Project Plan: Cross-Platform

Ping Pong game (Windows & Ubuntu)

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# Project Overview

This project aims to develop a multiplayer Ping Pong game in Python, allowing two players to connect from different operating system (Windows and Linux) and play in real-time. The game will use a client-server architecture to facilitate communication between players and connecting to server.

# Technology Stack

Programming Language: Python.

Game Engine: python for game mechanics and rendering.

Networking: Python socket library or web sockets for real-time communication.

Cross-Platform compatibility: Windows and Linux support.

# Project Architecture

This project will be developed using a client-server architecture consisting of the following components:

Server: Handles client connections manage game state and synchronization by using the same Ip address or create a host-server what link two users.

Client: Renders the game UI using pygame. Handles user input and sends data to the server. Receive s updates from the server and updates the game state.

# Development Phase

Phase 1: Local Game Development

Set up project environment on both Windows and Linux.

Implement the basic game mechanics:

Paddle movement.

Ball physic and collision detection.

Display score and game UI using pygame.

Phase 2: Network Implementation

Develop a server to handle multiple client connections.

Implement real-time position synchronization using sockets.

Test communication between Windows and Linux.

Phase 3: Optimization and Bug fixing

Improve network latency and synchronization.

Fix cross-platform compatibility issue.

Ensure smooth gameplay experience.

Phase 4: Deployment and Documentation

Write installation and setup instructions for both operating system.

Upload the project to GitHub with a detailed README file.

Provide troubleshooting steps for common issue.

# Game Feature

Two player mode over the network.

Paddle control via keyboard Player 1(using A/D) and Player 2 (using left/right).

Add a sound of ball collisions.

Score tracking and display.

# Testing plan

Local testing on each OS individually.

Network testing between Windows and Linux at local network.

Performance testing for delay and lag.

Create another server (At different operation system) what was connecting both player on it, test performance for delay and lags.

# Tools

Python (version 3.x or lates).

Pygame.

Socket/WebSocket library for networking.

# Potential Challenges

Network latency issue.

Synchronization of game state.

Support different operation system (OS).

Create a Host what connecting players between each other.

Change control by using a mouse (maybe need to change the language to C++ or other).

# Conclusion

By following this plan, the goal is to create a cross-platform Ping-Pong game that offers a seamless experience for players on Windows ana Ubuntu. The project will be developed iteratively with through testing to ensure reliability and performance.

If this project was at final phase, already testing and ready for use, trying to do the chess game using other coding language.

# References