LaSalle College
Montréal

Midterm Examination (30%)

Course Identification

Name of program – Code:	COMPUTER SCIENCE TECHNOLOGY - PROGAMMING (420.BP) INFORMATION TECHNOLOGY - PROGRAMMER-ANALYST (LEA.3Q)
Course title:	**WEB SERVER APPLICATIONS DEVELOPMENT I**
Course number:	420-DW3-AS
Group:	07250
Teacher's name:	Marc-Eric Boury
Duration:	3 periods (150 minutes)
Semester:	Winter 2023

Student Identification

Name: _____ Student number: _____

Date: _____ 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.

Standard of the Evaluated Competency

Statement of the evaluated competency – Code

Develop transactional Web applications – 00SU

Evaluated elements of the competency

1. Analyze the application development project.
2. Prepare the computer development environment.
3. Prepare the database.
4. Program the Web interface.
5. Program the server-side application logic.
6. Program the client-side application logic.
7. Control the quality of the application.

Instructions

- Permitted equipment: anything
- No break is allowed during 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/she may not re-enter (IPEL – Article 5.12.4).
- The teacher will not answer questions during the exam.
- Students must remain silent during the exam.
- It is the teacher's responsibility to identify language errors. If such errors are found, teachers may apply a penalty of up to 10% of the grade (IPEL – Article 5.7).
- Plagiarism, attempts at plagiarism or complicity in plagiarism during a summative evaluation results in a mark of zero (0). In the case of recidivism, in the same course or in another course, the student will be given a grade of '0' for the course in question. (IPEL – Article 5.16).
- Please write clearly.

Mark Breakdown

This evaluation is on 100 points, distributed as follows:

• Development of a transactional web application.	For a total of 100 points
TOTAL:	**100 POINTS**

Reminders:

- Create your own code. Copying from **any** source will not be tolerated.
- Do not forget to export your database and add the generated script to your project before submitting this evaluation

Context

You are tasked with creating a small web application to implement the four basic operations (create, read, update, delete) with movie entities and store the data in a database. The application must have two web pages: one containing a form for entity creation, and one containing a form for data display, edition and deletion.

Requirements

- The application must be written in PHP, HTML and optionally JavaScript and CSS.
- No framework or other external libraries can be used in the application.
- No code can be copied from any external source. Write your application from nothing.
- The application must make use of a MySQL Database to store and retrieve data from.
- Use parameterized statements in all SQL queries and statements.

Part 1: Setup (5%)

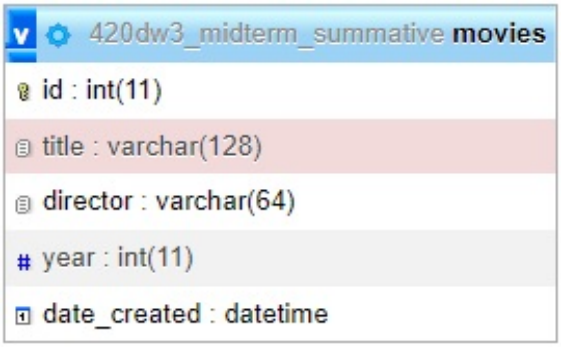
- Create a PHP project named “420DW3_Midterm_Summative”.
- Ensure that it is compatible with PHP 8.2.0 or earlier.

Part 2: Creation of the database (20%)

- Create a database named “420dw3_midterm_summative”.
- In that database, create a table named “movies” with the following columns:

Col. Name	Col. Type	Extra informations
id	INT	NOT NULL, PRIMARY KEY, AUTO-INCREMENT
title	VARCHAR(128)	NOT NULL
director	VARCHAR(64)	NOT NULL
year	INT	NOT NULL
date_created	DATETIME	NOT NULL, DEFAULT : CURRENT_TIMESTAMP()

Resulting in a table schema like this:



Insert the following test values in your created table:

id	title	director	year	date_created
(auto-increment)	The Godfather	Francis Ford Coppola	1972	(DB default)
(auto-increment)	Schindler's List	Steven Spielberg	1993	(DB default)
(auto-increment)	The Green Mile	Frank Darabont	1999	(DB default)

Part 3: Developing the Business Logic (20%)

- Create some type of request endpoint for the future form requests that analyzes the received requests and implement the four basic operations (create, read, update, delete) in interactions with the database.
- When connecting to the database, please use the default root/<empty> user and password combination.
- You **must** use the mysqli PHP extension to handle database interactions.
- Separate the code into fairly small, easily readable functions.

Part 4: Entity creation page

- Create a PHP web page constituted of an HTML form for the creation of entities.
- The form must use the “POST” HTTP method.
- Submitting the form must trigger the creation in the database of a record for an entity with the user input values and then redirection to the second page to display the created record.
- Validate in some form or way the input values server-side.

Part 5: Entity display, edition and deletion page

- Create a PHP web page constituted of an HTML form (or many) for the display, modification and deletion of entities.
- The form(s) must use the “POST” HTTP method.
- Make certain that any entity properties that should not be editable by the user are made unable to be so.
- Validate in some form or way the input values server-side.

Hint: the PHP page should be dynamic and fill the display form with values from a requested entity.

