CPP Problem Design Example

Subject: Prime Number

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Main testing concept: Class 設計

Basics	Functions
□ C++ BASICS	□ SEPARATE COMPILATION AND NAMESPACES
□ FLOW OF CONTROL	□ STREAMS AND FILE I/O
□ FUNCTION BASICS	□ RECURSION
□ PARAMETERS AND OVERLOADING	□ INHERITANCE
□ ARRAYS	□ POLYMORPHISM AND VIRTUAL FUNCTIONS
□ STRUCTURES AND CLASSES	□ TEMPLATES
■ CONSTRUCTORS AND OTHER TOOLS	□ LINKED DATA STRUCTURES
□ OPERATOR OVERLOADING, FRIENDS,AND REFERENCES	□ EXCEPTION HANDLING
	□ STANDARD TEMPLATE LIBRARY
□ STRINGS	□ PATTERNS AND UML
□ POINTERS AND DYNAMIC ARRAYS	

Description: Define a class named PrimeNumber that stores a prime number. The default constructor should set the prime number to 1. Add another constructor that allows the caller to set the prime number. Also, add a function to get the prime number. Finally, overload the prefix and postfix ++ and -- operators so they return a PrimeNumber object that is the next largest prime number (for ++) and the next smallest prime number (for --). For example, if the object's prime number is set to 13, then invoking ++ should return a PrimeNumber object whose prime number is set to 17, invoking -- should return a PrimeNumber object whose prime number is set to 11.

Please use the following main program to test for the class.

Input:

No Input for this Problem, but we will change different main function to test your Code.

Output:

According main function output.

Sample Input / Output：

	Sample Input	Sample Output
第一組測資與輸出	sample.in	Sample.out
…		

■易，僅需用到基礎程式設計語法與結構

□中，需用到多項程式設計語法與結構

□難，需用到多項程式結構或較為複雜之資料型態或結構

Expected solving time:

15 分鐘

Other notes:

When PrimeNumber equal to 2, --operator should return 1. In the testing data, PrimeNumber won’t be less than 2.