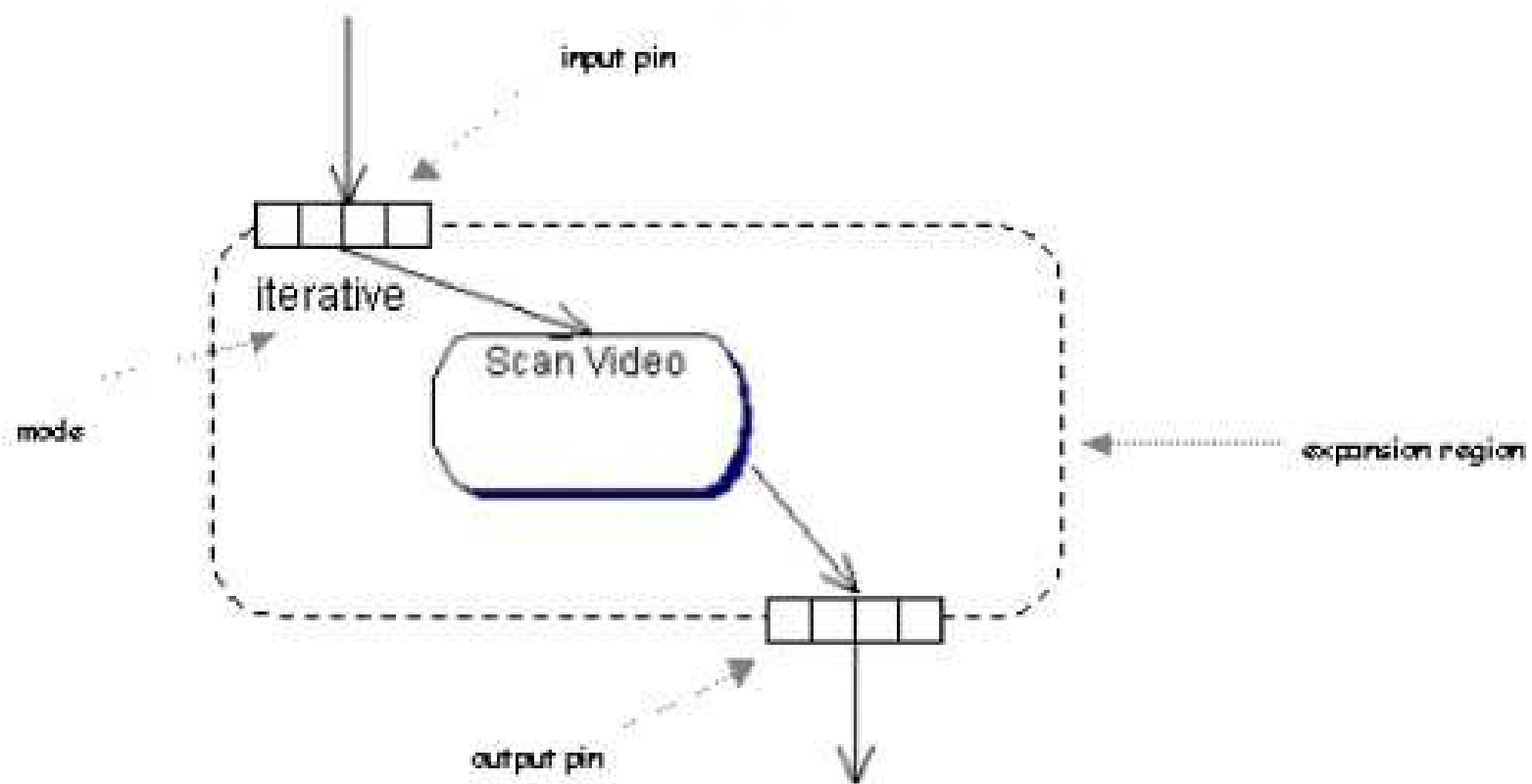


Utilização de uma <<datastore>> e de um elemento temporal





▣ Para iteração (sequência de actividades repetidas) sobre colecções

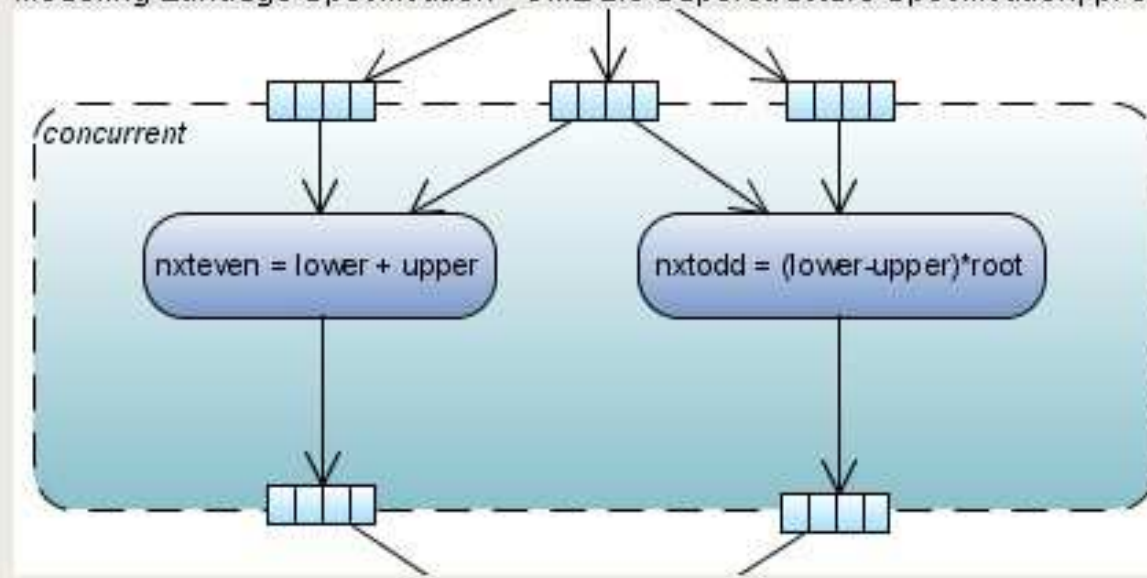


Nota: 1 colecção de videos de entrada e 1 colecção de videos de saída

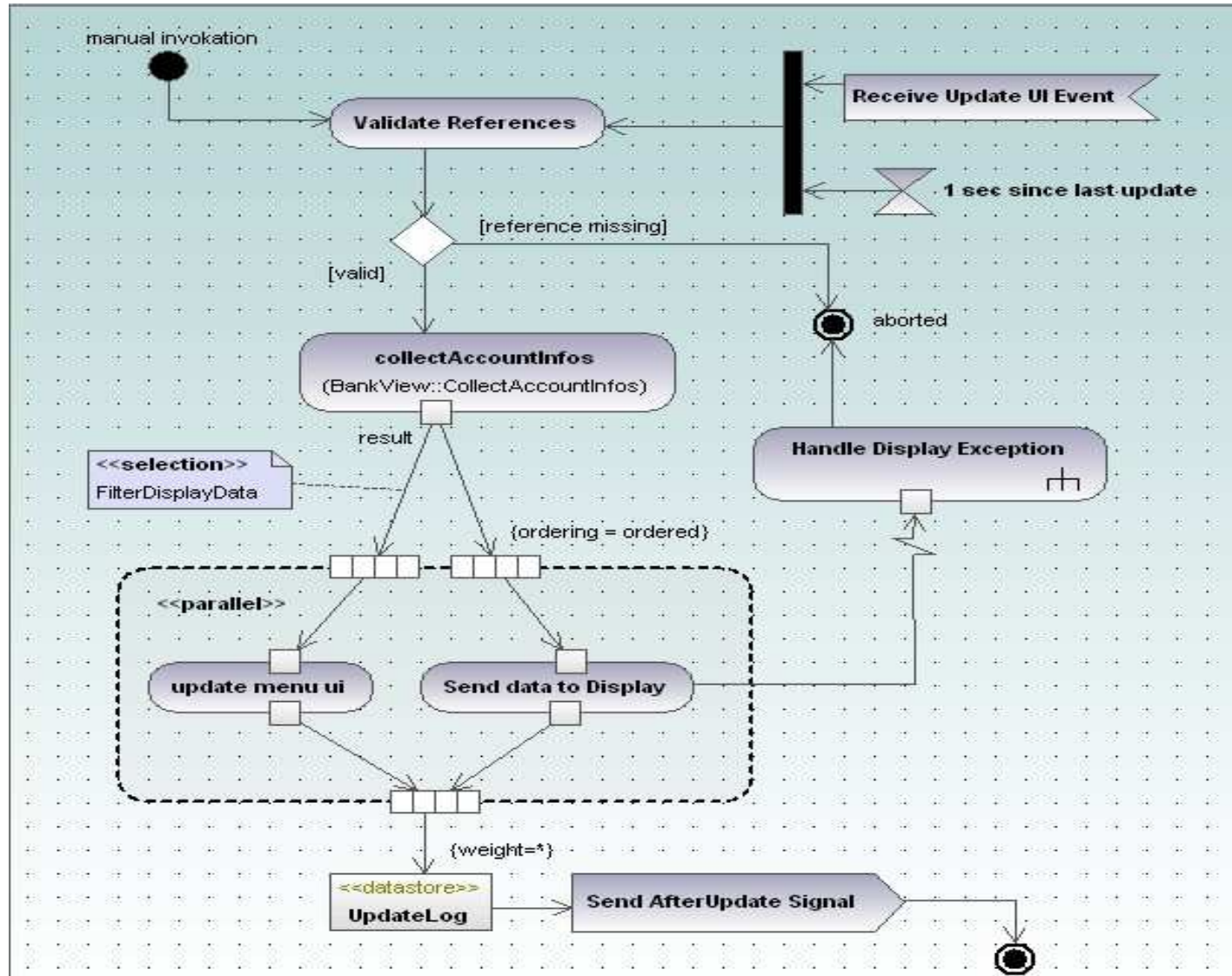


ExpansionRegion

An expansion region is a strictly nested region of an activity