Part 6: Testing your application

- Using your completed and functional web pages, create a new car model with the following values: **title**: “Aliens”, **director**: “James Cameron”, **year**: “1986”.
- Verify the creation of the record in the database.
- Verify the correct display of the record in the redirected-to page.
- From the edition page, modify the record’s **title** to be “Alien: Resurrection” and its **director** to be “Jean-Pierre Jeunet”.
- Verify the modification in the database.
- Delete the modified record record from the database.
- Verify the deletion in the database.

Submission directives

1. Export your database into a SQL file. Make sure to check the following custom options (keep the other options as they are by default):
    a. Format-specific options:
        1. ***“Disable foreign key checks”*** is **ON**
    b. Object creation options:
        1. ***“Add CREATE DATABASE / USE statement”*** is **ON**
        2. ***“Add DROP TABLE / VIEW / PROCEDURE / FUNCTION / EVENT / TRIGGER statement”*** is **ON**
        3. ***“IF NOT EXISTS (less efficient as indexes will be generated during table creation)”*** is **ON**
2. Copy your exported SQL database script somewhere inside your code project directory.
3. Zip the entirety of the project directory (which should be named “420DW3_Midterm_Summative”) that contains your code, database script and any other front-end files. Keep the same name for the archive as the project directory.
4. Submit the zipped archive on LEA.

CORRECTION GRID

Part 1: Setup (5%)

Element of competency: Prepare the computer development environment (00SU.2).	
Performance criteria	**weight**
2.1 Proper installation of the Web development platform and the development database management system	/3
Element of competency: Control the quality of the application (00SU.7).	
Performance criteria	**weight**
7.5 Compliance with design documents	/2

Part 2: Creation of the database (20%)

Element of competency: Analyze the application development project (00SU.1).	
Performance criteria	**weight**
1.1 Accurate analysis of design documents	/5
Element of competency: Prepare the database (00SU.3).	
Performance criteria	**weight**
3.1 Suitable creation or adaptation of the database	/5
3.2 Proper insertion of initial or test data	/5
3.3 Compliance with the data model	/5

Part 3: Developing the business logic (20%)

Element of competency: Analyze the application development project (00SU.1).	
Performance criteria	**weight**
1.2 Proper identification of the tasks to be carried out	/5
Element of competency: Program the server-side application logic (00SU.5).	
Performance criteria	**weight**
5.1 Proper programming or integration of authentication and authorization mechanisms	/1
5.3 Appropriate choice of clauses, operators, commands or parameters in database queries	/5
5.4 Correct handling of database data	/5
5.5 Appropriate use of data exchange services	/2
Element of competency: Control the quality of the application (00SU.7).	
Performance criteria	**weight**
7.2 Thorough reviews of code and security	/2

Part 4: Entity creation page (15%)

Element of competency: Program the Web interface (00SU.4).	
Performance criteria	**weight**
4.1 Appropriate use of markup langage	/2
4.4 Suitable creation of Web forms	/3

Element of competency: Program the client-side application logic (00SU.6).	
Performance criteria	**weight**
6.3 Proper programming of interactions between the Web interface and the user	/5
6.5 Web forms in compliance with usability requirements	/5

Part 5: Entity display, edition and deletion page (20%)

Element of competency: Program the Web interface (00SU.4).	
Performance criteria	**weight**
4.1 Appropriate use of markup langage	/5
4.4 Suitable creation of Web forms	/5
Element of competency: Program the client-side application logic (00SU.6).	
Performance criteria	**weight**
6.3 Proper programming of interactions between the Web interface and the user	/5
6.5 Web forms in compliance with usability requirements	/5

Part 6: Testing your application (15%)

Element of competency: Analyze the application development project (00SU.1).	
Performance criteria	**weight**
1.1 Accurate analysis of design documents	/5
Element of competency: Control the quality of the application (00SU.7).	
Performance criteria	**weight**
7.2 Thorough reviews of code and security	/5
7.5 Compliance with design documents	/5

Submission (5%)

Element of competency: Control the quality of the application (00SU.7).	
Performance criteria	**weight**
7.5 Compliance with design documents	/5

CORRECTION GRID FOR LANGUAGE

**Points subtracted, concerning the penalty given for correction of the language, can be changed according to the preference of the team. Erase this sentence if you use this grid.*

Clear Communication	Clear Communication, **most of the time**	Vague Communication	Unclear Communication
- 0	- 0,5	- 1,5	- 2
(Word Choice) Use of precise and rich vocabulary	(Word Choice) Use of precise vocabulary	(Word Choice) Use of imprecise vocabulary	(Word Choice) Use of inappropriate vocabulary
- 0	- 0,5	- 1,5	- 2
(Format/Type of work) Respect of norms	(Format/Type of work) Respect of **most of the** norms	(Format/Type of work) Non-respect of the norms	(Format/Type of work) Inappropriate in relation to the required norms
- 0	- 0,5	- 1,5	- 2
(Linguistic Code) (≤2 mistakes / page)	(Linguistic Code) (3-7 mistakes/page)	(Linguistic Code) (8-10 mistakes/ page)	(Linguistic Code) (>10 mistakes/ page)
- 0	- 0,5 - 2.5	- 2.5 - 3.5	- 4