



Signup and get free access to 100+ Tutorials and Practice Problems

Start Now

12

LIVE EVENTS

[← Notes](#)

▲ Get the modulo of a very large number that cannot be stored in any data type in C/C++!

36

Modulo

big-integer

C

C++

Today we will solve this problem, of finding modulo of huge numbers, which we face frequently in our CP world.

For now I can remember only one [problem](#) on codechef which needs this. Comment down if you know some other problems.

Lets see the modulo operation first. We will have a quick look since we already have discussed about [Modular Arithmetic](#) in good detail.

It is a distributive over addition, multiplication. i.e.

$$1. (A+B)\%m = (A\%m + B\%m) \%m$$

$$2. (A*B)\%m = (A\%m * B\%m) \%m$$

These two will help here, mainly the first one.

Consider, 'abcdepqr' is a string of digits, ok?

Is not $abcdepqr = (abcde*1000 + pqr)$? Yes, it is.

Similarly, $(a*10000000 + bcdepqr)$, right?

This is the thing we are going to apply.

What will we do is,

1. Get one variable to store the answer intialized to zero.
2. Scan the string from left to right,
3. Everytime multiply the answer by 10 and add the next number and take the modulo and store this as new answer.

E.g. $12345 \% 100$:

$ans = 0$

$ans = (0*10 + 1)\%100$

$ans = (1*10 + 2)\%100$

$ans = (12*10 + 3)\%100$

?

```
ans = (23*10 + 4)%100
ans = (34*10 + 5)%100
ans = 45.
```

It means: we, at the end, are doing this only:

```
a*10000000 + b*1000000 + c*100000 + d*10000 + e*1000 + p*100 + q*10
+ r
```

which is nothing but 'abcdepqr' !

This way have proved the **correctness** too.

I think you have got it!

This will solve the problem.

I hope you like this post, have look at my other notes [here](#).

Like 4


Tweet

AUTHOR



Bhavesh Munot

 System Software Engineer ...

 College Station, TX, United States

 9 notes

TRENDING NOTES

[Python Diaries Chapter 3 Map | Filter | For-else | List Comprehension](#)
written by Divyanshu Bansal

[Bokeh | Interactive Visualization Library | Use Graph with Django Template](#)
written by Prateek Kumar

[Bokeh | Interactive Visualization Library | Graph Plotting](#)
written by Prateek Kumar

[Python Diaries chapter 2](#)
written by Divyanshu Bansal

[Python Diaries chapter 1](#)
written by Divyanshu Bansal

[more ...](#)

12

LIVE EVENTS

?

About Us	Innovation Management	12 LIVE EVENTS
Technical Recruitment	University Program	
Developers Wiki	Blog	
Press	Careers	
Reach Us		