Kuroni's blog

Codeforces Round #616 Editorial

By **Kuroni**, history, 3 days ago,

Hello everyone, this is the editorial for Codeforces Round #616 (Div. 1) and Codeforces Round #616 (Div. 2)! Along with the solution to each problem, we will have the theme and easter egg solution as well! I hope you all enjoyed our problems (´ ▽ `)b

1291A - Even But Not Even

Author: **265918**

- Tutorial
- Implementation

1291B - Array Sharpening

Author: **hugopm**

- Tutorial
- Implementation

1290A - Mind Control

Author: **Ari**

→ Pay attention

Before contest
Codeforces Round #618 (Div. 1)
4 days

Before contest
Codeforces Round #618 (Div. 2)
4 days

→ Top rated

#	User	Rating
1	tourist	3549
2	MiFaFaOvO	3520
3	Um_nik	3378
4	apiadu	3351
5	mnbvmar	3281
6	LHiC	3276
7	Benq	3274
8	TLE	3271
9	ainta	3226

- Tutorial
- Implementation (quadratic)
- Implementation (linear)

1290B - Irreducible Anagrams

Author: **Ari**
- Tutorial
- Implementation

1290C - Prefix Enlightenment

Author: **hugopm**
- Tutorial
- Implementation (preprocess with DFS)
- Implementation (dynamic bipartite DSU)

1290D - Coffee Varieties (hard version)

Author: **hugopm**
- Tutorial
- Implementation

1290E - Cartesian Tree

Author: **gamegame**
- Tutorial
- Implementation

1290F - Making Shapes

Author: **Kuroni**
- Tutorial
- Implementation

Theme and easter eggs

10	**Radewoosh**	3206

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#	User	Contrib.
1	antontrygubO_o	190
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5	vovuh	169
6	pikmike	166
7	ko_osaga	161
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9	rng_58	154
9	Petr	154

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Duc → Google Code Jam to I/O for Women registration is open for the single online round on Saturday, February 15

tourist → touristream 005: SNWS 2020 R5

vovuh → Codeforces Round #617 (Div. 3) Editorial

tourist → touristream 004: SNWS 2020 R4

Spoilers

Tutorial of Codeforces Round #616 (Div. 1)

Tutorial of Codeforces Round #616 (Div. 2)

616, editorial

+218 | Kuroni | 3 days ago | 111

Comments (111)

Write comment?

Akikaze

3 days ago, # | +156

Thanks for the easter eggs, now my next few nights would be sleepless. :)

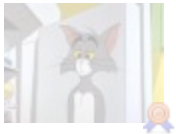
→ Reply

pk842

3 days ago, # | +13

can you please share the test case generator for Div2-E problem?

→ Reply



scnucjh

2 days ago, # ^ | ← Rev. 4 -11

It's easy. Just assign every number from 1 to n at most 2 different numbers from 1 to k , which means which set the number should belong to.

→ Reply

sapjv

3 days ago, # | +21

One of the best contest it was !

→ Reply

3 days ago, # | ← Rev. 3 +8

Nice problems and fast AF editorial and good pretests

Usu → AGM Programming Contest (invitation)

vovuh → Codeforces Round #617 (Div. 3)

imaking → Google Problem — any help?

Its_Easy → Adding "combine by AND only" tag in filter problem section in problemset

riz_1_ → Invitation to Fool's Programming 2020

mathusalen → 2019 ICPC World Finals

Golovanov399 → Aim Tech Poorly Prepared Contest Editorial

asharammeena → Dynamic programming tutorials

rng_58 → TopCoder Mirror

Akikaze → Codeforces Round #614 Editorial

solver11 → TLE gone in sqrt?

yutaka1999 → The 19th Japanese Olympiad in Informatics Final Round Online Contest

adamant → Recovering rational number from its remainder modulo huge integer

dreamoon_love_AA → This is most useful CP problem I create until now

chokudai → AtCoder Beginner Contest 150 Announcement

Hisoka → ACPC2018 D-Dull Chocolates WA

Schwifty → My codeforces feature update suggestion

bclassrank7 → Will there be FB hackercup 2020

allrounder → Recurrence using Matrix exponentiation

ojuz → A blog post for people who want to connect their account with oj.uz

EMEJ

Nice problems and fast AF editorial and good pretests.

