**National University of Computer & Emerging Sciences**

**Karachi Campus**



**TITLE OF PROJECT**

**Project Proposal**

**Object-Oriented Programming**

**Section: D**

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**Project Proposal for Sokoban Game Development**

**Introduction**

This proposal outlines the development of a Sokoban game, a classic puzzle game where the player pushes crates to designated locations in a warehouse, challenging their strategic planning and problem-solving skills. Our version will be developed using Object-Oriented Programming (OOP) principles in C++, offering a modern take on this timeless game.

**Existing System**

Currently, there are several iterations of the Sokoban game available across different platforms, ranging from simple, text-based versions to more graphically advanced editions. Most of these versions adhere to the original gameplay mechanics without significant innovation in game design or features, primarily focusing on single-player experiences.

**Problem Statement**

Our analysis of current Sokoban game highlighted key areas needing improvement:

* Limited puzzle variety with no capability for players to create and share their own levels.
* Lack of modern graphical enhancements and interactive elements that could improve player engagement and immersion.
* Absence of a scoring system to track progress and achievements.
* No functionality to pause or save game progress, limiting flexibility in gameplay.

**Proposed Solution**

**Level Editor:** A feature enabling players to design, share, and explore custom levels, thus broadening the game's appeal and longevity. This will also include a feature to display player level scores and an overall high score in the game, fostering a competitive environment.

**Enhanced Graphics:** We aim to integrate visually compelling graphics to elevate the gaming experience. The graphical user interface (GUI) will be meticulously developed to ensure an intuitive and captivating player experience.

**Score Tracking:** Introduction of a scoring system to record player achievements, level scores, and overall high scores, enhancing motivation and replay ability.

**Game Pause and Save Feature:** Implementing the ability to pause and save game progress, allowing players greater control over their gaming sessions and enabling them to engage with the game at their convenience.

**Salient Features**

* Dedicated single-player gameplay.
* An extensive collection of puzzles with varying levels of difficulty, ensuring a challenging experience for players of all skill levels.
* A custom level editor for unlimited creative possibilities, encouraging community involvement including game pause and save ability.
* High-quality, dynamic graphics designed to create an immersive puzzle-solving experience.
* Progress tracking motivates players by visualizing their achievements.

**Tools & Technologies**

**Programming Language:** C++, chosen for its efficiency and control over system resources, ideal for developing high-performance games.

**Framework:** Visual Studio Code utilized for its comprehensive support for graphics rendering and event handling. The focus will be on leveraging VS Code for creating a sophisticated graphical interface.

**Operating System:** The development and testing phases will address both Windows and Linux platforms, ensuring the game runs smoothly across both.

By concentrating on graphical enhancements and a robust level editor within a single-player framework, this project seeks to rejuvenate the Sokoban genre, offering a visually rich and mentally stimulating game that appeals to puzzle enthusiasts worldwide.