C++ Mini Projects for Practice

Beginner Projects

1. To-Do List CLI - Learn: File I/O, classes. Extend with sorting and categories.

2. Simple Calculator - Learn: Function pointers, operator overloading.

3. Tic-Tac-Toe - Learn: Arrays, game logic. Extend with AI using Minimax.

4. Bank Management System - Learn: Classes, file I/O.

5. Address Book - Learn: STL (vector, map).

Intermediate Projects

1. Library Management System - Learn: OOP, file handling. Extend with design patterns.

2. Inventory Management - Learn: Composite pattern, JSON/CSV serialization.

3. Chatbot (Text-Based) - Learn: Strategy + Chain of Responsibility.

4. Quiz Game Engine - Learn: Polymorphism, Factory, Observer.

5. Virtual ATM Machine - Learn: Menu-based navigation, state management.

Advanced Projects

1. Turn-Based RPG Battle Engine - Learn: State, Strategy, Factory, Command.

2. File System Simulation - Learn: Composite, Iterator, Visitor, Command.

3. Shopping Cart System - Learn: Composite, Strategy, Decorator, Observer.

4. Mini Shell (Command Line Interpreter) - Learn: Process control, parsing.

5. Multithreaded Download Manager - Learn: Threads, mutex, producer-consumer pattern.