**C程式設計題**

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| **命題者︰ZZY** |
| **題目名稱(中文/英文)：****Computes the average and** **standard deviation** |
| **主要測試觀念：** 算式計算   |  |  | | --- | --- | | **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：** Write a function that computes the average and standard deviation of input scores. The standard deviation is defined to be the square root of the average of the input values:  ( - m, where m is the average of the input scores , i= 1, …, n.  Note that the number of input scores should be dynamic.  **輸入說明：The first input is n, others are , where i = 1 to n.**  **輸出說明：Output the Average and Standard deviation, separated by a tab.**  **IO範例 :**   |  |  |  | | --- | --- | --- | |  | **Sample Input** | **Sample Output** | | 第一組測資與輸出 | 5 1 2 3 4 5 | Average:3 Standard deviation:1.41421 | | 第二組 | 6 1 2 3 4 5 6 | Average:3.5 Standard deviation:1.70783 | | 第三組 | 7 7 7 7 7 7 7 7 | Average:7 Standard deviation:0 | | … |  |  | |
| **附屬資料︰**  🗹解答程式： ComputeStandardDeviation.cpp(檔名)  🗹測試資料：input.txt, output.txt |
| ◼ 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：15**分鐘。 |
| **其他註記：** |