**Description**

Elfness has N coins, each one has a binary number of lenth K on both side. Elfness now needs to put all the coins on a table. He can put either side up, and only the upside number counts. If the maxium number is M, the minium number is P and E=M-P, Elfness wants to know the maxium E and the minium E he can get.

**Input**

The ﬁrst line of input is an integer T (T ≤ 60), indicating the number of cases. For each case, the ﬁrst line contains 2 integers N (1 ≤ N ≤ 10000) and K (1 ≤ K ≤ 60), the next N lines each contain 2 binary numbers, indicating the numbers on the twin-side of a coin. The length of each binary number is K.

**Output**

For each case, ﬁrst output the case number as "Case #x: ”, and x is the case number. Then you should output two integers, indicating the maximum result and the minium result.

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**难度评估：**

思考量：★★★  
代码量：★★