Workgroup and Workflow Management Systems-Written Test of Feb. 2nd, 2015

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 the state diagram for a worktask instance according to the WIDE notation.

space reserved to your answer

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

(2) The Ele oil company wants to start a special discount campaign for its registered customers, enabling them to receive a 2% discount on night fuels (from 8:00 pm. to 6:00 a.m.) and a 4% discount on Sunday fuels (all day long). Discounts are not cumulative.

Ele sends out e-mail messages to the managers of every fuel station, requesting their interest in participating to the campaign. As soon an agreement is received from one station, Ele sends out to that fuel station the required advertising material.

Whenever a customer shows up at any fuel station, the *ATM* reads the customer's fidelity card, makes all the required checks (e.g., the station participates to the campaign, the customer is a registered one), and decides which kind of discount applies. At the end of the fuel procedure, the bill is issued, the payment is received, and all the data about the customer (Id, paid amount, gasoline amount, discount, fuel station) are stored.

Assume to have two external database tables, namely Station and Customer, providing all the needed information about fuel stations and customers, respectively.

Provide a reasonable schema of the outlined process(es), according to the modeling formalisms of WIDE. 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 exception that disables the customer from receiving future discounts if the amount of the currently purchased gasoline exceeds 100 liters.

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2

(4) Describe how the internal structure of a *supertask* can be suitably mapped to a local transaction.

space reserved to your answer

This part for use by the teacher, only.

Ex. 1	Ex. 2	Ex. 3	Ex. 4	**Total**
4	12	5	4	25