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Rectangular Queries

Problem code: RECTQUER

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Read problems statements in [Mandarin Chinese](#) and [Russian](#).

This time Chef does not want to bother you with long story, so the problem description will be as short as possible. You are given a square matrix **A**, which has **N** rows and **N** columns. Chef wants you to answer following queries: given a rectangular submatrix with upper-left corner in (X_1, Y_1) and lower-right corner in (X_2, Y_2) , and you are to count number of distinct elements in this submatrix, i.e count number of such distinct A_i, j that $(X_1 \leq i \leq X_2)$ and $(Y_1 \leq j \leq Y_2)$. [You may assume that i is looping through the rows and j through columns]

Input

The first line of the input file will contain single integer **N**. Then **N** lines with **N** numbers in each follow - description of the matrix. The rows are indexed from top to bottom that is top row has index 1, and columns are indexed from left to right that is left column has index 1. There is a single integer **Q** that follows on the next line right after the matrix description - number of Chefs queries. Then **Q** queries follow. Each query is described by four integers - X_1, Y_1, X_2 , and Y_2 .

Output

Output **Q** integers, each in a separate line - answers for the queries.

Constraints

- $1 \leq N \leq 300$
- $1 \leq Q \leq 10^5$
- $1 \leq A_i, j \leq 10$
- $1 \leq X_1 \leq X_2 \leq N$
- $1 \leq Y_1 \leq Y_2 \leq N$

Example

Input:

```
3
1 2 3
3 2 1
5 6 3
3
1 1 2 3
2 2 2 2
1 1 3 3
```

Output:

```
3
1
5
```

Author: Rubanenko

Tester: gerald

Tags: Rubanenko

Date Added: 6-11-2013

Time Limit: 1 sec

Source Limit: 50000 Bytes

Languages: ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.8.1, CPP11, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAR, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYTH, PYTH 3.1.2, RUBY, SCALA, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

SUBMIT

SUCCESSFUL SUBMISSIONS

User	Time	Mem	Lang	Solution
nitinj	0.02	6.7M	C++ 4.3.2	View
gengengen	0.05	2.8M	C++ 4.3.2	View
pavel	0.05	6.4M	C++ 4.3.2	View
re_hash	0.05	6.5M	C++ 4.3.2	View
seerajchamp	0.05	7.2M	C++ 4.3.2	View
sergej_t	0.06	5.7M	C	View
oalpgm	0.06	6M	C	View
sudipto_lodh04	0.06	6M	C	View
wellvolks	0.06	6.2M	C++ 4.3.2	View
ajay154	0.06	6.4M	C	View
xorfire	0.06	6.6M	C++11	View
srm11in	0.06	6.7M	C++ 4.3.2	View

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Comments

suiyuan @ 6 Dec 2013 03:30 PM

all the number in the input is integers?

bendakai @ 6 Dec 2013 03:42 PM

can any one give explanation for this problem ..

wittyceaser @ 6 Dec 2013 04:21 PM

Given a matrix, find the number of distinct elements in the queried sub-matrix.

stzgd @ 6 Dec 2013 04:48 PM

I think the $1 \leq Y_2 \leq Y_2 \leq N$ in the Constraints means $1 \leq Y_1 \leq Y_2 \leq N$

rushabhpsad @ 6 Dec 2013 05:05 PM

@bendakai: first integer (in the example - 3) is the order of the matrix, followed by the matrix (3 x 3). Then the # of queries (3 in the example). We need to find distinct integers between - (1,1) and (2,3) sub-matrix of the original one. (1, 2, 3) in the first case - (2,2) and (2,2) sub-matrix of the original one. (2) in the second case - (1,1) and (3,3) sub-matrix of the original one. (1, 2, 3, 5, 6) in the third case

sambuddha @ 6 Dec 2013 08:19 PM

Elements of the matrix are integers right?????????

run_time_error @ 6 Dec 2013 08:21 PM

@sambuddha yep int it is ...

kumar_ranjan @ 6 Dec 2013 08:42 PM

please help me with the gap b/w integers....is there any gap in query integers....???

kristos_user @ 6 Dec 2013 08:51 PM

Getting WA. Why? Can anyone help?

