Politecnico di Milano

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Workgroup and Workflow Management Systems-Written Test of Jul. 2^{nd}, 2010

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) Describe some of the main advantages deriving from the usage of a temporal DBMS within a WfMS.

space reserved to your answer

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

(2) Due to the increasing number of urban traffic infractions, the Municipality of Como decides to better manage this problem. For each infraction, stored data relate to police officer or governmental officer name and identification code, vehicle plate number and type (brand and model), infraction description, date and time, place, and any possible controversy or settlement.

Actually, two different situations may occur: (1) the officer stops the transgressor asking his/her for the prescribed documents and giving, at that time, the fine notification; (2) the infraction is detected by monitoring systems such as urban cameras or speed radars.

In the first situation, if the fine is not paid either during the notification or before the normal expiration date, the activity fine reminder is started, containing the protocol number and the date in order to identify the vehicle owner and send him/her a new notification with all the initial data together with a new expiration date and the new amount which includes the legal interests. In the second situation, the activity fine reminder is directly started.

If, after the deadline, the fine still remains unpaid, the Municipality issues the vehicle stop and starts the auction. The vehicle auction begins with a starting price which has been provided by an expert evaluator and requires a minimum requested rise of 5%. Should the first auction fail, a second one begins with a 25% price reduction and a minimum requested rise of 10%. Should this second auction fail, too, the vehicle is sold to the highest bidder or, in case of no offer, the vehicle is sent to be scrapped. For each submitted bid, the complete bidder data (such as name, address, and so forth) are stored for historical purposes. At the end, the data about the fine are updated.

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 model of Exercise 2, consider the expected exception occurring when the car is stolen and the auction has not been started yet: describe this exception by a Chimera Exception trigger.

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2

(4) Map the concept of *precondition* for a task of the WIDE model onto the conceptual model provided by the Workflow Management Coalition.

space reserved to your answer

This part for use by the teacher, only.

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