Thanks man. :)

→ Reply

Kuroni → Codeforces Round #616 Editorial

Detailed →

FelixDzerzhinsky

3 days ago, # | +28

WOW! VERY quick editorial! Thanks)

→ Reply

NFLS

3 days ago, # | +31

thanks for the fast editorial

→ Reply

Manan_shah

3 days ago, # | +13

Thank You very much for the problems.Learnt to think for basic things first in easy problems rather than taking cases and complicating.

→ Reply

VadymKa

3 days ago, # | +58

Thank you for samples in C.

→ Reply

SevIII

3 days ago, # | +14

Div1 BCD are really good, thanks!

→ Reply

sagittarius_fjz

3 days ago, # | +10

Thanks for the fast editorial.

→ Reply

prakharff13

3 days ago, # | ← Rev. 3 0

Doubt For Mind Control Problem 1290A :->

In the editorial it is mentioned that iterate over y. But why ?

Say my k = 3 and m = 6 for some n then say i force 1 guy to take first element and rest 2 to take last. Now the three people i have no control over can choose first element or not.

i.e i cannot guarantee that the next three elements (after the first one is chosen by the guy i forced) will be my element all the time. but i can say for sure is that:

the element at fourth index i.e after 3 elements can be my answer. This will of course be compared with the number obtained from the end.

so basically for each person i force to pick firt element say i and y ppl i cannot force. The only element i can pick is (i + y + 1) from the start. We will get one answer from last as well.

So should i just iterate over i from 0 to k.

```
calculate the expected number from first and last. Take their minimum

compare globalmaximum with minimum obtained
```

print globalmaximum

Plz Help

→ Reply

Tieway59

3 days ago, # ^ | ← Rev. 2 0

I'm not so clear about your doubt, so here let me try to explain one insight without y ... Observe the array below

$$[2, 9, 2, 3, 8, 5]$$

Consider when

$$k = 0, m = 4$$

All possible final states will be like these sub-arries:

$$[2, 9, 2], [9, 2, 3], [2, 3, 8], [3, 8, 5]$$

For every states, the answer is:

For every states, the answer is:

[2], [9], [8], [5]

So you can find in the worst situation, the player will get 2 as his final number.

Now consider how does "k force times" affect the answer. Actually it you can force some opponents to avoid some prefix or suffix states. (you can't avoid one state in the middle, sorry I can't explain this point.)

In the case above if k=2, you force 2 opponents to take the "2" in the front and the "5" in the back.

Then all possible final states will be like these sub-arries:

[9, 2, 3], [2, 3, 8]

For every states, the answer is:

[9], [8]

After this force, the worst anwser gets greater, right?

The focus is to find the globalmaximum for every possible states' answer.

Hope this can help you understand this solution better.

Nice round anyway. lol

→ Reply

glTeee

3 days ago, # ^ | 0

Thank you.

→ Reply

Rajat16

35 hours ago, # ^ | 0

How can we say that we can only force some opponents to take first element? I am really confused with this question please help although your explanation was very good but this part that i mentioned is yet not clear.

→ Reply

22 hours ago, # ^ | 0

Maybe this means in some stage of the whole process, you are allow to force

Tieway59

someone make specific choice. Like in a case when the i-th opponent take the front might make the lowest answer worse (leave some small numbers in the back), then you force him to take smaller number in the the back. Could this help?

→ Reply

aliraiisrohani

3 days ago, # | +7

did anyone else solved c with binary search?

→ Reply

cckk4467

3 days ago, # ^ | 0

Me, but it seems unnecessary. :(

I rather overthought.

→ Reply

rokaf2020

3 days ago, # | -8

I learned a lot from Div.1 C even though I was not able to solve it during the contest. Thank you for making such good problems!

→ Reply

spookywooky

3 days ago, # | +20

The six digit codes...how are they more than just random 6 digit numbers? What makes them an easter egg?

→ Reply

Kuroni

3 days ago, # ^ | +187

Weeblets:

→ Reply

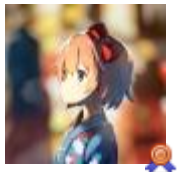
3 days ago, # ^ | +19

Dude.. page 6 of 264525 actually made a pretty good wallpaper

→ Reply

hocky

→ Reply



Kuroni

3 days ago, # ^ | 0

I know right <3

→ Reply

hocky

3 days ago, # ^ | +37

Hate to say this, but 185217's a real solid one. Here we go again.

