LaSalle College
Montréal

Final Evaluation: 60%

Course Identification

Name of program – Code:	COMPUTER SICNECE TECHNOLOGY – VIDEO GAME PROGRAMMING (420.BX)
Course title:	**INTERNET PROGRAMMING**
Course number:	420-PRM-AS
Group:	05860
Teacher's name:	ZOHREH MOEINI
Duration:	Extended
Semester:	FALL 2025

Student Identification

Name: _____ Student number: _____

Date: _____ Result: _____

Standard of the Evaluated Competency

Statement of the evaluated competency – Code

Develop native applications with a database – 00SS

Evaluated elements of the competency

- 1.Analyze the application development project.
- 2. Prepare the computer development environment
- 3. Prepare the database(s)
- 4. Create the graphical user interface
- 5. Program the application logic
- 6. Control the quality of the application

Instructions

- Read each question carefully and answer as specified
- Write your answers CLEARLY and CONCISELY
- Show all the steps to your work and number your answers and pages
- Class notes are not allowed, and students may not use the dictionary.
- 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 deduct up to 20% of the final 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).

Mark Breakdown

This evaluation is worth 100 points, distributed as follows:

• Core gameplay & correctness	For 25 points
• Enhancements (miss, streak, combo, modes, pause)	For 35 points
• Visual polish, audio, UX, and accessibility	For 25 points
• Code quality (organization, comments, performance)	For 15 points
	TOTAL: 100 Points

Final Project — Three.js Whack-a-Mole 3D+

Duration: 4 Weeks
Tech: HTML, CSS, JavaScript (ES Modules), Three.js (via import map)
Starter File: index.html

Learning Goals

By the end of this project, you will be able to:

- Create a 3D scene in Three.js with a camera, lights, and objects.
- Use **raycasting** to detect clicks and touches in 3D.
- Build a game loop to update animations and timing.
- Keep track of game data such as score, timer, and game modes.

What You Need to Submit

1. A **playable 3D game** (your improved Whack-a-Mole version).
2. Clean and commented **code** (no errors in the browser console).

What the Game Must Have

The base file already includes the camera, lights, ground, rings, mole, timer, and basic gameplay. You will add more features.

Keep and Improve

- Clicking or tapping should hit the mole using **raycasting**.
- Game lasts **30 seconds**.
- Show **score** and **best score** using localStorage.
- The game gets faster as time goes on.

Add These Features

1. **Misses and Streaks:** Count missed clicks and show streaks of hits.
2. **Combo Multiplier:** Give more points for long streaks (up to ×5).
3. **Two Modes:** Classic (normal) and Chaos (faster, sometimes two moles).
4. **Pause and Resume:** Pause the game with the P key or a button.

Suggested Work Plan (4 Weeks) (5 points)

Week 1 — Setup

- Open index.html in VS Code and run it with **Live Server**.
- Read the code and add comments to understand each part.
- Add HUD text for **Misses**, **Streak**, and **Combo**.
- Make the game count missed clicks and reset streaks.

Goal: The HUD updates correctly when you miss or hit the mole.

Week 2 — Scoring and Modes (5 points)

- Add streak and combo logic (e.g., combo = min(1 + streak / 5, 5)).
- Apply combo to increase the score.
- Add a mode selector for Classic and Chaos.
- In Chaos mode, make moles appear faster and sometimes spawn two.

Goal: Classic and Chaos modes both work and feel different.

Week 3 — Feedback and Mobile (5 points)

- Add glow or small animation when the mole is hit.
- Add sound effects for hit, miss, and game over.
- Make pause and resume work.
- Test on a phone or tablet.

Goal: The game feels smooth and fun with sound and visual effects.

Week 4 — Polish and Submit

- Check that text is easy to read and controls are clear.
- Add at least **two extra features** (for example: power-up, bomb, leaderboard, theme change).
- Make sure the game runs well and has no errors.
- Record a short video (max 90 seconds) showing your game.
- Create a ZIP file with your project.

Goal: A complete, polished, and working game ready for grading.

Submission

Zip your folder and name it:
lastname_firstname_whack3d.zip

Include:

- index.html
- JavaScript files
- assets/ folder

Github
Upload your ZIP file to the course website before the due date.

Element of competency: Develop transactional applications- 00SU	
Performance criteria	**weight**
4.1 Appropriate use of markup language (5 points) 4.2 Suitable creation and use of style sheets (5 points) 4.3 Proper integration of images (5 points) 4.4 Adaptation of the interface based on the display format and resolution (5 points)	/20
2.1 Proper customizing of the spreadsheet interface (6 points) 2.2 Appropriate choice of the type of table and graph to be produced (6 points) 2.3 Appropriate choice and use of search, logic and calculation functions (6 points) 2.4 Development of appropriate mathematical formulas (6 points) 2.5 Compliance with presentation standards (6 points)	/30
5.1 Appropriate choice of clauses, operators, commands or parameters in database queries(6 points) 5.2 Correct handling of database data (6 points) 5.3 Proper programming of the conversion of data into information (6 points)5.4 Proper application of internationalization techniques (6 points) 5.5 Precise application of secure programming techniques (6 points)	/30
6.1 Correct manipulation of DOM objects (10 points) 6.2 Proper programming of interactions between the Web interface and the user (5 points) 6.3 Proper programming and integration of animations and widgets (5 points)	/20
Total :	/100