Project Proposal

Project Title: Multiplayer Raylib Pong with ENet Networking

Group Members:

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- • Muzamil Suleman (Student ID: 24K-0700)
- • 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