

Concordia University
Department of Computer Science
Final Examination

Course: COMP 354, Section BA **Date:** Wednesday, August 15th 2001
Instructor: Dr. Joey Paquet **Time:** 18h30-20h30

NAME

STUDENT ID

General instructions and information:

- The value of all questions is provided
- Duration is 120 minutes
- This is a closed book and closed notes examination
- Answer *all* questions
- Provide answers in the allocated space
- *Text written outside the allocated space will not be corrected*
- A page for scribbling has been added at the end of the examination
- Clarity of answer and language used will affect the grading
- Writing your student ID on top of each page will help me during the grading

Grades and time distribution

Section	Grading (%)	Estimated time to complete (min)
1. Cohesion and Coupling	15	15
2. Software Design	15	20
3. Software Testing	35	50
4. Software Maintenance	8	10
5. Software Project Management	7	10
6. Project Experience Discussions	20	15
Total	100 %	120 min

Section 2 : Software Design [15 points, 20 minutes]

[15 points] Using OOD and the UML notation, create a class diagram for the gas station described below. Provide attributes and operations for each class.

A gas station is to be set up for fully automated operation. Drivers swipe their banking card through a card reader that is connected to each gas pump, the card is verified by communication with a credit card company computer and a fuel limit is established according to the available balance in the client's account. The driver may then take the fuel required. When fuel delivery is completed and the pump hose is returned to its holder, the driver's credit card account is debited with the cost of the fuel taken. The credit card is returned after being debited with the cost of the fuel taken. If the credit card is invalid, the pump returns it before fuel is dispensed. A central control system can shut off any pump that ran out of gas or turn on/off all pumps at times defined by the user. It also collects information about all transactions and automatically shuts off all pumps and calls the fire department in case of fire (detected by heat sensors on each pump).

Answer to question 3B

Answer to question 3D

Section 6 : Project Experience Discussions [20 points, 15 minutes]

N.B.: This is not a whining session for expressing your possible discontent about the work of other teams. I want constructive and objective discussions not referring to any individual or particular team. Outright whining-related answers will not receive any grades at all.

- A. [10 points] Give two reasons why the project as a whole can fail to integrate. Give a concrete solution to the problem expressed.

Problem 1
Solution to Problem 1

Problem 2
Solution to Problem 2

- B. [5 points] Explain why the use of documentation standards has helped you to produce better documents for the project.

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- C. [5 points] Other than what you answered above, what did you learn from this project that you think is valuable experience for you in your career as a Computer Scientist? (Remember that you can learn from either positive or negative experiences.)

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