→ Reply

lollihunter

3 days ago, # ^ | 0

honestly, I regret looking this up at urbandictionary... :)

→ Reply

kuroniorz

3 days ago, # ^ | +49

That's slightly hard to believe after seeing your username. :)

→ Reply

lollihunter

3 days ago, # ^ | 0

Now I regret not pointing out this irony in the original comment

→ Reply

Len

3 days ago, # ^ | +1

https://www.urbandictionary.com/define.php?term=6+digit+code

→ Reply

spookywooky

3 days ago, # ^ | 0

Thanks ;)

Unfortunatly my company blocked that website for a given reason :/

→ Reply

kuroniorz

3 days ago, # ^ | ← Rev. 2 0

Sure they did. It's not something you should be browsing in the office. :)

→ Reply

inheritag

3 days ago, # ^ | 0

raw lol

→ Reply

Akikaze

3 days ago, # ^ | -23

Read my comment and think about it for a moment.

→ Reply

kojak_

3 days ago, # | -8

For Div. 2 B. I consider the following:

Just consider all indices that contain the max value in the array. Then, for each, try to find if all the elements to its left can be made strictly decreasing. Then do similarly with the elements to its right: try to make them strictly decreasing.

If you could find one such index then the answer is true. Why do I get WA here...?

→ Reply

3 days ago, # ^ | +1

Take $[1, 2, 1, 3]$ for example. Your algorithm will give `NO`, but a possible sharpened array generated from this could be $[1, 2, 1, 0]$.

→ Reply

Kuroni

kojak_

3 days ago, # ^ | 0

Thanks! I got obfuscated believing that if there's a YES answer, it MUST be when a[k] = MAX(a) :-(

Good lesson!

→ Reply

darXtar

3 days ago, # | 0

FASTEST editorial in the WEST!! ^_^

→ Reply

Thallium_is_Vegetable

3 days ago, # | +13

Thanks for the fast editorial and an interesting D!

→ Reply

codeanna

3 days ago, # | -10

For div-2 D,I think atleast two different character is sufficient instead of three.. Pls give any counter example.

→ Reply

rokaf2020

3 days ago, # ^ | 0

aabba

→ Reply

codeanna

3 days ago, # ^ | 0

Consider t = bbaaa

→ Reply

+3

rokaf2020

3 days ago, # ^ |

aabb|a bbaa|a

→ Reply

codeanna

3 days ago, # ^ |

0

Oh thanks..

→ Reply

rokaf2020

3 days ago, # ^ |

0

Cheer up and good night :(((...

→ Reply

Akikaze

3 days ago, # ^ |

0

Any two-distinct-character string with both ends having the same character will have a reducible anagram. Proof is pretty trivial.

→ Reply

harsh_joeyit

3 days ago, # |

0

Its seems too early for the tutorials. Good Job Guys!

→ Reply

Boron

3 days ago, # | ← Rev. 2

+4

can some one explain how monotonic dequeue has been used in Mind Control (Div2 C / Div1 A) to solve the problem in O(n).

→ Reply

davidberard

3 days ago, # ^ | ← Rev. 3

+8

First, calculate b[] in O(n)

Then, use a min queue. Start by pushing the first m-k values into the queue, and define ans = 0.

Then perform the following steps k+1 times:

Then perform the following steps k+1 times:

1. Query v = min in queue, and set ans = max(ans, v)
2. Add the next value of b into the queue
3. Pop a value off the front of the queue

→ Reply


Boron

3 days ago, # ^ | 0

THANKS

→ Reply


mini4141

3 days ago, # | ← Rev. 2 -21

ignore this comment, it is wrong.

→ Reply


spookywooky

3 days ago, # ^ | 0

This wont work. They do not take maximum, the take that ends that the max of the remaining two elements will be minimum.

Same true for your k choices, you do not take minimum, you take that what maximizes the possible result at the end.

