競賽網站：http://algorithm.csie.ncku.edu.tw/ITSA/

第16次

教育部資訊軟體人才培育計畫

ITSA線上程式設計大賽

競賽題目

日期	時間	活動內容
101/8/29	17：50~18：00	報到、機器測試
星期三	18：00~21：00	比賽

主辦單位：成功大學 ITSA 教育部資訊軟體人才培育 程式設計e-tutor推廣

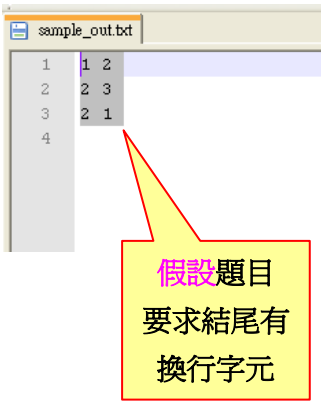
注意事項

一、本比賽系統採用 PC^2，所使用的 I/O 是標準輸出輸入裝置，所以可以使用 C 語言的 scanf ( )、printf ( )，或是 C++語言上的 cin、cout 來 讀入及輸出資料，比較要注意的是：本系統並不是用人工方式來 keyin 資料，所以不必在意使用者界面的問題，也就是說不用印出像是 "Please enter a number" 或 "The answer is"・・・之類的文字；此外，有些題目是以讀到 EOF 為 input 結束，有些是讀入 0 結束等等的，必需善用 I/O 函式。上傳檔案的檔名請勿使用中文以免發生不必要的錯誤。

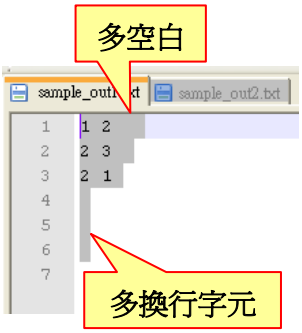
二、比賽用的編譯器版本:gcc 3.4.4 、 g++ 3.4.4 、 jdk 1.6.0_23 、 Microsoft (R) Visual C# 2010 Compiler version 4.0.30319.1 、 Microsoft (R) 32-bit C/C++ Optimizing Compiler Version 16.00.30319.01。若出現 Compilation Error，可能是某些函式不支援。

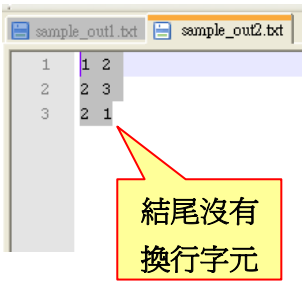
三、PC^2 系統判定錯誤可能原因：

正確答案



錯誤答案





特別注意題目範例是否有換行字元。

四、PC^2 系統判定結果說明：

結果	說明
Yes	解題正確
No - Compilation Error	錯誤：編譯錯誤
No - Run-time Error	錯誤：程序運行錯誤
No - Time-limit Exceeded	錯誤：運行超時 （每道題都有運行時間限制）
No - Wrong Answer	錯誤：運行結果與標準答案不一致
No - Excessive Output	錯誤：程序運行佔用內存空間超出要求
No - Output Format Error	錯誤：輸出格式錯誤
No - Other - Contact Staff	未知錯誤

Problem 1. 字母往前移

(Time Limit: 5 seconds)

問題描述 ：

志明跟春嬌是班上的一對情侶，他們有寫交換日記來打發時間的習慣，為了防止他們寫的內容被幫忙傳的同學，或者是不小心被老師沒收，而曝光了裡面寫的東西，他們想到了一個辦法，就是把內容的所有字母都往後數幾次的字母替代，而往後數幾次的數目就寫在內容的下一行。但是，問題來了，春嬌覺得每次寫完都要在數來數去的轉化成"加密"格式，實在是太麻煩了。但又礙於不想被輕易的看到內容，於是她拜託你寫個程式幫忙她可以直接把寫好的內容轉化成"加密"的型態。加密結果不會影響原字母的大小寫，且數字部分亦作相同處理，但不處理符號及特殊字元及中文。

輸入說明

第一行為想輸入的文字內容，內容皆以英文字母呈現，長度不超過 100 個字母(包含空格)，第二行為字母**往後**替代的數目，例如: 往後替代兩位，A => C, B => D, Y => A，依此類推。

輸出說明

輸出轉換過後的句子，維持原字母的大小寫，數字部分亦作相同處理，但不處理符號及特殊字元及中文，最後必須有換行字元。

範例

Sample Input:	**Sample Output:**
How are you? 2	Jqy ctg aqw?

Problem 2. Minority Counts

(Time Limit: 5 seconds)

Problem Description

In an anonymous election, the majority usually wins. In order to avoid the majority force, there is a game called minority counts. Within a certain number of runs, each time the game takes the minority votes to next run. Those who survive to the last are the winners. For example, assume there are 3 runs and 10 players. For the first issue if there are 6 vote for ”yes” and 4 vote for ”no” then those who voted for ”no” get to the next run. If there are 2 vote for ”yes” and 2 vote for ”no” to the second issue, then no one is eliminated in the second run. If there are 3 vote for ”yes” and 1 vote for ”no” to the third issue, then the one who vote for ”no” is the winner. The crafty game holder wants to increase the suspense and mystery, so they do not announce the result for each run until the game is over. Hence each player will have to vote for every issue. Please help the game holder to write a program to decide the winners of the game.

