**CPP程式設計題**

|  |
| --- |
| **命題者︰Wen-Kai, Wang** |
| **題目名稱(中文/英文)：Text-based histogram** |
| **主要測試觀念：** 排版練習   |  |  | | --- | --- | | **Basics** | **Functions** | | * C++ BASICS 1 * 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 | |
| **題目說明：**  You are asked to generate a text-based histogram for a quiz of students. The quiz is graded on a scale from 0 to 5. Please design a program that allows the user to enter the student's grades one by one and count the times of each grade appears.  When the input finished, please print the text-based histogram with the format in the "Output" section below.  The program should be capable of handling an arbitrary number of student grades.    **輸入說明****（Output）：**  if the input grades are  3 0 1 3 3 5 5 4 5 4  **輸出說明（Input）：**  the program should output  1 grade(s) of 0  1 grade(s) of 1  0 grade(s) of 2  3 grade(s) of 3  2 grade(s) of 4  3 grade(s) of 5  **IO範例 :**   |  |  |  | | --- | --- | --- | |  | **Sample Input** | **Sample Output** | | 第一組測資與輸出 | 3 0 1 3 3 5 5 4 5 4 | 1 grade(s) of 0  1 grade(s) of 1  0 grade(s) of 2  3 grade(s) of 3  2 grade(s) of 4  3 grade(s) of 5 | | 第二組 | 0 5 0 5 0 4 5 5 4 3 4 5 1 4 1 5 5 1 4 3 5 5 0 1 1 1 1 3 0 1 1 5 4 4 4 2 2 4 1 2 3 2 2 0 2 2 0 4 | 7 grade(s) of 0  10 grade(s) of 1  7 grade(s) of 2  4 grade(s) of 3  10 grade(s) of 4  10 grade(s) of 5 | | 第三組 | 3 0 4 1 2 1 1 4 2 0 2 0 4 5 2 5 4 3 4 5 2 5 4 4 3 3 1 5 1 0 4 2 0 4 0 3 2 0 3 2 2 3 5 2 0 2 0 3 4 1 4 3 1 0 5 1 4 5 1 | 10 grade(s) of 0  9 grade(s) of 1  11 grade(s) of 2  9 grade(s) of 3  12 grade(s) of 4  8 grade(s) of 5 | |
| **附屬資料︰**  🗹解答程式：textBasedHistogram.cpp(檔名)  🗹測試資料：grade.txt, grades.Output |
| ◼ 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 |
| **解題時間：30**分鐘。 |
| **其他註記：** |