CSE4006: Software Engineering

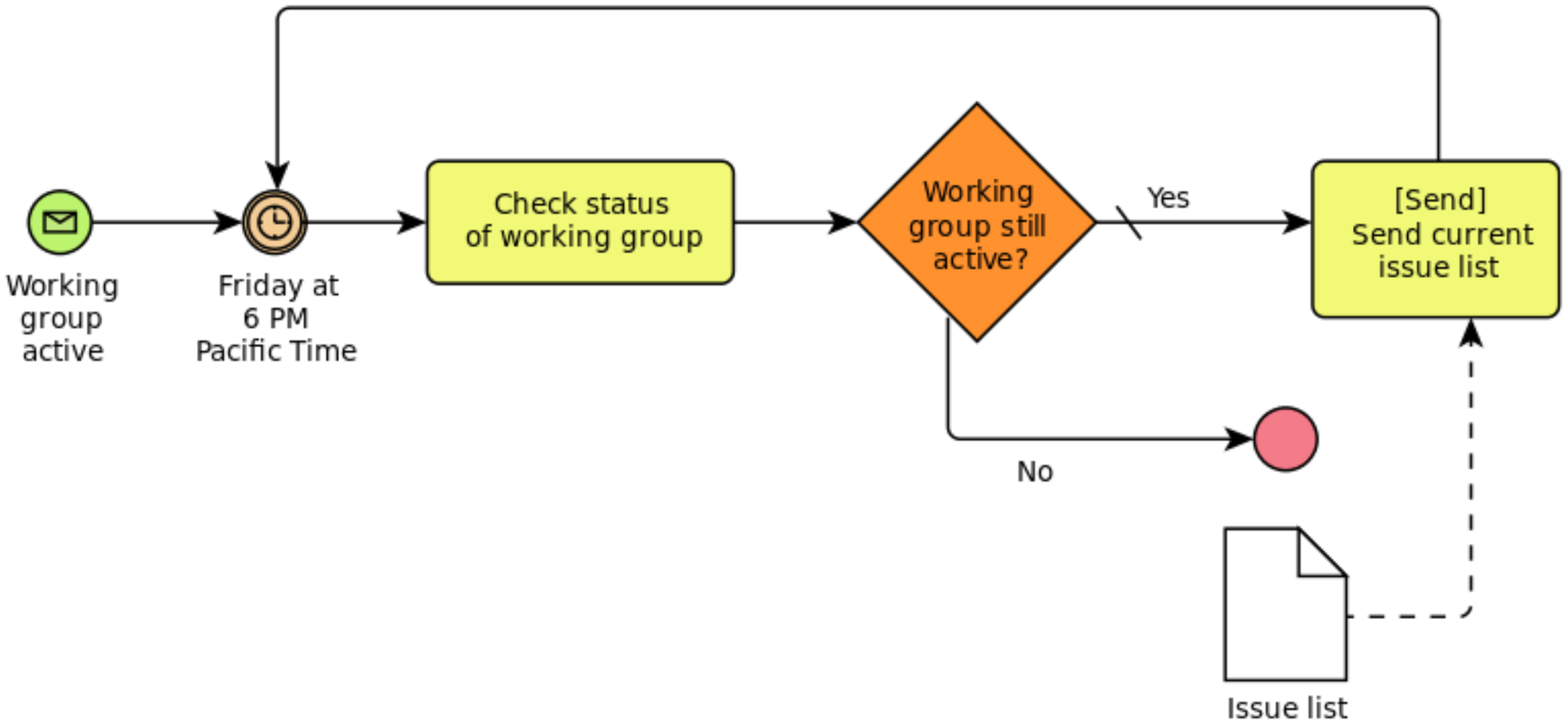
Lab 3:Business Process Modeling

Software Engineering Lab

lab(se);

Business Process Model and Notation

Business Process Model and Notation (BPMN) is a graphical representation for specifying business process in a business process model.



lab(se);

Elements of BPMN

1. Flow objects
   - Events, activitys, gateways
2. Connecting objects
   - Sequence flow, message flow, association
3. Swim lanes
   - Pool, lane
4. Artifacts
   - Data object, group, annotation