priyanshu2501 @ 6 Dec 2013 08:52 PM

Are numbers in the matrix only 1-10 or higher?

kristos_user @ 6 Dec 2013 09:03 PM

I still don't get it. My solution works for all the test cases I input and still I get WA. Why? I had the same problem with MARBLEGF.

joudzouzou @ 6 Dec 2013 09:04 PM

@ashishiti No, it's correct, 1 1 3 3 means the whole square, you have 1 2 3 5 6 are distinct which means answer is 5, correct.

utshri @ 6 Dec 2013 09:15 PM

Runtime error..what to do.???

smitshilu @ 6 Dec 2013 10:04 PM

TLE why??

swapnie199 @ 6 Dec 2013 10:20 PM

Has this problem been tested on python?

pradip1jha89 @ 6 Dec 2013 11:08 PM

o/p of all the queries should be displayed at once or one o/p after each queries... please someone give me the answer, thanx

devanshug @ 6 Dec 2013 11:11 PM

For those of you want to see the limitations of Python, see <http://www.codechef.com/DEC13/status/RECTQUER?language=4&status=All&hand...>

realkira001 @ 7 Dec 2013 06:18 AM

Getting TLE even after using fast input

parispar @ 7 Dec 2013 07:38 AM

Were the solutions rejudged? I had AC and it changed to TLE.

sjsupersumit @ 7 Dec 2013 09:20 AM

yesterday i got ac but when i logged in today it changed to TLE. whats happening??

mayank2k11 @ 7 Dec 2013 10:01 AM

why are solutions being rejudged? what's the new requirement? Is time limit decreased? please specify

honour_00 @ 7 Dec 2013 10:38 AM

The announcements says, " the statement has been updated. ". What has changed ?

sourabh_manit @ 7 Dec 2013 10:45 AM

getting time limit exceeded please help.....

rac_1 @ 7 Dec 2013 11:08 AM

getting time limit exceeded..... plz help.....

rac_1 @ 7 Dec 2013 11:09 AM

how to reduce the complexity.....

vaibhav1809 @ 7 Dec 2013 11:29 AM

tle tle...! plz help..!

pradip1jha89 @ 7 Dec 2013 11:36 AM

what has been updated, doesn't seems to be any change.... I'm getting WA for many i/p's I have tried but couldn't find the reasons.. plz someone advice thanx..

pradip1jha89 @ 7 Dec 2013 11:36 AM

what has been updated, doesn't seems to be any change.... I'm getting WA for many i/p's I have tried but couldn't find the reasons.. plz someone advice thanx..

edge123 @ 7 Dec 2013 11:55 AM

tle tle tle.....what the fish???

a7i7 @ 7 Dec 2013 12:24 PM

Yesterday my solution showed up as "Correct answer 0.66" . But today i saw that its marked as

unsolved. And getting TLE for feeding the same solution

rajatcoder11 @ 7 Dec 2013 01:10 PM

TLE ??? whats this all time Optimized the max anyone could Is this question expecting something else

d1k5 @ 7 Dec 2013 01:11 PM

are numbers between 1-10 ?

ashish1294 @ 7 Dec 2013 01:46 PM

@rajatcoder11: yes this question expects something else! There is no need for faster input output (although it will give much better timing) . observe that the number of queries is 10^5 ! Naive way of traversing each element in the given sub matrix wont work. Think in a different direction.

sjsupersumit @ 7 Dec 2013 02:14 PM

Is TLE due to not using fast or io or anything else needed to be done

paramvi @ 7 Dec 2013 02:28 PM

wa wa!! the hell douchebag

wadhwa94 @ 7 Dec 2013 03:00 PM

which part of the statement is updated??

shubhamguj @ 7 Dec 2013 03:21 PM

im getting TLE.....what can i do to solve this????

yagyank @ 7 Dec 2013 03:31 PM

question requires use of heaps? or segmented trees?

atulsehgal @ 7 Dec 2013 05:01 PM

@yagyank you can solve it without them as well

Abhi160792 @ 7 Dec 2013 05:28 PM

Tried everything. Getting TLE again and again! Help someone!

sharmats28 @ 7 Dec 2013 05:57 PM

tle tle tle.....help help help help.....!!!!