→ Reply


mini4141

3 days ago, # ^ | ← Rev. 2 0

yeah, it is wrong, just find a simple counter

but for the remaining M — K people isn't it optimal to take max? because if no one take it, i will take it in the end and the answer will better for me

→ Reply


spookywooky

3 days ago, # ^ | 0

If you take max, the next element could be even bigger. So, what counts is what is left after you take them, not what you take.

→ Reply

MubtasimShahriar

3 days ago, # | +36

Waiting for the rating update. Wish to see blue tag in my own profile for the very first time. Thanx to the whole CF community for making me this kind of eager for competitive programming.

→ Reply

265918

3 days ago, # ^ | +26

And now you have it! Congratulations!!!

→ Reply

sapjv

3 days ago, # ^ | +4

Congratulations !

→ Reply

MubtasimShahriar

3 days ago, # ^ | +4

Actually I won't be able to explain, how much happy I have become right now.

Once it was just a dream for me. But it just became true.

Wish to become PINK soon. Pray for me. Thanks to the whole community.

→ Reply

num73

3 days ago, # ^ | +3

Congratulations !

→ Reply

doraemonrobocat

3 days ago, # | ← Rev. 3 0

i didn't get the last case For D's Editoral:

s="abaababba"

Can't we do take all character of s[n] together abd add rest character

Can't we do take all character of s[n] together abd add rest character?

t="aaaaabbbb"

in this way upto length n-1 there will be difference of prefix of S and t for last Character (in this case 'a')

Correct me if i am wrong

Ps:I got it

→ Reply

aliraiisrohani

3 days ago, # | +13

Binary search tag D?!

→ Reply

TheSawan

3 days ago, # ^ | +8

To know how many distinct characters in range [L,R], you can for each character do a binary search to get the first occurrence for this character greater than or equal to L,if it was smaller than R then you know that this character exists in the range .

→ Reply

ManuelLoaiza

3 days ago, # ^ | 0

Sure, you can store the position of each time a character appears on the string and find the number of times the character c appears in the range $[l, r]$ as $upperbound_c(r) - lowerbound_c(l)$. That technique could be useful in other problems. You can check this code to know how to implement it.

→ Reply

sumantopal07

3 days ago, # | 0

feels like i would remain pupil forever

→ Reply

3 days ago, # | +36

tourist back to 1. Finally bug on codeforces resolved.

→ Reply

sumantopal07

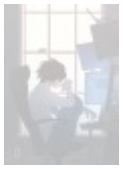
→ Reply

Zagoshipda

3 days ago, # ^ | +10

it really was a bug...!

→ Reply



ivatopuria

3 days ago, # | ← Rev. 3 -28

→ Reply

The comment is hidden because of too negative feedback, click here to view it

arvindr9

3 days ago, # | 0

From 1290C Sol: "Since the answer exists for i=n, there exists a such partition of the graph (into "red" and "blue" nodes). We can find it with usual dfs, and keep it for lower values of i"

Why is this coloring still optimal for i < n? What if there is a more optimal coloring? Can someone give me a proof for why we can still use the same coloring for lower values of i?

→ Reply

Kuroni

3 days ago, # ^ | +8

From the full graph to the graph representing the state $i < n$, we do nothing but take away edges. That means intuitively, there are less constraints to force the colorings, so the coloring still works.

→ Reply

SinKing

3 days ago, # | -15

Are there some strong folks who can explain how the "Cartesian" tree from div1 E actually constucted. Preferably, explanation of the first example, sequences of length 4 and more.

What is the step of recursion. Why for length 4 from example numbers from left and right parts of MAX are mixed. Can't grasp at all.

→ Reply

3 days ago, # | 0

why do we do strategyAns = min(strategyAns, caseAns); and not max pls help(Div2C)

ilmaxwell

Why do we do strategyAns = min(strategyAns, caseAns), and not max pls help(DIV2C)

→ Reply

MasterMind

3 days ago, # ^ |

0

because we want to take the maximum minimum of the numbers left. The first sample case was well explained:

```
2 9 2 3 8 5
The first one was forced to take 5
2 9 2 3 8
The second one was forced to take 2
9 2 3 8
and One guy left, he could take 8 so we can take 9, but if he took 9 then we can take 8. so we just took the maximum minimum, and that is the least maximum number that we could take.
```

→ Reply

Mohammad_Yasser

3 days ago, # |

+66

I think I have a bit simpler implementation for Div1 C.

