



# ISTE - VIT



# Hello, World !

THE **WEBINAR** STARTS SOON . . .



**STL**

**FOR A BETTER CODE**

**C++**



01

# COMPETITIVE CODING

**A MIND SPORT HELD  
ONLINE OR IN A LOCAL SERVER**

**AN EXERCISE FOR YOUR BRAIN**



02



# TIME COMPLEXITY AND INPUT CONSTRAINTS



# TIME COMPLEXITY





+



>

FIND THE **NUMBER OF BALLS**  
IN THESE HOUSES

+

○

>>>>



+



+

>>>>

+

○



.

0 ( n )

>>>>

.

○

.

.

+





**HERE , BALLS ARE IN ROOMS  
INSIDE THE HOUSE**





+

>>>>

+

○



.

0 ( n<sup>2</sup> )

>>>>

.

○

.

.

+

## PROBLEM STATEMENT

Lorem ipsum ...

>>>>

## TIME LIMIT

MAX TIME LIMIT : \_\_\_\_\_

>>>>

## INPUT CONSTRAINTS

\_\_\_\_\_ < N < \_\_\_\_\_



>>>>

ONLINE COMPILERS CAN PERFORM  
 **$4 \times 10^8$**  OPERATIONS PER SECOND

>>>>



**TIME LIMIT OF MOST  
PROBLEMS WILL BE 1 SEC**



$$1 < N < 10^8$$

THE SOLUTION SHOULD  
BE OF  **$O(n)$**

$$1 < N < 10^4$$

THE SOLUTION SHOULD  
BE OF  **$O(n^2)$**



$$1 < N < 5 \times 10^2$$

THE SOLUTION SHOULD  
BE OF  $O(n^3)$

$$1 < N < 90$$

THE SOLUTION SHOULD  
BE OF  $O(n^4)$



$$1 < N < 10^{18}$$

THE SOLUTION SHOULD BE  
OF  $O(\log(n))$

$$1 < N < 10^7$$

THE SOLUTION SHOULD BE  
OF  $O(n \log(n))$





$$1 < N < 20$$

THE SOLUTION SHOULD BE  
OF  $O(2^n)$

$$1 < N < 11$$

THE SOLUTION SHOULD  
BE OF  $O(n!)$



03



WHY C++





+

>>>>

+

○

**FASTER THAN JAVA AND PYTHON**

**IT HAS STANDARD TEMPLATE LIBRARY**

+



# STL IN C++





+

>>>>

+

○

**PROVIDES COMMON PROGRAMMING DATA  
STRUCTURES AND FUNCTIONS**

**CONTAINERS | ALGORITHMS | ITERATORS**

+



# VECTORS

dynamic arrays with the ability to resize itself automatically



# MAP

associative containers that store elements in a mapped fashion



# SET

containers in which each element has to be unique



# SORT

Algorithm used to sort functions





**LET'S GET OUR  
HANDS DIRTY**





# TRAPPING RAIN WATER PROBLEM







>>>>



Given  $n$  non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it is able to trap after raining.

>>>>





## WEBSITES FOR PRACTICING

VERY USEFUL  
FOR  
**INTERNSHIPS**  
AND **JOBS**



**LONG CHALLENGES**  
ARE USEFUL TO  
LEARN **NEW**  
**CONCEPTS** AND  
THEY ALSO PROVIDE  
VIDEO LECTURES



**GOOD TO START**  
**WITH** AS IT HAS  
**GOOD PRACTICE**  
**SETS**





## A20J LADDERS

ID	Name	Problems Count
11	<a href="#"><u>Codeforces Rating &lt; 1300</u></a>	100
12	<a href="#"><u>1300 &lt;= Codeforces Rating &lt;= 1399</u></a>	100
13	<a href="#"><u>1400 &lt;= Codeforces Rating &lt;= 1499</u></a>	100
14	<a href="#"><u>1500 &lt;= Codeforces Rating &lt;= 1599</u></a>	100
15	<a href="#"><u>1600 &lt;= Codeforces Rating &lt;= 1699</u></a>	100
16	<a href="#"><u>1700 &lt;= Codeforces Rating &lt;= 1799</u></a>	100
17	<a href="#"><u>1800 &lt;= Codeforces Rating &lt;= 1899</u></a>	100
18	<a href="#"><u>1900 &lt;= Codeforces Rating &lt;= 1999</u></a>	100
19	<a href="#"><u>2000 &lt;= Codeforces Rating &lt;= 2099</u></a>	100
20	<a href="#"><u>2100 &lt;= Codeforces Rating &lt;= 2199</u></a>	100
21	<a href="#"><u>Codeforces Rating &gt;= 2200</u></a>	100



# ABOUT ME

**Linkedin :** Vidyarth - gs

**Instagram :** vidyarth.in

**WE CAN CODE TOGETHER !**



**THANKS!**

**ISTE.VIT**



**ISTE\_VIT\_VELLORE**



**SEE YOU AT THE CONTESTS**



**ISTE**  
**INDIAN SOCIETY FOR  
TECHNICAL EDUCATION**