Unary operator overloading

Question 1 Write a C++ program to overload the unary minus operator (-) for a **Vector**class, which has two private data members: **x** and **y**. The overloaded unary minus operator should return a new **Vector** object with the negated **x** and **y** values.

Question 2 Create a **String** class in C++ and overload the unary not operator (!) to check if the string is empty. The overloaded unary not operator should return **true** if the string is empty and **false** otherwise.

Question 3 Design a **Fraction** class in C++ and overload the unary prefix increment operator (++) to increment the fraction by 1. The overloaded unary prefix increment operator should update the numerator and denominator accordingly.

Question 4 Write a C++ program to overload the unary postfix decrement operator (--) for a **Time** class, which has three private data members: **hours**, **minutes**, and **seconds**. The overloaded unary postfix decrement operator should decrement the time by 1 second and return the original time.

Question 5 Create a **Matrix** class in C++ and overload the unary dereference operator (*) to return a reference to the matrix. The overloaded unary dereference operator should allow for matrix operations like **(*matrix)[i][j]**.

Binary operator overloading

Question 1 Write a C++ program to overload the binary addition operator (+) for a **Complex** class, which has two private data members: **real** and **imag**. The overloaded binary addition operator should return a new **Complex** object that represents the sum of two complex numbers.

Question 2 Create a **Vector** class in C++ and overload the binary multiplication operator (*) to perform scalar multiplication. The overloaded binary multiplication operator should return a new **Vector** object that represents the product of a vector and a scalar value.

Question 3 Design a **Matrix** class in C++ and overload the binary multiplication operator (*) to perform matrix multiplication. The overloaded binary multiplication operator should return a new **Matrix** object that represents the product of two matrices.

Question 4 Write a C++ program to overload the binary subtraction operator (-) for a **Date** class, which has three private data members: **year**, **month**, and **day**. The overloaded binary subtraction operator should return an **int** value that represents the number of days between two dates.

Question 5 Create a **String** class in C++ and overload the binary concatenation operator (+) to concatenate two strings. The overloaded binary concatenation operator should return a new **String** object that represents the concatenation of two strings.