# Project Proposal

**Project Title:** Multiplayer Raylib Pong with ENet Networking

**Group Members:**

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* • Kabeer Javed (Student ID: 24K-1023)

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## 1. Introduction

**Background:** This project focuses on building a multiplayer version of the classic Pong game using Raylib and ENet. The aim is to explore core OOP concepts while implementing real-time communication and graphical interfaces.

**Problem Statement:** Ensuring synchronized gameplay across different devices with varying resolutions and screen sizes in a real-time environment. Also managing low-latency network communication.

**Objectives:**

* • Develop a multiplayer Pong game using Raylib.
* • Implement efficient real-time networking using ENet.
* • Ensure smooth interpolation and consistent gameplay across different resolutions.

## 2. Scope of the Project

**Inclusions:**

* • Multiplayer gameplay
* • Custom interpolation logic for ball and paddle synchronization
* • Theme switching and GUI menus

**Exclusions:**

* • Real AI opponent
* • Audio features
* • Advanced scoring systems or persistent profiles

## 3. Project Description

**Overview:** This game applies object-oriented programming concepts through classes like Ball, Paddle, Theme etc . Raylib is used for visuals and controls, while ENet ensures real-time multiplayer support.

**Technical Requirements:**

* • Raylib for graphics
* • ENet for networking
* • Visual Studio / VS Code for development
* • C++ compiler toolchain

**Project Phases:**

* • Learning Phase: DeepSeek ENet guide and YouTube tutorials for Raylib
* • Planning & Design: Defined class structure and packet format
* • Development: Implemented game logic and networking
* • Testing: Screen resolution sync and interpolation validation

## 4. Methodology

**Approach:** We followed a phased approach. First, a 14-day ENet study from DeepSeek, then a 10-day focused implementation sprint for all networking. Raylib was learned from YouTube and applied to game rendering and logic.

**Team Responsibilities:**

* • Shamveel Khan: Game loop, ENet networking, custom interpolation, and sync logic.
* • Muzamil Suleman: GUI design, interface elements, and menus.
* • Kabeer Javed: Theme assets organization and theme management system.

## 5. Expected Outcomes

**Deliverables:**

* • A fully functional multiplayer Pong game
* • A short project report and visual demonstrations
* • Basic usage instructions and documentation

**Relevance:** It demonstrates OOP, real-time synchronization, graphics rendering, and efficient resource management using C++ and third-party libraries.

## 6. Resources Needed

**Software:**

* • Microsoft Visual Studio or VS Code
* • Raylib and ENet libraries
* • C++ toolchain and debugger

**Other Resources:**

* • DeepSeek’s ENet crash course
* • YouTube tutorials for Raylib
* • Support from ChatGPT