**Midterm Exam: Tic-Tac-Toe in C++**

**Course:** Advanced Graphics  
**Instructor:** Ronaldo Felipe  
**Date:** 03-03-2025  
**Duration:** 2 hours  
**Total Points:** 100

**Instructions:**

* Write a C++ program that implements a **Tic-Tac-Toe game** for two players.
* Your program should allow two users to play against each other in a **3x3 grid**.
* Follow the requirements carefully.
* Comment your code where necessary.
* Submit your **zip file** with your project. **Name the zip file using your name and student ID** (e.g., JohnDoe\_12345.zip).

**Requirements:**

**1. Game Board Setup (20 points)**

* Use a **2D array** (or a similar data structure) to represent the **3x3 board**.
* Display the board before each move.

**2. Player Input and Turns (20 points)**

* Allow two players to **take turns** placing 'X' and 'O' on the board.
* Ensure that a move can **only be made in an empty spot**.

**3. Win Condition Check (20 points)**

* After each move, check if a player has **won** by completing a row, column, or diagonal.
* Announce the **winner** if a win condition is met.

**4. Draw Condition (10 points)**

* If the board is full and no player has won, announce a **draw**.

**5. Input Validation (10 points)**

* Prevent invalid inputs such as selecting an **already occupied cell** or entering an **out-of-range value**.

**6. Code Readability and Structure (20 points)**

* Use **functions** to organize your code (e.g., displayBoard(), checkWin(), makeMove()).
* Use **clear variable names and comments** for readability.

**Example Output (Simplified)**

1 | 2 | 3

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4 | 5 | 6

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7 | 8 | 9

Player X, enter your move (1-9):

**Submission:**

* **Submit a zip file** containing your project.
* **Name the zip file** as YourName\_StudentID.zip.
* **Late submissions will receive a -20% penalty.**

**Good luck!** 🚀