1. Objectives

- Continue working on the new R&D requirements for the project.

- Investigate and implement the installation and configuration of SDL libraries.

- Present the main tasks during the internship to the faculty supervisor during an industrial visit.

- Compare and study the differences between SFML, GLFW + GLAD, and SDL libraries to determine their suitability for different development scenarios.

- Transition the project codebase from GLFW and GLAD libraries to SDL libraries.

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2. Activities

- **Installation and Configuration:**

  - Successfully installed SDL libraries using the vcpkg method.

  - Updated project properties and linked necessary libraries (ImGui, SDL, Boost.Signals2).

  - Drafted an installation and linking manual for ImGui, Boost.Signals2, and SDL libraries.

  - Resolved configuration issues involving missing headers and libraries for SDL2, ImGui, and OpenGL.

  - Verified environment variables, include directories, and linker settings in Visual Studio.

- **Research and Presentation:**

  - Surveyed the installation methods for SDL libraries and studied their features compared to SFML and GLFW + GLAD libraries.

  - Delivered a presentation to the faculty supervisor during the industrial visit, highlighting key tasks and showcasing the project UI via Qt.

- **Code Migration and Testing:**

o Transitioned the project codebase from GLFW and GLAD libraries to SDL libraries.

o Addressed issues with GLEW and confirmed successful integration of the OpenGL Extension Wrangler Library.

o Cleaned, rebuilt, and tested the transformed code to ensure normal functionality.

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3. Achievements

- Installed and configured SDL libraries without errors using the vcpkg method.

- Successfully resolved various library configuration issues, including ImGui SDL2 bindings and missing headers.

- Updated and tested the codebase with SDL libraries, achieving normal operation post-migration.

- Enhanced understanding of the comparative strengths and weaknesses of SFML, GLFW + GLAD, and SDL libraries.

- Created a detailed installation and linking manual with added notes on troubleshooting common issues.

- Delivered a successful presentation demonstrating the progress and deliverables of the internship.

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4. Problems & Solutions

1. **Problem:** Missing headers and libraries for SDL2, ImGui, and OpenGL.

   o **Solution:** Verified and updated include and library directories in Visual Studio; reinstalled packages via vcpkg with all necessary features.

2. **Problem:** ImGui SDL2 implementation files were not initially found.

   o **Solution:** Ensured installation of the ImGui package with SDL2 and OpenGL bindings via vcpkg.

3. **Problem:** Issues with GLEW during the project migration.

o **Solution:** Checked and confirmed GLEW installation, verified project properties, and successfully linked libraries before rebuilding the solution.

4. **Problem:** Persistent errors during testing after initial library linking.

o **Solution:** Cleaned the solution, updated project dependencies, verified installation directories, and manually resolved missing file issues.