with explicit input and outputs (modeled as ExpansionNodes). Each input is a collection of values. If there are multiple input pins, each of them must hold the same kind of collection, although the types of the elements in the different collections may vary. The expansion region is executed once for each element (or position) in the input collection. (OMG Unified Modeling Language Specification - UML 2.0 Superstructure Specification, p. 395)

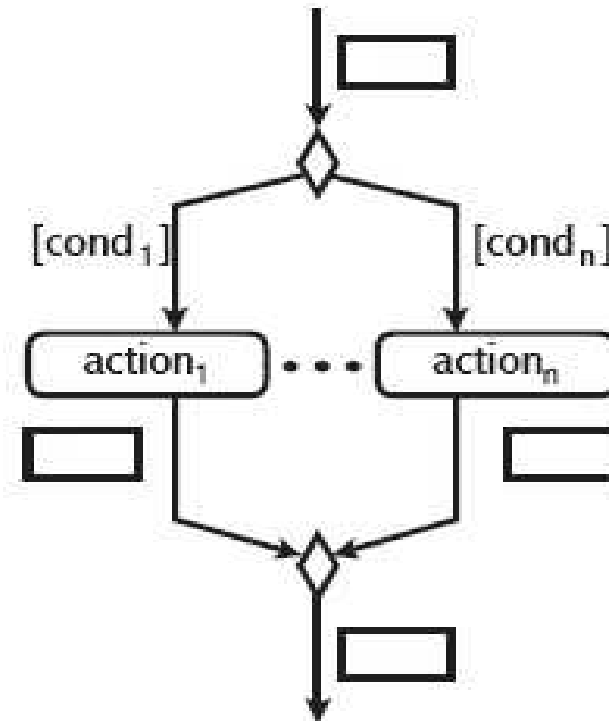
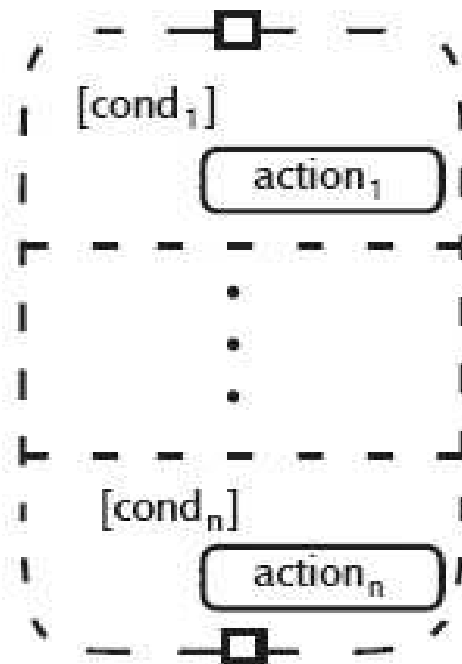


Nota: 3 colecções de entrada e 2 colecções de saída



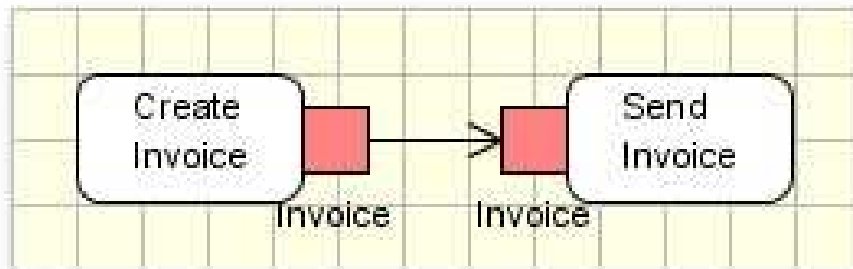


▣ **Regiões de Expansão** para acções condicionais são apenas “açucar sintáctico” pois podem ser representadas na notação base.





Input and Output Pins



Parâmetros de Entrada e de Saída de nodos