shuboid @ 7 Dec 2013 06:04 PM

tle...help me

codegambler @ 7 Dec 2013 06:08 PM

@Admin please check the input is in correct format. I had to re-write same thing in c++ once more after writing it in java. java solution is giving NZEC. however same thing in C++ getting passed. I had to do same thing for 2 problems

dynamic_coder @ 7 Dec 2013 08:44 PM

o/p of all the queries should be displayed at once or one o/p after each queries... please someone give me the answer, thanx!!

saimadan @ 7 Dec 2013 10:05 PM

@dynamic_coder you can display in either ways,you need not store answers just print them after each query

bencambel21 @ 7 Dec 2013 11:22 PM

@admin all numbers in input array are between 1 to 10 right?

edufgf @ 8 Dec 2013 03:56 AM

THANKS!! This one was nice to code ;) Took my whole saturday but it was worth it!! thx

dodger @ 8 Dec 2013 11:26 AM

i had ac then it got changed to tle was solution rejudged

khanijaugagan @ 8 Dec 2013 01:51 PM

ADMIN REPLY please!!!...TLE ... for me tooo!!!!

arushigpt @ 8 Dec 2013 02:13 PM

I had an AC which changed in TLE!! Do I need to optimize my code again or is it the server's fault? ADMIN plz reply!!!

aj95 @ 8 Dec 2013 02:28 PM

It really doesn't matter how descent approach I try, I always get a TLE :(

giriraj @ 8 Dec 2013 03:34 PM

can some1 plz give a hint regarding how to deal with TLE,plzz ???

r0chna @ 8 Dec 2013 03:43 PM

Ahh ! 2.8M codespace !

Need help? Post a comment. But before that please spare a moment to read the [guidelines](#).

Your name:
priyanshuid

Comment: *

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The time now is: 05:07:09 PM

CodeChef - A Platform for Aspiring Programmers

CodeChef was created as a platform to help programmers make it big in the world of algorithms, computer programming and programming contests. At CodeChef we work hard to revive the geek in you by hosting a programming contest at the start of the month and another smaller programming challenge in the middle of the month. We also aim to have training sessions and discussions related to algorithms, binary search, technicalities like array size and the likes. Apart from providing a platform for programming competitions, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of computer programming.

Practice Section - A Place to hone your 'Computer Programming Skills'

Try your hand at one of our many practice problems and submit your solution in a language of your choice. Our programming contest judge accepts solutions in over 35+ programming languages. Preparing for coding contests were never this much fun! Receive points, and move up through the CodeChef ranks. Use our practice section to better prepare yourself for the multiple programming challenges that take place through-out the month on CodeChef.

Compete - Monthly Programming Contests and Cook-offs

Here is where you can show off your **computer programming** skills. Take part in our 10 day long monthly **coding contest** and the shorter format Cook-off **coding contest**. Put yourself up for recognition and win great prizes. Our **programming contests** have prizes worth up to Rs.20,000 and \$700 lots more CodeChef goodies up for grabs.

Discuss

Are you new to **computer programming**? Do you need help with algorithms? Then be a part of CodeChef's Forums and interact with all our programmers - they love helping out other programmers and sharing their ideas. Have discussions around **binary search**, **array size**, **branch-and-bound**, **Dijkstra's algorithm**, **Encryption algorithm** and more by visiting the CodeChef Forums and Wiki section.

CodeChef Community

As part of our Educational initiative, we give institutes the opportunity to associate with CodeChef in the form of Campus Chapters. Hosting **online programming competitions** is not the only feature on CodeChef. You can also host a **coding contest** for your institute on CodeChef, organize an **algorithm** event and be a guest author on our blog.

Go For Gold

The Go for Gold Initiative was launched about a year after CodeChef was inceptioned, to help prepare Indian students for the **ACM ICPC** World Finals competition. In the run up to the **ACM ICPC** competition, the Go for Gold initiative uses CodeChef as a platform to train students for the **ACM ICPC** competition via multiple warm up contests. As an added incentive the Go for Gold initiative is also offering over Rs.8 lacs to the Indian team that beats the 29th position at the **ACM ICPC** world finals. Find out more about the Go for Gold and the **ACM ICPC** competition [here](#).