**Title:** Instructions for Compiling and Running the CS-330 Final Project

**1. Project Overview**  
This application is a 3D scene rendering project developed in C++ using OpenGL. The project includes dynamic material management, with materials stored in a SQLite database. The SceneManager class handles rendering, textures, and materials.

**2. System Requirements**

* Windows 10 or later
* Visual Studio 2022 or later (with C++ Desktop Development workload installed)
* OpenGL libraries (usually included via Visual Studio NuGet packages or system drivers)
* SQLite3 library (header and .lib files)
* GLM library for math operations
* stb\_image.h for texture loading

**3. Project Setup**

1. Clone or copy the project folder to a local directory (e.g., C:\Users\YourName\Projects\CS330\_Final).
2. Ensure the following directories exist inside the project:
   * Source (contains all .cpp and .h files)
   * sqlite (contains materials.db)
   * Textures (contains all image files used for textures)

**4. Adding Dependencies**

1. **GLM:** Include the GLM headers in your project include directories:
   * Example: C:\Users\YourName\Projects\CS330\_Final\Dependencies\glm
2. **stb\_image:** Make sure stb\_image.h is in your include path or Source folder.
3. **SQLite3:**
   * Add sqlite3.h to your include directories.
   * Link against sqlite3.lib in your project settings (Project Properties → Linker → Input → Additional Dependencies).

**5. Building the Project in Visual Studio**

1. Open 7-1\_FinalProjectMilestones.sln in Visual Studio.
2. Ensure that SceneManager.cpp and all other .cpp files are included in the project.
3. Set the build configuration to Debug or Release.
4. Build the solution: **Build → Rebuild Solution**.
5. Fix any compiler or linker errors (e.g., missing function definitions or libraries).

**6. Running the Application**

1. After successful build, press **F5** or **Debug → Start Debugging** to run the application.
2. The 3D scene should appear, and materials will be loaded automatically from materials.db.
3. The console window will display debug information about loaded materials.