Politecnico di Milano

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Workgroup and Workflow Management Systems-Written Test of Jan. 28^{th}, 2013

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 main functionalities to be provided by a scheduler inside a Workflow Management System.

space reserved to your answer

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

(2) ATM (Automated Teller Machine) software module enables customer to withdraw money from automatic money dispensers. The customer inserts the bankcard into the ATM reader: the system allocates an ATM session identifier to enable errors to be tracked and synchronized between the ATM and the bank information system.

Next, the system reads the bankcard information from the customer's card: this operation authenticates the customer in order to enable banking operations or, otherwise, the system ends.

If everything is fine, the system displays the different service options that are currently available on the machine. When the customer selects the cash withdrawal option, the system prompts for the required amount to be chosen inside the set of standard withdrawal amounts, and it waits for the confirmation. Therefore, the system performs the assess to funds on hand and conducts the transaction modules in parallel in order to complete the customer's request. Finally, the system dispenses the requested amount to the customer and records a transaction log entry for the withdrawal.

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) For the process in Exercise 2, write a Chimera Exception exception that quits the process if the bankcard is signaled to have been stolen.

space reserved to your answer - exercise 3

space reserved to your answer - exercise 2

(4) Describe the concept of *control flow complexity*, as derived from the McCabe's cyclomatic complexity.

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