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06 : 02 : 20 : 29
DAY   HRS   MIN   SEC

June Circuits

LIVE

Jun 18, 2016, 09:00 PM IST - Jun 26, 2016, 09:00 PM IST

INSTRUCTIONS   PROBLEMS   SUBMISSIONS   LEADERBOARD   ANALYTICS   JUDGE

← Problems / Leaf and Limelight Attack

Leaf and Limelight Attack

Max. Marks: 100

Limelight is a technique that is used when all four users take place in the cardinal directions. They will then join their strength in the form of four connecting streams above the target area. It will then create a massive ball of lightning powerful enough to incinerate everything within the area of the four users.

The Leaf village is build in the shape of Spiral of integers. **Spiral of integers**, of an integer N, is an interesting $N * N$ spiral matrix which starts with 1 at the center. For example, for $N = 4$, the spiral of integers is

16	15	14	13
5	4	3	12
6	1	2	11
7	8	9	10

Kitane, **Nauma**, **Tōu** and **Seito** are planning to destroy the whole Leaf village. The limelight spot will be

the 4 corners of the village. **Strength** of the attack is equal to the sum of all the elements in the connecting streams as shown in the figure (sum of diagonal elements of the spiral of integers of N) .

Given the value of N, you need to **compute the strength of the attack (mod $10^9 + 9$).**

Input:

First line contains an integer T, denoting the number of testcases.
Each test case consists of a single integer N.

Output:

For each test case output a single integer denoting the **strength of the attack (mod $10^9 + 9$).**

Constraints:
$1 \leq T \leq 10^5$
$1 \leq N \leq 10^7$

SAMPLE INPUT

```
2
4
10000000
```

SAMPLE OUTPUT

```
56
679604006
```

Explanation

First test case: Sum of the diagonal elements will be $16 + 4 + 2 + 10 + 13 + 3 + 1 + 7 = 56.$

Second test case: Happy Coding :)

Time Limit:	2.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Marks are awarded if any testcase passes.
Allowed Languages:	C, CPP, CLOJURE, CSHARP, D, ERLANG, FSHARP, GO, GROOVY, HASKELL, JAVA, JAVA8, JAVASCRIPT, JAVASCRIPT_NODE, LISP, LISP_SBCL, LUA, OBJECTIVEC, OCAML, OCTAVE, PASCAL, PERL, PHP, PYTHON, PYTHON3, R, RACKET, RUBY, RUST, SCALA, SWIFT, VB

CODE EDITOR

☺ Our compiler wanted to be here!

But the mobile is too cramped for it to load. It says it would be more comfortable on the web.

Your Rating: ★★★★★   Like   Share ‹ 0 ›   Tweet

COMMENTS (69) ↻

SORT BY: **Relevance**▾

Join Discussion...

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Gagan Jain 2 days ago
Anyone got 100 using JAVA?
▲ 0 votes ● Reply ● Message ● Permalink

Gagan Jain 2 days ago
I tried and max I can get upto 60 due to time complexity :(
▲ 0 votes ● Reply ● Message ● Permalink

Mohit Goyal 2 days ago
I am able to get 70, but not beyond that.
▲ 1 vote ● Reply ● Message ● Permalink

Vimox Shah a day ago
same problem..TLE in java
▲ 0 votes ● Reply ● Message ● Permalink

Mohit Goyal a day ago
Earlier I was getting TLE. Then I made some changes to the code, now the same 3 cases which were earlier giving TLE are giving Wrong Answer.. And I am loving it :D
▲ 2 votes ● Reply ● Message ● Permalink

Aswani Kumar 7 hours ago
Same problem here. Able to get 70 only and wrong answer for 3 cases. Not able to find what is the problem. looks like mysterious numbers in those test cases.
▲ 0 votes ● Reply ● Message ● Permalink

Aditya Gangwal a day ago
Can anyone tell me, how to make my code more optemistic. It gets TLE error for some cases.
▲ 0 votes ● Reply ● Message ● Permalink

Kashish Bansal a day ago
tell your code to start believing in god :P
▲ 2 votes ● Reply ● Message ● Permalink

Aditya Gangwal a day ago
I have done it.
▲ 1 vote ● Reply ● Message ● Permalink

thomas chacko 2 days ago
what does 10000000 in sample input indicate
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin 2 days ago
10000000 is the value of N in the second test case.

