**Project Title**

**Tetris Reimagined: An Object-Oriented Approach**

**Group Members**

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**1. Introduction**

**• Background:**  
Tetris is a classic puzzle game that has served as a benchmark for understanding game logic, user interaction, and interface design. This project focuses on the implementation of Tetris using object-oriented programming (OOP) principles, offering a hands-on opportunity to apply inheritance, encapsulation, abstraction, and polymorphism.

**• Problem Statement:**  
Traditional Tetris implementations are often procedural. This project aims to restructure the game using OOP to showcase better organization, code reusability, and easier maintainability.

**• Objectives:**

* To develop a fully functional Tetris game in C++ using the Raylib graphics library.
* To apply key OOP concepts in structuring the game logic and design.
* To gain practical experience in game development and graphical programming.

**2. Scope of the Project**

**• Inclusions:**

* Game grid and block logic
* Tetromino shapes and movement
* Collision detection
* Line clearing and scoring system
* Basic user interface (Start, Pause, Game Over)

**• Exclusions:**

* Online multiplayer functionality
* AI for auto-playing
* Advanced animations or shaders

**3. Project Description**

**• Overview:**  
The project involves creating a playable version of Tetris using C++ and the Raylib graphics library. The design will use classes for different game components such as Game, Blocks, Grid, and UI, demonstrating OOP concepts like inheritance, encapsulation, and polymorphism.

**• Technical Requirements:**

* C++
* Raylib Library
* Visual Studio Code

**• Project Phases:**

1. **Research:** Study Tetris mechanics and review Raylib documentation.
2. **Planning:** Design game components and class structure.
3. **Design:** Create wireframes and class diagrams.
4. **Implementation:** Code game features incrementally.
5. **Testing:** Playtest for bugs and improve performance.
6. **Finalization:** Clean code, prepare report and presentation.

**4. Methodology**

**• Approach:**  
We will follow an agile, iterative development cycle. Tasks will be broken into sprints, allowing frequent testing and refinement.

**5. Expected Outcomes**

**• Deliverables:**

* A playable Tetris game (executable file)
* Source code with proper documentation
* A short report explaining project structure and OOP usage
* User instructions for gameplay

**• Relevance:**  
This project highlights core OOP topics like basic game logic, data handling through class structures, and user interaction, making it an ideal educational exercise.

**6. Resources Needed**

**• Software:**

* Visual Studio Code / Visual Studio
* Raylib Library
* Git and GitHub

**• Other Resources:**

* Online tutorials on Raylib
* GitHub