**CPP Problem Design Example**

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| **Subject: Greatest Common Divisor** |
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| **Main testing concept: Basic Recursion**   |  |  | | --- | --- | | **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:**  Please write a program and use the recursive function GCD(...) (abbreviation for Greatest Common Divisor) to find the greatest common divisor of two positive integers.  **Input:**  Input two positive integers **a** and **b** (a, b <= 2147483647).  **Output:**  Output the greatest common divisor of two positive integers **a** and **b**.  **Sample Input / Output：**   |  |  | | --- | --- | | Sample Input | Sample Output | | 33 11  2147483 997  125 475 | 11  1  25 | |
| **■ Eazy, 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:**  5 minutes |
| **Other notes:**  Finish the program when reading EOF. |