Components of an Information System
資訊系統的組成

- An Information system is a collected system of technology aims to solve a particular problem or achieve a particular goal.
  資訊系統是指為解決某個問題或達致某個目標而科技結合的系統。

- For example, a library management system consists of computers, servers, databases, etc., to digitise the process of managing items in a library and borrowing/returning of the items.
  例如：一個圖書館管理系統包含電腦、伺服器、數據庫等，用以數碼化管理館藏和借還的流程。

- An information system typically includes 一個資訊系統通常包括：
    - Hardware 硬件
    - Software 軟件
    - Network 網絡
    - Data 數據
    - Process 過程
    - Personnel 人員

Data Validation and Verification
數據有效性檢測及數據校驗

- Data Validation: to assure the data received is **reasonable**.
  數據有效性檢測：確保接收到的數據是**合理**的。

- Data Verification: to assure the data received is **accurate and consistent**.
  數據校驗：確保接收到的數據是**準確及一致**的。

Data Validation Techniques
數據有效性檢測方法

- Presence Check 完整性檢查
- Type Check 類型檢查
- Range Check 範圍檢查
- Fixed Value Check 固定數值檢查
- Format Check 格式檢查
- Length Check 長度檢查
- Uniqueness Check 唯一檢查
- Check Digit 檢查數位

Data Verification Techniques 數據校驗方法

- There are two methods of data verification 數據校驗方法有兩種：
    - Input Data Twice 雙重輸入
    - Double Data Entry 由兩個人獨立輸入

- Similarity: Both entries are passed to computer software to scan for discrepancies. 相似點：兩者均把輸入數據交由電腦找出差異。

- Difference: Input Data Twice is performed by 1 person entering the same data twice, whereas Double Data Entry is performed by 2 people entering the same data. 差異：雙重輸入由一人完成。

Q1. 【Type 1：Methods of Data Validation and Verification】
    【類別 1：數據有效性檢測及校驗方法】

James is a teacher at ABC school. He is going to input the exam scores into a spreadsheet. 允行是 ABC 學校的老師。他將要把考試的成績輸入至試算表中。

a. Suggest a way James can use to ensure the data input is reasonable.
   試提議一個允行能確保輸入的數據是合理的方法。

b. Suggest a way James can use to ensure the data input is accurate.
   試提議一個允行能確保輸入的數據是準確的方法。

Q2. 【Type 2：Data Validation - Parity Check】
    【類別 2：數據有效性檢測 ― 奇偶檢測】

If the same parity check is used as validation, which of the following sets of data is erroneous? 如果相同的奇偶檢測用作有效性檢測，以下哪組數據有誤？

    A.   0010 1111
    B.   0011 1110
    C.   1010 0001
    D.   1100 1001