I use an ordinary DSU, with representing each original node x with two nodes, one that represents that x will be chosen and the other one representing that x will not be chosen, let's call them x_{true} and x_{false}.

Also, each root has a cost, which is the cost to choose that root. Initially, the cost of each root is 1 if it is a $true$ node and 0 otherwise.

I also create a dummy node representing the $nochoice$. The cost of its $true$ node is 0, and the cost of its $false$ node is OO.

To merge two nodes x and y, if they must take the same value, then $join(x_{true}, y_{true})$ and $join(x_{false}, y_{false})$, else $join(x_{true}, y_{false})$ and $join(x_{false}, y_{true})$.

To force a node to be $true$ or $false$, then join it with the $nochoice$ node.

The solution maintains the total cost and updates it upon merging in a similar manner to the tutorial's

The solution maintains the total cost and updates it upon merging in a similar manner to the tutorial's solution. The dummy node makes it unnecessary to care for overflows or minimize the costs with OO, since that OO will only be counted once, in the dummy node.

Code: 70098404

→ Reply

soul_departed

15 hours ago, # ^ |

0

Had similar idea, the approach is kind of a 2-SAT (Boolean Satisfiability)

→ Reply

SPyofgame

3 days ago, # |

-8

Thanks for the useful tutorial <3

```
Have a nice day <3
```

→ Reply

jtnydv25

3 days ago, # |

0

Regarding D,

In the problem: partition the graph having directed edges (i, j) for all $i < j$ into edge-disjoint paths,

Isn't it possible to prove using Hall's theorem that number of disjoint paths must be $\geq$ about $\frac{n^2}{4}$?

This means that 1.5 is the best possible factor for the above approach. How do you get a factor of 1.2 in randomized DFS then?

→ Reply

Ari

3 days ago, # ^ |

+13

The graph is not directed. As long as we visit vertices i and j consecutively in a path in any order we will be able to remove all equalities. The only difference is which of the blocks will have elements deleted.

→ Reply

teluguboy

3 days ago, # | ← Rev. 2 0

I Failed on 1291B because i thought that operation must be done on only a single element not any element... need to read question next time Lol

→ Reply

bayrhuu

3 days ago, # | 0

Thanks for the fast editorial.

Is here a guy who knows a different solution of Irreducible Anagrams?

→ Reply

bayrhuu

3 days ago, # ^ | ← Rev. 2 0

I interested on it because Irreducible Anagrams has binary search, data structures, strings, two pointers problem tags .

→ Reply

Ari

3 days ago, # ^ | ← Rev. 3 +12

There are quite a few other solutions to Irreducible Anagrams, differing on how the third condition is handled. I believe the one in the editorial is the most straightforward, but some other possible solutions we intended to pass include:

- Find for each left endpoint l the maximum x such that $s[l, x]$ contains at most two different characters. After preprocessing this allows us to answer queries in $O(1)$. This can be done in $O(n)$ using a somewhat straight forward two pointers algorithm, for a final complexity of $O(n + q)$.
- One can use any of the standard solutions for the classic "count number of distinct values in a range" problem, such as Mo's Algorithm in $O(n\sqrt{q})$, or Sorting + Fenwick Tree in $O(q\log(n))$.
- Some other silly solutions also passed, such as using segment trees instead of prefix sums to find whether a substring contains a certain character, which results in $O(26\log n)$ per query. This is a rather strange thing to do, but some people did actually pass with solutions like this ¯_(ツ)_/¯.

I'm sure there's many other solutions that could get accepted in this problem, as constraints were low enough to allow basically everything that isn't straight up quadratic to pass.

→ Reply

→ Reply

bayrhuu

3 days ago, # ^ | 0

Your solution is understandable readable. thanks ;)

→ Reply

Partharora1010

3 days ago, # | ← Rev. 2 +8

Nice and clear problems with good pretests. Liked it very much!! :)

→ Reply

talant110726

3 days ago, # | 0

Thanks for the contest (And I won't definitely sleep a few nights)!

→ Reply

low_

3 days ago, # | +11

Eurrghhhh... I just realize what the easter eggs mean...

