**10802 CPP Final Exam**

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| **Contributor︰Yun** |
| **Subject：Big Numbers Remainder** |
| **Main testing concept：Strings**   |  |  | | --- | --- | | **Basics** | **Functions** | | ■ C++ BASICS  ■ FLOW OF CONTROL  ■ FUNCTION BASICS  □ PARAMETERS AND OVERLOADING  □ ARRAYS  □ STRUCTURES AND CLASSES  □ CONSTRUCTORS AND OTHER TOOLS  □ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES  ■ STRINGS  □ POINTERS AND DYNAMIC ARRAYS | □ SEPARATE COMPILATION AND NAMESPACES  □ STREAMS AND FILE I/O  □ RECURSION  □ INHERITANCE  □ POLYMORPHISM AND VIRTUAL FUNCTIONS  □ TEMPLATES  □ LINKED DATA STRUCTURES  □ EXCEPTION HANDLING  □ STANDARD TEMPLATE LIBRARY  □ PATTERNS AND UML | |
| **Description：**  Remainder：  In arithmetic, the remainder is the integer "leftover" after dividing one integer by another to produce an integer quotient (integer division).  Example：5/3=1…2→Remainder,  This task requires you to compute the remainder of very large integers.   1. Notice that the integer can be positive and negative. 2. The absolute value of the input integer is smaller than 1019999 .   Notes:   * 1. Please include your class program in the test program by yourself, if you implement the function by class.   2. Two numbers are separated with a white space.   3. Your program must read input data until read EOF(Ctrl+z).   4. You should handle the illegal output -0 to output 0.   5. You should handle all possible illegal input such as      1. -0      2. AAA BBB      3. abc 765      4. 123 456 789 12 …   by output the following message “Input Error”.   * 1. In c++ default: * (-7/3) => -2   -2 \* 3 => -6  so a%b => -1   * (7/-3) => -2   -2 \* -3 => 6  so a%b => 1  **Input：**  Two integers separated with space.  First integer is a dividend.  Second integer is a divisor.   * In the case of a different sign, || First integer ||>|| Second integer ||.Ex:-5 2=-2\*2…-1   **Output：**  Please output the remainder result in the form of a digit mode instead of a Scientific notation.  **Sample Input / Output :**   |  |  | | --- | --- | | **Sample Input** | **Sample Output** | | -7 3  368928765246978215646316851631586574612316767678678 4  AAA BBB  123 456 765 12 | -1  2  Input Error  Input Error | |
| **□** **Easy, only basic programming syntax and structure are required.**  **■ Medium, multiple programming grammars and structures are required.**  **□ Hard, need to use multiple program structures or complex data types.** |
| **Expected solving time:**  30 minutes |
| **LTE:**  1Sec |
| **Other notes:** |