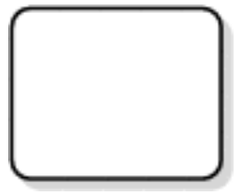
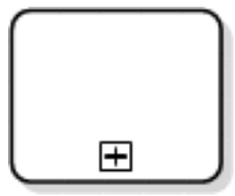
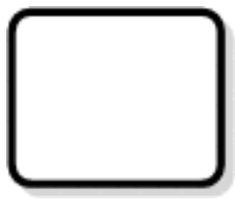
Reference : https://www.businessprocessincubator.com/bpmnquickguide-embed

Flow Objects - Event Basic

Events

	Start Event
	Intermediate Event
	End Event

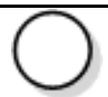
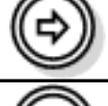
Tasks

	Task
	Sub Process
	Call Activity

Gateway

	Gateway

Flow Objects - Events

	None Start Event
	Interrupting -Message Start Event
	Interrupting - Timer Start Event
	Interrupting - Conditional Start Event
	Interrupting Signal Start Event
	Interrupting Multiple Start Event
	Interrupting -Parallel Multiple Start Event
	Interrupting -Escalation Start Event
	Interrupting -Error Start Event
	Interrupting -Compensation Start Event
	Catch - Link Intermediate Event
	Throw - Link Intermediate Event
	Boundary --Catch - Cancel Intermediate Event
	Cancel End Event
	Terminate End Event

lab(se);

Flow Objects - Tasks

	Abstract Task
	Service Task
	Send Task
	Receive Task
	User Task
	Manual Task
	Business Rule Task
	Script Task

lab(se);

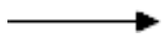
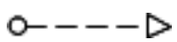
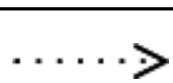
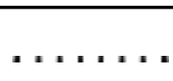
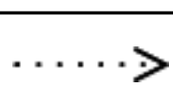
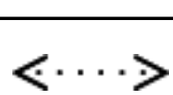
Flow Objects - Gateways

	Exclusive Gateway – without Marker
	Exclusive Gateway – with Marker
	Inclusive Gateway
	Parallel Gateway
	Complex Gateway
	Event-Based Gateway
	Event-Based Gateway to Start a Process
	Parallel Event-Based Gateway to Start a Process

Gateways do not perform any work or make decisions;
it is simply a visualization of divergence or convergence of flow

lab(se);