I'd never trust weebs ever again >: (

→ Reply

3 days ago, # | ← Rev. 2 +3

hard version of question Div2-C is when you can chose from all numbers(not just from end or front) and your friends must chose from front or end.

ya_hossein

i misunderstood and spent about two hours to solve it and after solving i got that i misunderstood

however i solved question C and learnt many thing

one of them is check test-cases before solving question

→ Reply

41 hour(s) ago, # ^ | ← Rev. 2 0

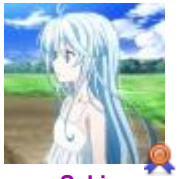
I don't fully understand how this is harder. tbh? let dp[i][j][k] be the answer for the subarray from i

barun511

I don't fully understand how this is harder, tbh? let dp[i][j][k] be the answer for the subarray from i to j with k people for you to manipulate. Then dp[i][j][k] = max(dp[i+1][j][k-1], dp[i][j-1][k-1]). When k = 0, suppose there are p people left to pick who you cannot manipulate. Then you know that they will leave some contiguous subarray of length (j — i + 1 — p). You can iterate over all subarrays of such length and pick the minimum of the maximum of all subarrays.

I did exactly this except instead of picking the min of max of all subarrays, i picked the min of max of all (first element/last element) of subarrays. 70060565

→ Reply



Szki

3 days ago, # | 0

So fast

→ Reply

SinKing

3 days ago, # | ← Rev. 2 -10

I tried to understand the statement of Div1E (Cartesian Tree), but failed. If someone understood and can clarify one thing in construction of the tree, i will be very grateful.

In the very first example, given the sequence 4, 2, 7, 3, 5, 6, 1. According to algorithm, we should take maximum, 7 in this case, so position x = 3(is it correct?). Then we construct trees for [4, 2] (left tree) and [3, 5, 6, 1] (right tree) (again, any missunderstand?). Then, due to step 5, left and right constructed trees become left and right subtrees and the root is temporary removed number. And it maximum, 7 in this case. But in example the resulting tree has root that is not 7 and 1 and 2 in the same subtree, while they were in different parts after breaking the sequence.

Where am I wrong?

P. S. I see that it is ordered as BST, and what i do is a mess. That's why i ask for some help.

→ Reply

LeoPro

2 days ago, # ^ | +1

The announcment for problem E says: "In the notes to samples, the nodes in the tree are labeled by indices, while the tree in the explanation is labeled by value. Sorry for the inconvenience caused. The problem doesn't change."

That's why the root of sample tree isn't "7". It labeled "3" because 7 is third element of the array (x

That's why the root of sample tree isn't "1". It labeled "3" because 1 is third element of the array (x = 3). Also 1 and 2 are in the same subtree due to they're indicies of 4 and 2 (a[1] = 4 and a[2] = 2).

→ Reply

SinKing

2 days ago, # ^ | 0

Thaks a lot! Short and clear explanation. Finally I can enjoy the beaty!

→ Reply

sywVivian

2 days ago, # | 0

I want to know that if the problem C has a better solution.

→ Reply

Kuroni

2 days ago, # ^ | 0

What kind of "better" do you want. We have a linear solution already.

→ Reply

rsFalse

2 days ago, # | ← Rev. 3 0

Div.2 **B**. What is test case 2: 109th line? It seems I'm wrong with my solution, but I can't hack myself. I prepare pyramide-like triangle of "minimal possible values", and then check if all values of an array are higher (70047658).

UPD. Solved. My "pyramide" should be sharper at a top in case of even number of elements!

→ Reply

Dumped

2 days ago, # ^ | 0

did almost same and getting the same problem

→ Reply

2 days ago, # | +5

whats wrong in my code i check for min number at respective indices of array for n = 4 it should be 0 1 2 0

Dumped

or 0 2 1 0 and similarly for other n values (problem 2)

→ Reply

rsFalse

2 days ago, # ^ | 0

Thanks. I found my mistake by looking at your examples.

Ok. How do you expand "pyramide" of higher N? E.g. n == 6.

→ Reply

Dumped

2 days ago, # ^ | 0

0 1 2 3 1 0 or 0 1 3 2 1 0 this is how

→ Reply

Superty

2 days ago, # | ← Rev. 4 +10

Thanks for the problems, I really enjoyed them. Here's an alternate solution for C.

