



Problem Set

ACM-ICPC Programming Competition 2019

Day 1

Instructions

- Do not open the booklet unless you are explicitly told to do so. You can only read these Instructions below.
- Do not create disturbance or move around unnecessarily in the arena.
- If you have any question regarding the problems, send a clarification to judges using PC^2.
- There would be no internet access and mobile phones are also not allowed.
- Before submitting a run, make sure that it's executable via command line. For Java, it must be executable via "javac" and for GNU C++ via "g++". In particular, Java programmers need to remove any "package" statements and source code's file name must be the same as of main class. C++ programmers need to remove any getch() / system("pause") like statements.
- Do not attach input files while submitting a run, only submit/attach source code files i.e. *.java or *.cpp.
- Source code file name should not contain white space or special characters.
- You will have to make an Input file for every problem based on the format provided in the Sample Input. For example, the input file for Problem 1 shall be "P1_input.txt"; for problem 2, it shall be "P2_input.txt"; and so on. The outputs of all the problems would have to be on the console according to the sample output given in
- While programming, do not open input files by providing absolute/complete paths (absolute paths of your machine and judge's machine would be different). Just open them from the current directory from where your code is running.
- Please, don't create/open any file for output. All outputs must be on console.
- Please strictly meet the output format requirements as described in problem statements, because may be some auto judge will be evaluating your program which will compare your output with judge's output byte-by-byte and not tolerate even a difference of single byte. So, be aware! **Pay special attention to spaces, commas, dots, newlines, decimal places, case sensitivity etc.**
- Unless mentioned in some problem, all your programs must meet the time constraint of 5 seconds.
- The decision of judges will be absolutely final.



SAMPLE 1: Pick up students for ICPC Competition

Mr. Junaid is going to FAST-NUCES Lahore from Peshawar in his station van. The capacity of the van is 7 excluding him. On the way, as he just enters into motorway, his mentor Dr. Suleman calls him at 12:00 noon.

Dr. Suleman says,

“Due to a Dharna (sit-in) at Islamabad all the public transports are stopped and entry to motorway is banned. Please pick other students from different motorway interchanges on your way, but don't take exit as you could not enter again. Students are waiting in ICPC T-shirts on interchange, arranged by the order of arrivals on different destinations from Peshawar interchange. ”

The road is one-way, so you can't take U-turn. Now you are advised to write down a program that gives suggestion to Mr. Junaid to pick maximum students in his station van.

For example, if the students are waiting at different interchanges numbered 4, 10, 5, 6, and 8 (arriving in that order), you can try to pick up the first two, but then you won't be able to get the other students at 5, 6, 8 because they are lower than 10. Your job is to pick up as many students as possible. So you have to quickly write a program to find the best sequence of students to pick for the competition.

Input:

The input consists of multiple test cases. The first line of input is the number of test cases N. Each of the following N lines contain the total students S waiting, total number of interchanges I, and list of interchanges with students are waiting with arrival order.

Output:

For each test case, print a single line that says “Case# i”, where i is the test case number followed by the maximum students followed by the interchange order in which students are picked. Follow the format of output given below:

Sample Input	Sample Output
2	Case# 1: 4 1 3 5 8
5 10 1 6 3 5 8	Case# 2: 6 1 2 3 4 6 9
7 10 1 2 3 4 8 5 9	



SAMPLE 2: Multiply 2 matrices

This sample problem requires you to multiply 2 matrices and given the sum of the resultant matrix. For example, given the matrices M and N, you are required to multiple these matrices. Let A be the resultant matrix. Then your final answer should be element-wise sum of A.

Note that the dimensions of M and N must match. The only operation allowed is transpose (i.e. changing the rows into columns and columns into rows). If the dimensions of N does not match with those of M, you try to take the transpose of N.

Example

M=	1	2	3	4	N=	1	0	3	4	A=	26	52	48	26
	5	6	7	8		5	6	1	8		58	132	96	58
	9	10	11	12		0	0	0	12		90	212	144	90

Answer is $26+52+48+26+58+132+96+58+90+212+144+90 = 858$

Input

The first line in the input is a single number representing the number of cases your program has to process. Each of the subsequent line then states x1 and y1 the number of rows and columns respectively of the matrix M. These values are then followed by the (row-wise) elements of the matrix M. Similarly, (in the same line) we have x2 and y2, the number of rows and columns of N followed by its row-wise entries.

Output

For each test case, print a single line that says "Case# i: ", where i is the test case number followed by the sum of the resultant matrix. If the matrices cannot be multiplied (even after taking transpose), write "Not possible".

Sample input	Sample Output
2 3 4 1 2 3 4 5 6 7 8 9 10 11 12 3 4 1 0 3 4 5 6 1 8 0 0 0 12 2 3 1 2 3 4 5 6 1 4 1 2 3 4	Case# 1: 858 Case# 2: Not possible



SAMPLE 3: The number game

In this simple problem, you are required to write a program to add two numbers (if both are prime numbers). If only one of the numbers is a prime number, you should output their product. If none of the numbers is a prime number, then the output is not possible.

Input

The input consists of multiple test cases. The first line of input is the number of test cases X . Each of the following X lines contain the two numbers x and y .

Output

For each test case, print a single line that says "Case# i ", where i is the test case number followed by the answer as follows – if both x and y are prime numbers, output $x + y$; if only one of the numbers is a prime number, output $x \times y$; and, if none of the numbers is a prime number output "not possible".

Sample Input	Sample Output
2	Case# 1: 5
2 3	Case# 2: 12
3 4	