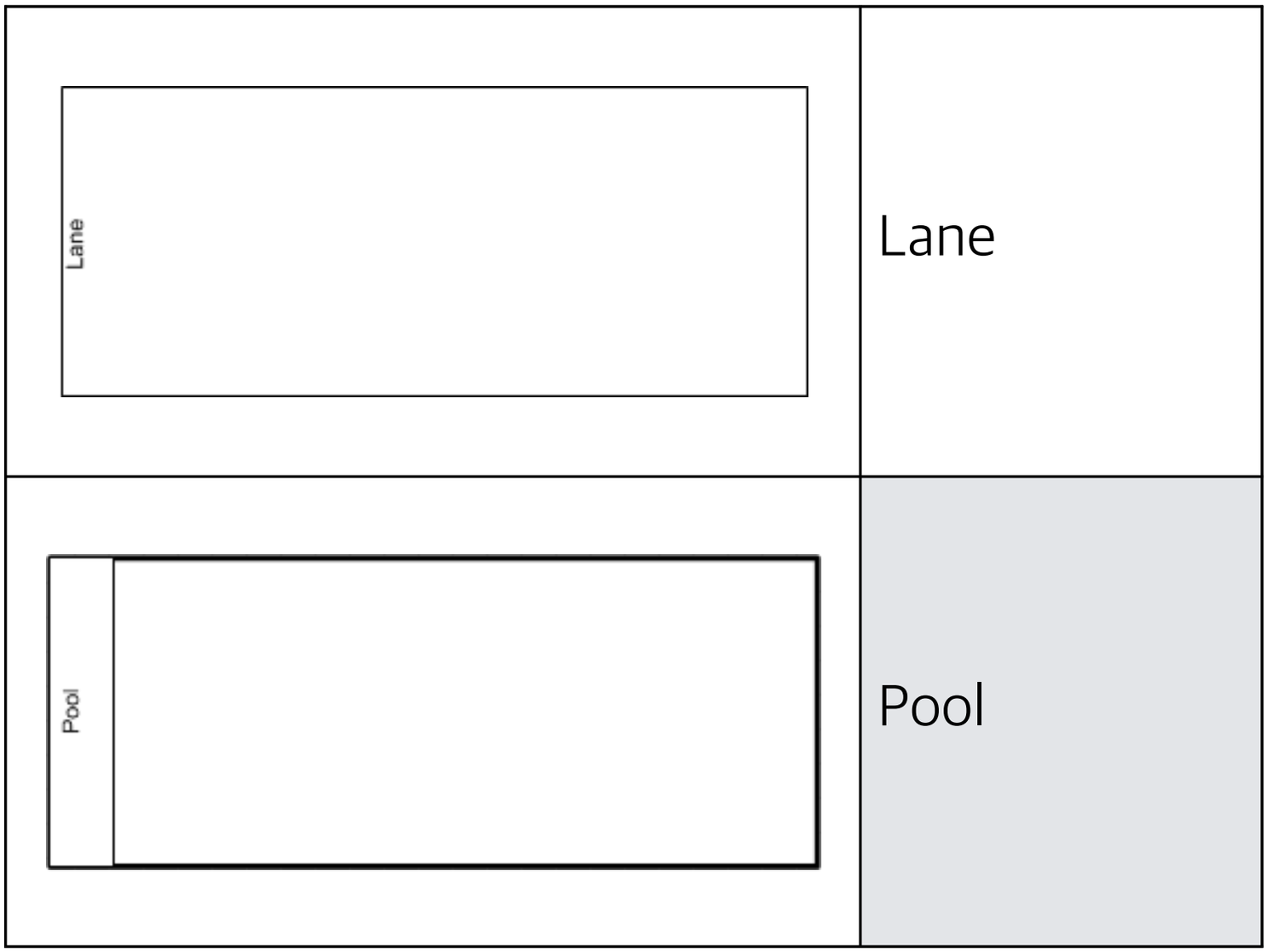
Connecting Objects

	Sequence Flow
	Conditional Sequence Flow
	Default Sequence Flow
	Message Flow
	Initiating Message Flow with Decorator
	Non-Initiating Message Flow with Decorator
	Data Association
	Association
	Directional Association
	Bi -Directional Association

Sequence flows coming out of diverging Gateways of type Exclusive, Inclusive and Complex using their associated conditions stated as outcomes

lab(se);

Swim Lanes



Name Pools using the Participant’s name

Name Lanes using the Category’s name

lab(se);

Artifects

	Data Object
	Data Object Collection
	Data Input
	Data Input Collection
	Data Output
	Data Output Collection
	Data Store
	Group
	Text Annotation

lab(se);

Basic Rules

Sequence Flows

- Are used to show the order that Activities will be performed in a Process
- They cannot cross Sub-Process boundaries
- They cannot cross Pool boundaries

Message Flows

- Are used to show communication between Participants
- They cannot connect objects that are within the same Pool

