

CSE-1230FinalExaminationAutumn2024			
A1	SubArray		
<table><tr><td>Input : standardinput Output : standardoutput</td><td>TimeLimit : 1 second MemoryLimit : 32MB</td></tr></table>		Input : standardinput Output : standardoutput	TimeLimit : 1 second MemoryLimit : 32MB
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Given an array of n integers, your task is to find the maximum sum of values in a contiguous, nonempty subarray.

Input:

- The first line contains a single integer n ($1 \leq n \leq 20000$).
- The second line contains n integers representing the array values. ($-100000 \leq a \leq 100000$).

Output:

- Print one number: the maximum sum of any contiguous subarray.

Input	Output
8 -1 3 -2 5 3 -5 2 2	9

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B1	Reverse String		
<table><tr><td>Input : standardinput Output : standardoutput</td><td>TimeLimit : 1 second MemoryLimit : 32MB</td></tr></table>		Input : standardinput Output : standardoutput	TimeLimit : 1 second MemoryLimit : 32MB
Input : standardinput Output : standardoutput	TimeLimit : 1 second MemoryLimit : 32MB		

Dear Programmer, A string has been broken into an array of characters [s] and scattered across the digital realms. Your mission is to write a function to reverse the order of these characters.

Input

- The first line contains an integer ($1 \leq t \leq 100$) — the number of test cases.
- The only line of each test case contains a string ($1 \leq |s| \leq 100$)

Output

Print the reverse string.

Input	Output
5 hello World Python guitar open	olleh dlrow nohtyP ratiug nepo

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C1	Add Digit		
<table><tr><td>Input : standardinput Output : standardoutput</td><td>TimeLimit : 1 second MemoryLimit : 32MB</td></tr></table>		Input : standardinput Output : standardoutput	TimeLimit : 1 second MemoryLimit : 32MB
Input : standardinput Output : standardoutput	TimeLimit : 1 second MemoryLimit : 32MB		

Given an integer num, repeatedly add all its digits until the result has only one digit, and return it.

Input

- * The first line contains an integer ($1 \leq t \leq 100$) — the number of test cases.
- * $0 \leq \text{num} \leq 2^{31} - 1$

Output

Print the number.

Input	Output
3	3
12	4
13	5
2345	

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D1

The Search for the Third Crown

Input : standardinput
Output : standardoutput

TimeLimit : 1 second
MemoryLimit : 32MB

Once upon a time in the Kingdom of Numbers, there was an ancient prophecy about three great champions who would rise to lead the realm. The kingdom was a land filled with unique warriors (distinct numbers), each with their own strength.

The king called upon a young programmer named Aria to solve the mystery. "We need to find the third strongest warrior," he declared. "But if there are not enough distinct warriors, just return the strongest!".

Input

- $1 \leq \text{nums.length} \leq 104$
- $-231 \leq \text{nums}[i] \leq 231 - 1$

Output

If the third maximum does not exist, return the maximum number.

Input	Output
3,2,1	1
1,2	2