Technical Specification

1. The number of players p is a positive integer and $1 \leq p \leq 1000$.
2. The number of runs r is a positive integer and $1 \leq r \leq 500$.
3. Every player has to vote for each run, they only vote for “Y” as ”yes” or “N” as ”no”. There is no invalid ballot in any run.
4. The eliminated votes will not be counted in the later runs.
5. If everyone gives the same vote or the number of votes for positive and negative are the same, then no one gets eliminated from the game.
6. The game will definitely go for r runs. The winners are those who still survive after the last run.

Input File Format

The input consists of a number of test cases. The first line of the input file contains an integer indicating the number of test cases to follow. The first line of each test case contains two integers *p* (the number of players) and *r* (total number of runs) separated by a space. Then for the following *p* lines, each line *i* consists of *r* characters separated by a space, which are the votes for player *i* in each run.

Output Format

The output contains one line for each test case. Each line contains one or several integers to indicate the winners of the game. If there is more than one winner, output the winners in an increasing order.

Example

Sample Input:	**Sample Output:**
2 5 3 Y Y N Y Y N Y N Y Y N N Y Y Y 3 4 Y Y N N Y N Y N N Y Y N	3 4 3

Problem 3. 選擇景點

(Time Limit: 5 seconds)

問題描述：

小美希望在周圍鄰近的景點中找出距離小於特定範圍的觀光景點。假設給定小美的座標後，定位系統提供一組固定數量的景點座標，小美希望自己到這些景點的距離可以小於一定的範圍。請設計一段程式用以篩選符合小美要求的景點進行推薦。

範例 ：

小美的座標位置為(x,y)，定位系統每次提供附近 n 個觀光景點的座標(x_1, y_1), $(x_2, y_2),\ldots,(x_n, y_n)$。小美設定自己與景點間的距離不得大於 d，請輸出符合條件的景點座標。

輸入說明 ：

第一列輸入數字 n（$1 \leqq n \leqq 10$）代表系統自動提供的景點數目，請以正整數表示。
第二列輸入數字 d 代表距離的限制條件，請以正整數表示。（$1 \leqq d \leqq 1000$）
第三列輸入小美目前所在座標位置(x, y) （$-1000 \leqq x, y \leqq 1000$）
接下來的 n 列依序表示 n 個景點的座標位置(x_i, y_i)，i=1 到 n，各景點以換行區隔。

輸出說明 ：

依序輸出符合條件的景點座標，各景點座標以換行區隔；若無景點座標符合條件輸出 No Answer，最後必須有換行字元。

範例 ：

Sample Input	**Sample Output**
3 10 (0,0) (0,3) (15,17) (7,7)	(0,3) (7,7)

Problem 4. 樂透包牌問題

(Time Limit: 5 seconds)

問題敘述：

某樂透彩卷行，為了讓客人方便，想要設計包牌金額對照表。所謂的包牌，意思就是從 *m* 個數字中選取 *n* 個數字，總共的組合數，例如：選擇包牌的幸運號碼有 12 個，則電腦會幫您輸出 12 個號碼取 6 個號碼的組合數。
此題以大樂透 49 取 6 為例，有 49 個數字，一注 50 元。

輸入說明：

輸入要選取幾個數字來簽注。

輸出說明：

第一列輸出該數字所對應的組合總數。
第二列輸出所需之金額。
第三列輸出中獎機率，中獎機率請取到小數點第二位，最後必須有換行字元。

範例

Sample Input	**Sample Output**
12	924 46200 0.01%

Problem 5. What Day Is The Big Day

(Time Limit: 5 seconds)

Problem Description

Peter will take the College Entrance Exam on January 29, 2010, which is Friday. The whole family is very nervous. His sister Mary wants to know when their parents took the similar exam. Dad remembered it was July 1st, 1981, but not what day it was. They searched for an old calendar and found out it was Wednesday. Now they are very interested in the day of other important days in their life, but they don't have all the calendars. Please kindly help them by writing a program which will output the day with the certain input date.

Technical Specification

1. The year of the date denoted as Y, is a 4-digits integer such that $1000 \leq Y \leq 3999$.
2. The month of the date denoted as M, is an integer such that $1 \leq M \leq 12$.
3. The day of the date denoted as D, is an integer such that $1 \leq D \leq 31$.
4. There will be no failure data such as $M = 2$ together with $D = 30$.

Input File Format

The input consists of a number of test cases.

The first line of the input file contains an integer indicating the number of test cases to follow.

Each test case consists of a date which has 3 integers Y, M, and D in one line, each separated by a space.

Output Format

The output contains one line for each test case. Each line contains an integer to indicate the day of the date. Use 1 for Sunday, 2 for Monday, etc.

Example

Sample Input:	Sample Output:
2 2010 1 29 1981 7 1	6 4