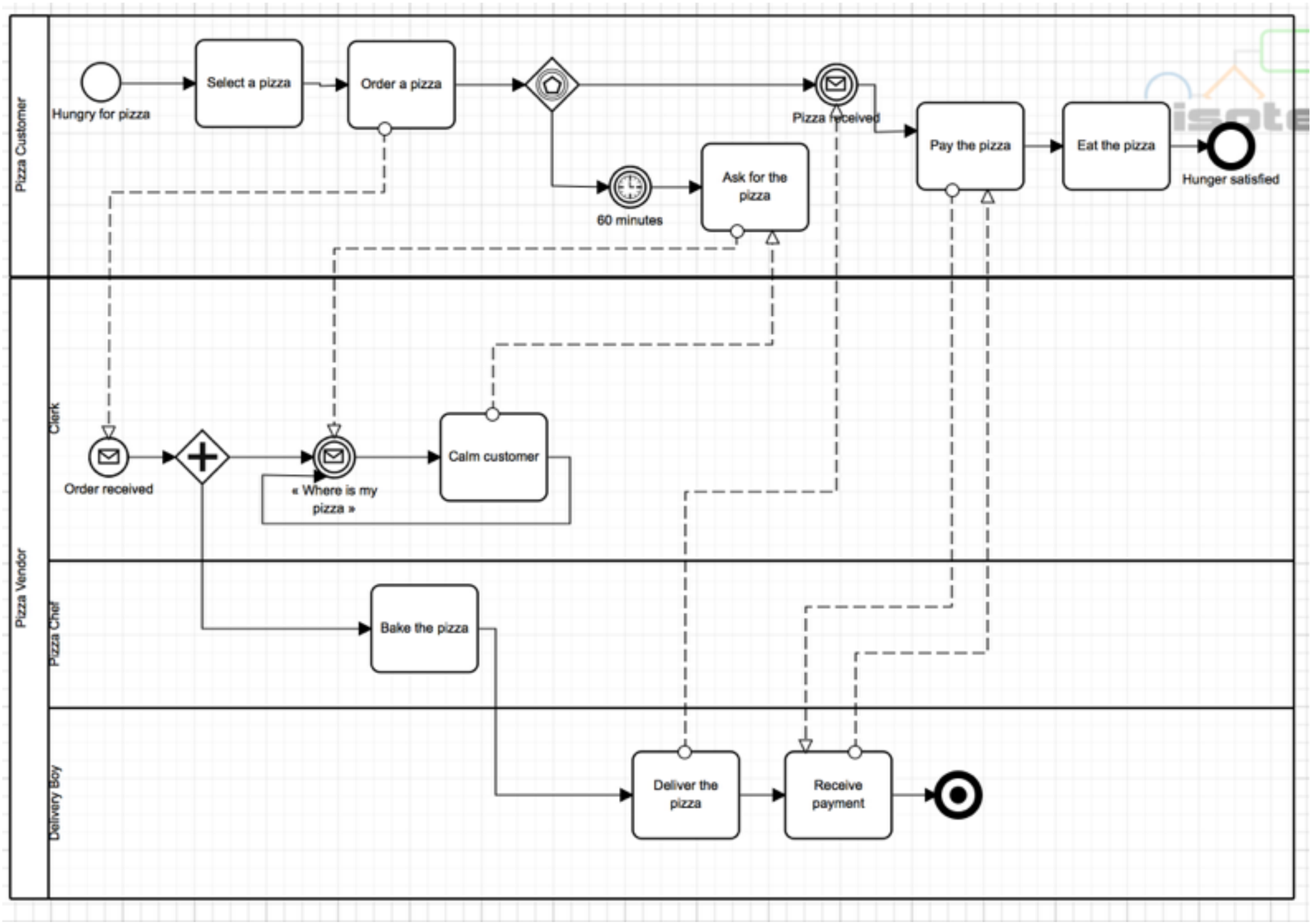
Boundary Events

- Must have at most one outgoing Sequence Flow
- Must not have any incoming Sequence Flow

Sub-Process

- A Start Event in a Sub-Process must be of type None

Example



Refernce : http://bit.ly/1moMm1T

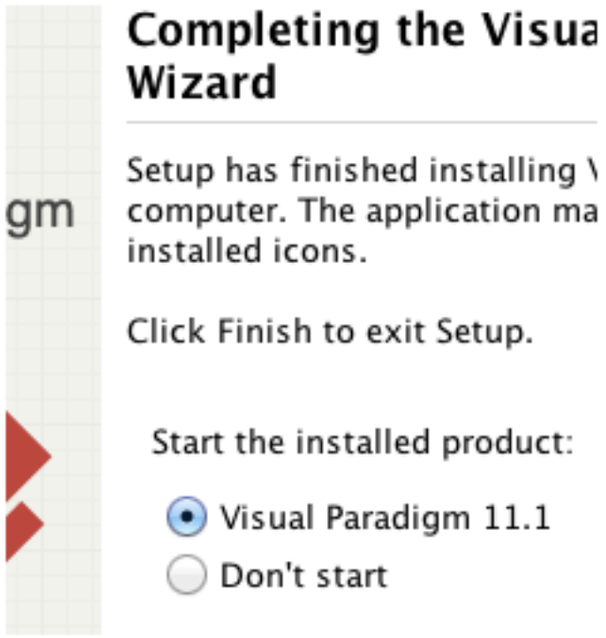
lab(se);