▲ 2 votes ● Reply ● Permalink

nayan singh 2 days ago
how to resolve this:
In function 'int main()':
22:18: error: invalid operands of types 'double' and 'int' to binary 'operator%'
▲ 0 votes ● Reply ● Message ● Permalink

Priyanshu Kumar 2 days ago
you are probably trying to use % operator with a double value.....% operator works with int type only :)
▲ 1 vote ● Reply ● Message ● Permalink

sunil mahala 2 days ago
diff. output on 10^7
is it correct mod 10^9+9
▲ 1 vote ● Reply ● Message ● Permalink

Nikhil Meherwal 2 days ago
yes, its 10^9+9
▲ 0 votes ● Reply ● Message ● Permalink

Naksh Arora ✏ Edited a day ago
good question :)
▲ 1 vote ● Reply ● Message ● Permalink

RAHIL KHAN 21 hours ago
i am getting correct answers for small values of n but for larger values ans is diff.. anyone can explain?
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin 20 hours ago
You have to figure it out yourself.
▲ 1 vote ● Reply ● Permalink

RAHIL KHAN 20 hours ago
ok thanks..
▲ 0 votes ● Reply ● Message ● Permalink

Sanjeet Kumar kushwaha 18 hours ago
Can yon tell how for n= 1000000, result is 679604006
let n=2 then result must be greater then 4 because it will contain 4(2*2)
let n=4 then result must be greater then 16 because it will contain 16(4*4)
let n=6 then result must be greater then 36 because it will contain 36(6*6)
.
.
.
take n= 10000000 result must be grater than 10000000*10000000 ?
Please explain your 2ed test case
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin 18 hours ago
answer has to be mod(10^9 + 9) so it will always be smaller than (10^9 + 9)
▲ 1 vote ● Reply ● Permalink

Sanjeet Kumar kushwaha 18 hours ago
Thank you for your replying so fast
▲ 0 votes ● Reply ● Message ● Permalink

Prabal Ghura 2 days ago
For even N should I take central element 4 times or once
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin   2 days ago

Please read the problem carefully.

▲ 0 votes ● Reply ● Permalink

Praveen Ch 2 days ago

I think you meant for odd N?
I too have the same doubt

▲ 0 votes ● Reply ● Message ● Permalink

Kumar Shubham 2 days ago

For odd n, should the central value be added once or twice?

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin   2 days ago

Please read the problem carefully.

▲ 0 votes ● Reply ● Permalink

Kumar Shubham 2 days ago

Oh, right. Connecting Streams. Target area. Got it.

▲ 0 votes ● Reply ● Message ● Permalink

Sandeep N Menon ✎ Edited 2 days ago

This comment has been deleted.

● Reply ● Message ● Permalink

r3gz3n ⚡ Admin   2 days ago

mod(10^9 + 9)

▲ 0 votes ● Reply ● Permalink

nayan singh 2 days ago

plz help

▲ 0 votes ● Reply ● Message ● Permalink

nayan singh 2 days ago

what is run time error guys? plz help.

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡ Admin   2 days ago

Please go through the Judge Environment to know about all type of possible errors.
https://www.hackerearth.com/docs/wiki/developers/judge/

▲ 0 votes ● Reply ● Permalink

amarnath v 2 days ago

This comment has been deleted.

● Reply ● Message ● Permalink

sunil mahala 2 days ago

same problem

▲ 0 votes ● Reply ● Message ● Permalink

Shubham Srivastava 2 days ago

how could n be 1?

▲ 0 votes ● Reply ● Message ● Permalink

nayan singh 2 days ago

do we have to provide whole spiral matrix through input, or just the code for connecting streams?

▲ 0 votes ● Reply ● Message ● Permalink

nayan singh 2 days ago

plz help?

