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Creating a C++ Dynamic Link Library (DLL) and a Client Application#### IntroductionThis article will guide you through the process of creating a C++ dynamic link library (DLL) using Visual Studio 2022 and a client application to call functions from the DLL. The DLL will be used to generate a Fibonacci sequence, given two initial values.### Creating the DLL1. **Open the Solution Explorer**: In Visual Studio 2022, open the "Solution Explorer" by pressing `Ctrl + Alt + L`.2. **Create a New Project**: Right-click on the solution folder and select "New" > "Project...". Choose "Visual C++" under "C++" and then "Dynamic Link Library (.dll)". * **DLL Demo**3. **Add Header File**: Right-click on the DLL project, then select "Add" > "New Item..." and choose "Header File (.h)" as the item type. * **MathLibrary.h** ``` extern "C" MATHLIBRARY_API void fibonacci_init(const unsigned long long a, const unsigned long long b); extern "C" MATHLIBRARY_API bool fibonacci_next(); extern "C" MATHLIBRARY_API unsigned long long fibonacci_current(); extern "C" MATHLIBRARY_API unsigned fibonacci_index(); ``` * **Preprocessor Directive** `MATHLIBRARY_EXPORTS` 4. **Add Implementation File**: Right-click on the DLL project, then select "Add" > "New Item..." and choose "Source File (.cpp)" as the item type. * **MathLibrary.cpp** ``` static unsigned long long previous_; static unsigned long long current_; static unsigned index_; void fibonacci_init(const unsigned long long a, const unsigned long long b) { index_ = 0; current_ = a; previous_ = b; } bool fibonacci_next() { if ((ULLONG_MAX - previous_ < current_) || (UINT_MAX == index_)) { return false; } if (index_ > 0) { previous_ += current_; } std::swap(current_, previous_); ++index_; return true; } unsigned long long fibonacci_current() { return current_; } unsigned fibonacci_index() { return index_; } ```5. **Compile the DLL**: Right-click on the solution folder and select "Build" > "Rebuild Solution". The output will be saved in the "Debug" file folder. * **lib and dll files** `MathLibrary.lib` `MathLibrary.dll`### Creating a Client Application1. **Open the Solution Explorer**: In Visual Studio 2022, open the "Solution Explorer" by pressing `Ctrl + Alt + L`.2. **Create a New Project**: Right-click on the solution folder and select "New" > "Project...". Choose "Visual C++" under "C++" and then "Win32 Console Application (.exe)". * **ClientApp**3. **Add Header File**: Right-click on the client project, then select "Add" > "New Item..." and choose "Header File (.h)" as the item type. * **Client.h** DLL ``` #include "MathLibrary.h" ```4. **Modify Main Function**: In the `Main` function, include the necessary declarations and calls: ```cpp#include using namespace std;int main() { MathLibrary::fibonacci_init(1, 2); while (MathLibrary::fibonacci_next()) { cout