Politecnico di Milano

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Workgroup and Workflow Management Systems-Written Test of Jun. 29^{th}, 2009

Family name _____ First name _____ Politecnico ID # _____

Master Course in _____

Please, fill in this sheet carefully. All answers must be provided on this sheet, which must be returned at the end of the test. No additional sheet will be considered[1].

Rules. The examination is passed if the student obtains at least 13 points out of a total of 25 points available for this test, and the grand total of obtained points, including those obtained with a presentation or a project, is greater than or equal to 18. Use of books, handbooks, lecture notes is not permitted: only the sheets provided by the teacher can be used. All the questions must be answered, at least partially: tests in which even one question has not been answered will not be evaluated. Duration of the test: 2 hours.

Exercises

(1) List and describe the main pros and cons when mapping an asynchronous exception, e.g. defined in the ChimeraExc language, inside an activity graph. Is there any possible effect on the performances of the entire WfMS?

space reserved to your answer

[1] **Remark**. Complete specifications whenever needed. Clarity and order will be taken into account for the evaluation.

(2) A lease is defined as a contract by which one party conveys land, property, services, etc., to another one for a specified time, usually in return for a periodic payment.

The Italian *Lease* financial company wants to enter the lease market and requires the implementation of an appropriate process for the request, acceptance and execution of a lease.

Two classes of clients can request a lease: person and company. The requests of a lease requires the client to fill in a form with some data (name, address, job, bank account, etc.), the good's data (name, price, etc.) and the seller's data. When a new request is received, one of the 3 Receive offices checks the request for completeness. If the form is complete, the request is sent to the Verification office, which is responsible for the verification of the financial situation of the client.

When the client is a person, the Verification office asks the client for his/her yearly income and checks into the *European Lease System* if he/she has other active loans. If the sum of all the active loans and the requested lease amount is greater than a quarter of the client's income, then the request is rejected. When, instead, the client is a company, the Verification office collects all the information from the local *Chamber of Commerce* and checks for other active leases. If the company holds more than 5 active leases, then the office checks if the total amount of money still owned by the company is less than its annual revenue: if this is the case, then the request is rejected. Otherwise, the request is approved and passed to company's Contract office which defines a lease plan to be approved by the client. If the client is not satisfied with the plan, he/she/it can decide to withdraw the request, to negotiate another plan with the Contract office or to modify the terms of his/her/its lease request.

When the lease plan is accepted by the client, the process proceeds by involving the Good Acquisition office, which is in charge of buying the good from the specified seller and stipulating an insurance by selecting the most suitable policy for the given good. Such a process is already specified and performed elsewhere. When both the good is bought and the insurance is done, the client can take possession of the good and the lease request is closed.

Provide a reasonable schema of the outlined process(es), according to one of the following modeling formalisms: WIDE model, Workflow Management Coalition model. Please, suitably model all the *pre-conditions* and *post-conditions* of every task.

(3) With respect to the process described in Exercise 2, provide an example of a reasonable local transaction (aka business transaction) performed by the VERIFICATION office. Also provide the definition of the compensating transaction (and its component critical and non-critical transactions).

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2

(4) With respect to the process described in Exercise 2, provide a reasonable example of data related to the *organizational* model.

space reserved to your answer

This part for use by the teacher, only.

Ex. 1	Ex. 2	Ex. 3	Ex. 4	**Total**