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin 2 days ago

Please read the input and output section carefully. Everything is mentioned in the problem.

▲ 0 votes ● Reply ● Permalink

nayan singh ✎ Edited 2 days ago

i am not getting it i.e. why asked sir. so plz tell me if we have to give the whole also matrix also? bcoz rest of my code is alright

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin 2 days ago

You will be given N as input and you have to output a single integer i.e. the required answer.

▲ 0 votes ● Reply ● Permalink

Salamuddin a day ago

how to take large size of matrix in c

▲ 0 votes ● Reply ● Message ● Permalink

Ankur Sakhala a day ago

do we have to add 1 twice in case of odd integer?

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin a day ago

Please read the question carefully.

▲ 0 votes ● Reply ● Permalink

codename devil 7 hours ago

I am still stumped in case when N is odd.I cant figure out if we have to add 1 twice or once.Could u make it clear?

▲ 0 votes ● Reply ● Message ● Permalink

shobhit jain a day ago

Did anyone get Runtime error - NZEC for 10000000 case , if yes, how did you guys solve it. Please help

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin a day ago

Please go through the judge environment. https://www.hackerearth.com/docs/wiki/developers/judge/

▲ 0 votes ● Reply ● Permalink

david zuroshvili a day ago

guys do you know to fix bad accees error i turned on zombies but still

▲ 0 votes ● Reply ● Message ● Permalink

Sudheesh Varma a day ago

What does this mean - (mod 10^9+9) ? what has this to with the sum?

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin a day ago

Sum can be very large and it might overflow so modulo is used to prevent overflow.

▲ 0 votes ● Reply ● Permalink

Hari prasath ✎ Edited a day ago

plz help me i get -145465473256392 when run the seccond test case the dfunction works with all small numbers but wit this it craps... with 10000000
the code works correctly in my codeblocks

▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin a day ago

Please don't post your codes while the contest is live.
▲ 0 votes ● Reply ● Permalink

Siddharth J Mehta a day ago
for n = 5, is the 1 in the center to be considered for all the lime lights or just 1 lime light?
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin a day ago
Please read the problem statement carefully.
▲ 0 votes ● Reply ● Permalink

brahmdeo das 20 hours ago
do i need to write code for input of matrix ?
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin 20 hours ago
Please read the input section carefully.
▲ 0 votes ● Reply ● Permalink

Tushar Gupta 17 hours ago
what does the error code SIGSEGV indicates (C++)
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin 17 hours ago
Please go through the Judge Environment. https://www.hackerearth.com/docs/wiki/developers/judge/
▲ 0 votes ● Reply ● Permalink

abdallah samir 7 hours ago
i want to know how to make that modulo is it just ans %(10^9 +9)?
▲ 0 votes ● Reply ● Message ● Permalink

Aswani Kumar 7 hours ago
yes
▲ 0 votes ● Reply ● Message ● Permalink

sharma_nee 6 hours ago
i am not getting the correct output for 2 test case.can any one help
▲ 0 votes ● Reply ● Message ● Permalink

sharma_nee 6 hours ago
for N=10000000, i am getting 2968888619 as output .
▲ 0 votes ● Reply ● Message ● Permalink

r3gz3n ⚡Admin 5 hours ago
Please don't discuss the problem in the live contest.
▲ 0 votes ● Reply ● Permalink

sharma_nee 6 hours ago
This comment has been deleted.
● Reply ● Message ● Permalink

Venkata Amaresh 6 hours ago
This comment has been deleted.
● Reply ● Message ● Permalink

r3gz3n ⚡Admin 5 hours ago
Please don't discuss the problem during the live contest
▲ 0 votes ● Reply ● Permalink

Venkata Amaresh 5 hours ago

Ok Sorry.

▲ 0 votes ● Reply ● Message ● Permalink

Harikrishna S 6 hours ago

how to take input(spiral integers)

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Anuj Shah 4 hours ago

My algorithm take O(2*n) time still it's generating TLE error. Don't know why?

▲ 0 votes ● Reply ● Message ● Permalink