LaSalle College
Montréal

Midterm Evaluation: 30%

Course Identification

Name of program – Code	COMPUTER SCIENCE TECHNOLOGY– PROGRAMMING - 420.BP INFORMATION TECHNOLOGY – PROGRAMMER ANALYST - LEA.3Q
Course title:	**MULTI-TIER APPLICATIONS DEVELOPMENT**
Course number:	420-DA3-AS
Group:	All
Teacher's name:	Mohammad Esmaeilpour
Duration:	3 periods (150 minutes)
Semester:	Fall 2022

Student Identification

Name: _____ Student number: _____

Date: 27-OCT-2022 Result: _____

☐ I declare that this is an original work, and that I credited all content sources of which I am not the author (online and printed, images, graphics, films, etc.), in the required quotation and citation style for this work.

Instructions

- This exam lasts 3 periods.
- No break is allowed in this exam. Students are not allowed to exit the examination room before half of the allotted time has passed. Once a student has exited the classroom, he or she may not re-enter. (PIEA – Article 5.12.4)
- Students must be silent during the exam time.
- Plagiarism attempts at plagiarism or complicity in plagiarism during an evaluation worth 20% or more of the final grade results in a mark of zero (0) for that course. (PIEA – Article 5.18)
- Wait for the teacher's signal before turning this page.
- Permitted software: Microsoft Visual Studio 2022
- Permitted equipment: Computer with accessories such as keyboard and mouse.

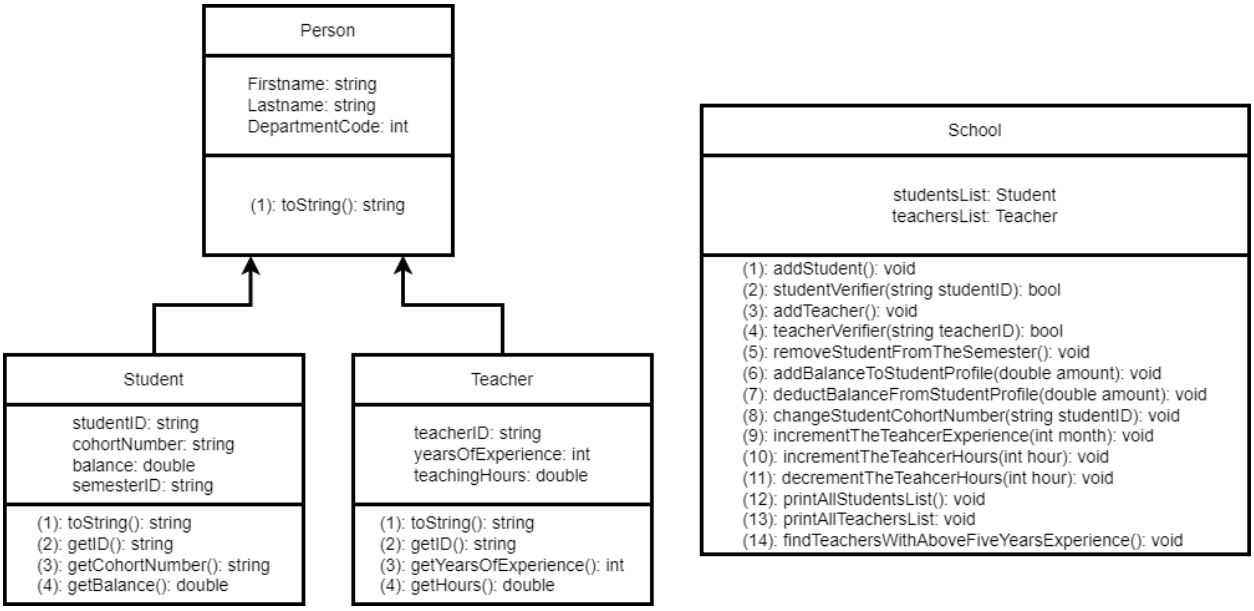
Mark Breakdowns

This evaluation is worth 100 points, distributed as follows:

Questions	Mark	Total
Question #1	75	75
Question #2	25	25
Total		100

Question #1 (75 Points):
Implement the following class diagram into the visual studio using C# programming language. Please see the following notes:

1. Set the project type to Console Application (.Net Framework).
2. For every entity (i.e., student and teacher) define two classes: one for implementing functionality and another for handling data structure (list with indexers). Overall, you should add six classes as of Person, School, Student, Students, Teacher, and Teachers.
3. All the ID variables should be exactly 6 characters.
4. Name variables should not exceed 35 characters.
5. Store the information into the List data structure and employ indexers.
6. Follow the object-oriented encapsulation policies for all the local variables.
7. Property methods (set and get) should be set in all the classes.
8. Additional methods are allowed to be added wherever needed but you cannot remove any.



Question #2 (25 Points):
Create one text file and name it “students.txt” then add a method to your above application (Question #1) and name it “saveStudentsInformationIntoFile()”. This method should write all the information about the students into the designated text file. Please see the following notes:

1. You need to import System.IO package into your project enabling the StreamWriter class.
2. Write every student object in one line and do not append instances.

Good Luck!
Mohammad Esmaeilpour (PhD in Artificial Intelligence)