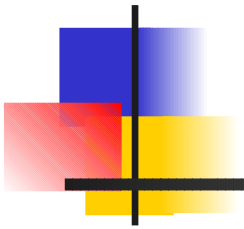
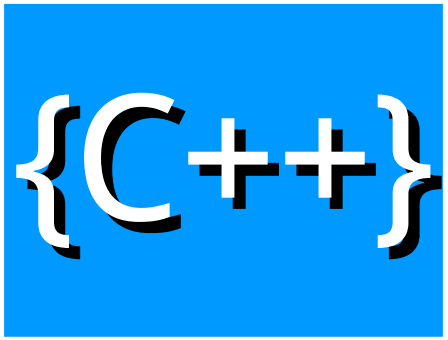
CPE 應考技巧：處理測試資料



Week 10



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CPE(大學程式能力檢定)

- 由學生透過線上程式設計，利用電腦自動評判，以檢測程式設計能力
- CPE 乃跨校同步作業，節省各校系統維護與選命題的負荷。考場數量可彈性增加或減少
- 每人使用一部電腦，考生除紙本字典外，不能攜帶任何資料進場。現場程式上機考試，封閉與考試無關之網路
- CPE 題目涵蓋難、中、易範圍，以檢測學生平均程式能力

CPE 考試的出題方式

- 考題經研判比較簡單的三題，編排爲前三題
- 除了評判系統的隱藏測資之外，每個考題另提供一組公開測資 (與隱藏測資難易度大約相同)，以協助考生除錯
- 每次 CPE 考試將至少有一題選自一顆星選集 (共包含四十餘題)

  http://cpe.cse.nsysu.edu.tw/environment.php#starList

CPE 考題 ~ 範例

(CPE10461, UVA10931)

We define the parity of an integer n as the sum of the bits in binary representation computed modulo two. As an example, the number $21 = 10101_2$ has three 1s in its binary representation so it has parity $3 (\text{mod} 2)$, or 1.

In this problem you have to calculate the parity of an integer $1 \leq I \leq 2147483647$.

Input

Each line of the input has an integer I and the end of the input is indicated by a line where $I = 0$ that should not be processed.

Output

For each integer I in the inputt you should print a line '`The parity of` B `is` P `(mod 2).`', where B is the binary representation of I.

Sample Input

```
1
2
10
21
0
```

Sample Output

```
The parity of 1 is 1 (mod 2).
The parity of 10 is 1 (mod 2).
The parity of 1010 is 2 (mod 2).
The parity of 10101 is 3 (mod 2).
```

CPE 基本門檻 ~ 處理測試資料

- 三種基本的輸入格式
  - 讀入 n 筆資料
  - 讀至檔案結束
  - 讀至 0 結束

讀入n筆資料

輸入

```
3
10
31
50
```

程式基本框架

```
int main() {
    int n;
    cin>>n;
    while (n--) {
        // 讀取每筆資料
    }
    return 0;
}
```

讀入n筆資料~題目範例

- 題目
  計算每筆所有數值的總和
  - 輸入說明

    第1行表示所有資料的總筆數，每行代表一筆

    每行有兩個數值，以空白隔開
  - 輸出說明
    每筆資料的總和輸出爲一行

輸入

```
3
10 20
33 25
41 64
```

輸出

```
30
58
105
```

讀至檔案結束

輸入

```
10
31
50
```

程式基本框架

```
int main() {
    int x;
    while (cin>>x) {
        // 處理目前這筆資料
    }
    return 0;
}
```

讀至檔案結束~題目範例

- 題目
  計算每筆所有數值的總和
  - 輸入說明

    每行代表一筆，每行有兩個數值，以空白隔開

    當檔案讀至檔尾時，代表輸入結束
  - 輸出說明
    每筆資料的總和輸出爲一行

輸入

```
10 20
33 25
41 64
```

輸出

```
30
58
105
```

讀至0結束

輸入

```
10
31
50
0
```

程式基本框架

```
int main() {
    int n;
    while (cin>>n) {
        if (n==0) break;

        // ...
    }
    return 0;
}
```

讀至0結束~題目範例

- 題目
  計算每筆所有數值的總和
  - 輸入說明

    每行代表一筆，每行有兩個數值，以空白隔開

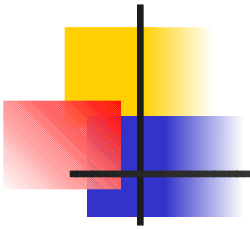
    當輸入的數值皆爲0時，代表輸入結束
  - 輸出說明
    每筆資料的總和輸出爲一行

輸入

```
10 20
33 25
41 64
0 1
0 0
```

輸出

```
30
58
105
1
```



Assignment 10

(CPE10404, UVA10035)

Children are taught to add multi-digit numbers from right-to-left one digit at a time. Many find the "carry" operation - in which a 1 is carried from one digit position to be added to the next - to be a significant challenge. Your job is to count the number of carry operations for each of a set of addition problems so that educators may assess their difficulty.

Input

Each line of input contains two unsigned integers less than 10 digits. The last line of input contains 0 0.

Output

For each line of input except the last you should compute and print the number of carry operations that would result from adding the two numbers, in the format shown below.

Sample Input

```
123 456
555 555
123 594
0 0
```

Sample Output

```
No carry operation.
3 carry operations.
1 carry operation.
```