We will find the answer for each i by iterating from 1 to n. For each set, we associate a cost of picking that set. Initially this cost is 1 for every set.

If i is currently off, then we pick the lowest cost set that contains i. We are going to keep transforming the sets and costs so that doing this produces the correct answer.

If i is off, then in this and all future iterations exactly one of the sets that contains i should be selected. If there is only one set containing i, we remove it. If there are two, say S and T where S was selected in the current iteration, then we want to have the ability to unselect S and select T instead in later iterations. The set of positions that get flipped by doing this is $U = S \operatorname{xor} T$ and the cost of doing this is $cost(T) - cost(S)$. So we can enforce this by removing S and T and adding this new set U with this cost. (this is kind of similar to residual edges in Ford-Fulkerson; here U is a residual set)

If position i is already on, then if it is contained in exactly one set, this set should never be picked hereafter, so just remove it. If it is contained in two sets S and T, then in all future iterations either they should both be picked or neither. We can accomplish this by removing S and T and adding $U = S \operatorname{xor} T$ with cost $cost(S) + cost(T)$.

70094066

→ Reply

→ Reply

piash1804076

2 days ago, # | -10

what is the reason behind comparing the vallues with array indexes?? in B cant get this:)

→ Reply

Loolo

41 hour(s) ago, # ^ | 0

Because the array wont be strictly increasing if the values of array are less than the sequence 0,1,2,3,..,n that is similar to array indexes.

→ Reply

chandrachud200

2 days ago, # | 0

In Div2 C why having more control is optimal ? Any kind of proof would be helpful ?

→ Reply

Turtle_hermit16

2 days ago, # | 0

Can someone explain me how to approach Problem A . I am stuck I am new to comp prog feeling depressed after going through this contest .

→ Reply

piash1804076

39 hours ago, # ^ | 0

if we take even numbered odd digits then we can easily get the evne numbers described in A.if we take only two odd numbers it can be one of the evne numbers.

→ Reply

Falcon__

38 hours ago, # | 0

Can someone explain the div2.E's the way to maintain the number of the red and blue nodes,I can not understand the code's defining of l,r...

→ Reply

31 hour(s) ago, # | 0

I have a doubt in Div1A/Div2C: Why should I select the control the **first** k persons in the queue, and not in

mshiladityam

I have a doubt in DIV2C. Why should I select the control the **first** k persons in the queue, and not in some other order: like why not first $m-1-k$ can select randomly, and the last k elements should select the element I forced them too. Please help.

→ Reply

legendary

30 hours ago, # ^ | ← Rev. 3 0

we will choose the first K cause we want the answer for the person in the mth position to be maximum after he chooses he will leave so the people after him will have no effect on the value X but I didn't understand exactly the intuition behind how to get the optimal answer

→ Reply

mshiladityam

16 hours ago, # ^ | 0

Please don't answer questions you don't understand: I am asking about which k people to choose for controlling.

→ Reply

ryuxin

25 hours ago, # ^ | 0

I have the same question. How to choose which k person to control? The first k? Or others?

→ Reply

I_love_low_

11 hours ago, # ^ | +9

Basically, in order to know what element that $m-$ th person picks, you need to know after $m-1$ persons picks the elements themselves, what the remaining subarray is. And the remaining subarray only depends on the number of persons choosing the head element (or equivalently, the amount choosing the tail element) in $m-1$ persons. It indicates that the order is not important, and you can pick any k persons to control.

→ Reply

legendary

30 hours ago, # | 0

i didn't understand div 2 C solution can anyone explain it in a more intuitive level thanks in advance

→ Reply

10 hours ago, # ^ | ← Rev. 2 0

Brute force on the persuade people by taking two-pointer one starting from 0 index(say left) and

kunal_rai

one at n-min(k,m-1)-1 (say right), then for each pair of left and right, find the minimum element you can get by brute-forcing from left to right with the same approach of taking two-pointer one starting from left(say l) and another at n-m+left(say r), then find minimum from max(a[l], a[r], r till right.

Do the same for all the values of left and right. And the maximum of all the values will be the answer.

70354436

→ Reply

kunal_rai

10 hours ago, # |

0

Can you help me to find the time complexity of my submission with explanation for Div2 C problem
70354436

→ Reply