Visual Paradigm

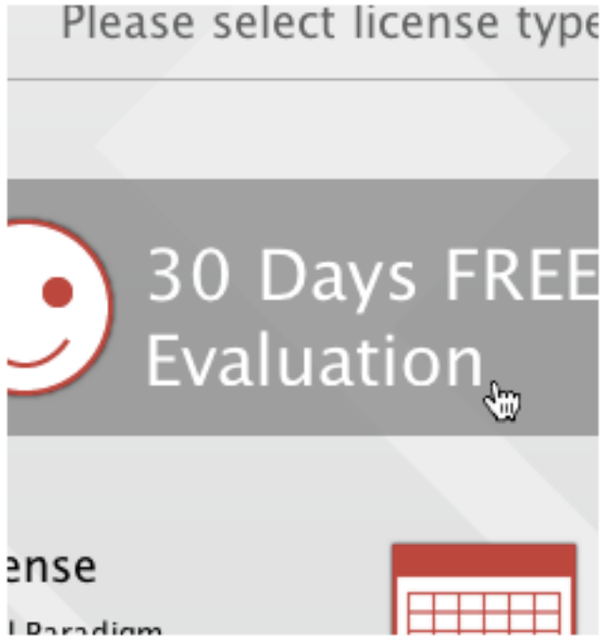
- Download Visual Paradigm

  http://www.visual-paradigm.com/download/

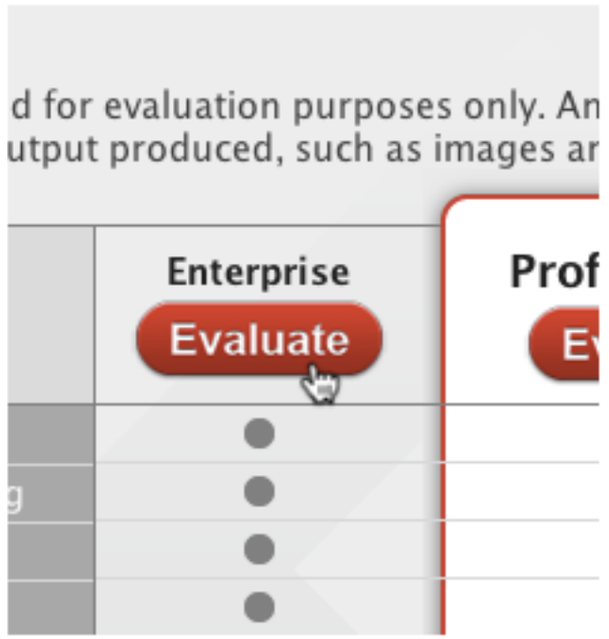
1. Run Visual Paradigm



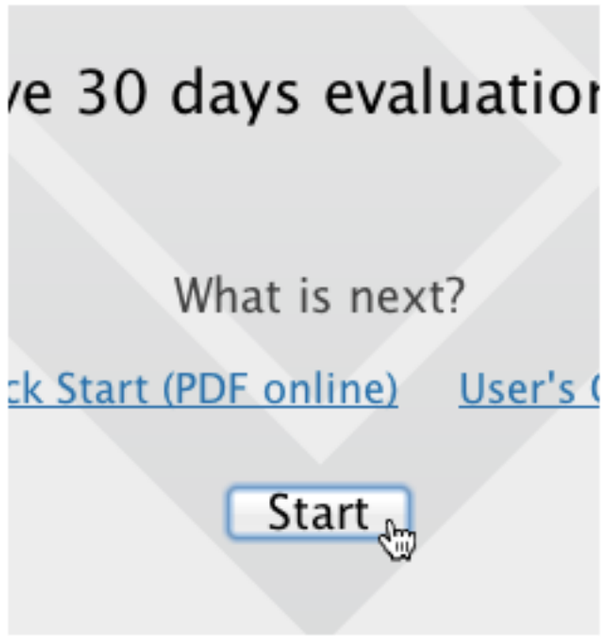
2. Select evaluate



3. Select edition



4. Click Start



- Try BPMN tutorial

  http://www.visual-paradigm.com/tutorials/?category=bpmodeling

lab(se);

Ex1 : Taxi BPM

- There are two users(Business entities), Taxi driver and Customer
- There are two options for payment. (credit card, cash)

Ex2 : Online-Shopping Process BPMN

- There are two users(Business entities), Shopping-Site and Customer
- The system has payment system.
- Customer can not buy sold-out product .
- The system deliver within a week.