**CPP Problem Design**

|  |
| --- |
| **Subject:** **Occurrenc Counting** |
| **Contributor: 陳俊儒, 林承達, 廖宣瑋** |
| **Main testing concept:**File I/O   |  |  | | --- | --- | | **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 that reads a list of numbers with an integer type and counts how many times each number appears. You should note that the number of entries is not limited, your program should try to handle that.  The output is a two-column table sorted descending by the number's count value. The first column is the list of all numbers, and the second column is the count of each of them.  **Input:**  For the array values: –12 3 –12 4 1 1 –12 1 –1 1 2 3 4 2 3 –12  **Output:**  N Count  4 2  3 3  2 2  1 4  –1 1  –12 4  The two integers are divided by one tb(\t).  **Sample Input / Output：**   |  |  | | --- | --- | | Sample Input | Sample Output | | 13 8 -4 0 8 -8 8 -1 12 0 | N count  13 1  12 1  8 3  0 2  -1 1  -4 1  -8 1 | |
| **■ 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 more complex data types.** |
| **Expected solving time:**  15minutes |
| **Other notes:** |