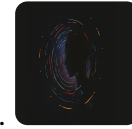


# CS 3233

Competitive Programming

Contests



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Problem A1

## Mastering Matrix Multiplication (Weaker)

Time limit: 2.5s  
Memory limit: 512 MB

**This task is now due. Steven has redacted the problem statement. There are a few other potential randomized algorithm tasks that can be used for future iterations of CS3230 so this task is likely will be shelved for a few AYs ahead.**

### Input format

The first line of input contains an integer  $TC$ , denoting the number of test cases.

Each test case first starts with a blank line (as a visual separator for human reader — this should not cause too much problem for your code), then four groups of data:

- A line that contains four integers:  $n$ ,  $x$ ,  $y$ , and  $m$ ,
- Then,  $n$  rows of  $x$  columns of integers that describe matrix  $A$ ,
- Followed by  $y$  rows of  $m$  columns of integers that describe matrix  $B$ , and
- Finally by  $n$  rows of  $m$  columns of integers that describe matrix  $C$ .

Unfortunately for this problem, we need to explicitly provide the (big) input to you.

Therefore you need to use Fast/Buffered I/O methods for this task.

- For C++ users, use  
`ios::sync_with_stdio(false); cin.tie(NULL);`  
(or just use `scanf`),
- For Java users, use `BufferedReader` instead of `Scanner`,

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Problems

A1 ✓  
A2 ✓  
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- For Python users, use `import sys` and `sys.stdin.readlines()` to read all inputs into memory upfront.

## Output format

For each test case, print the required answer.

## Constraints

- $1 \leq TC \leq 77$ ;
- $1 \leq n, x, y, m \leq 77$ ;
- All integers present in the input matrix  $A$  and  $B$  will be between 0 to 7, inclusive;
- All integers present in the input matrix  $C$  will be between 0 to  $\max(x, y) \cdot 7 \cdot 7$ , inclusive;
- We have fast enough Python 3 (PyPy), Java, and obviously C++ code to beat the time limit given problem A1 constraints.

## Sample Input

Copy Input

```
3

2 1 2 3
1
7
2 5 1
2 5 1
2 5 1
14 35 7

2 1 1 3
1
7
2 5 1
2 5 1
14 35 6

2 1 1 3
1
7
2 5 1
2 5 1
14 35 7
```

## Sample Output

Copy Output

```
Inner matrix dimensions must agree
WA
AC
```

## Notes

Dr Steven Halim.

Last used: CS3230, 17 Feb-03 Mar 2023 (yes, over  
recess week).