# Advanced Data Structures and Algorithm Analysis
## Assignment 1
## Coding Contests Report

**Name of the Student:** K. Varun **Roll Number:** 23501A0569

| S. No. | Date Of Contest | Name of Contest | Problems Solved | Score Achieved | Contest Rating | Contest Rank |
|---|---|---|---|---|---|---|
| 1. | 17-07-24 | Starters 143 CodeChef | 2 out of 7 | 200 / 700 | 969 | 8559 |
| 2. | 31-07-24 | Starters 145 CodeChef | 3 out of 7 | 300 / 800 | 1104 | 8313 |
| 3. | 07-08-24 | Starters 146 CodeChef | 3 out of 7 | 300 / 700 | 1197 | 6853 |
| 4. | 14-08-24 | Starters 147 CodeChef | 2 out of 8 | 200 / 800 | 1189 | 15736 |
| 5. | 21-08-24 | Starters 148 CodeChef | 3 out of 8 | 300 / 800 | 1238 | 6834 |
| 6. | 28-08-24 | Starters 149 CodeChef | 2 out of 9 | 200 / 900 | 1234 | 15185 |
| 7. | 04-09-24 | Starters 150 CodeChef | 3 out of 9 | 300 / 900 | 1263 | 6363 |
| 8. | 11-09-24 | Starters 151 CodeChef | 1 out of 6 | 100 / 600 | 1249 | 15903 |
| 9. | 25-09-24 | Starters 153 CodeChef | 3 out of 8 | 300 / 800 | 1256 | 11696 |
| 10. | 02-10-24 | Starters 154 CodeChef | 3 out of 7 | 300 / 700 | 1285 | 6891 |
| 11. | 09-10-24 | Starters 155 CodeChef | 2 out of 7 | 200 / 700 | 1276 | 12275 |
| 12. | 16-10-24 | Starters 156 CodeChef | 2 out of 8 | 200 / 800 | 1254 | 28613 |
| 13. | 20-10-24 | GFG Weekly 177 Geeks for Geeks | 1 out of 4 | 10 / 100 | N/A | 2096 |
| 14. | 23-10-24 | Starters 157 CodeChef | 2 out of 8 | 200 / 800 | 1255 | 12358 |
| 15. | 27-10-24 | GFG Weekly 178 Geeks for Geeks | 1 out of 4 | 10 / 100 | 1485 | 2033 |
| 16. | 30-10-24 | Starters 158 CodeChef | 2 out of 8 | 200 / 800 | 1243 | 12051 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17. | 03-11-24 | GFG Weekly 179 Geeks for Geeks | 1 out of 4 | 10 / 100 | 1480 | 2108 |
| 18. | 06-11-24 | Starters 159 CodeChef | 3 out of 8 | 300 / 800 | 1252 | 10777 |

**Total Contests Participated:** 18 **Total Problems Solved:** 39

**Note:** PFA of all the contests proofs below:

## ***CODECHEF***

Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| International Justice Day ✔ | JUSTICE | 16180 | 80.15 |
| Maximum Coins ✔ | MAXCOIN | 10499 | 47.89 |
| Binary Conversion | CONVERT | 1675 | 14.85 |
| Non-Divisor Array | DIVCOL | 1296 | 17.09 |
| Max Min and Length | MAXMINLEN | 9 | 0.55 |
| Spread of Ratism | RATISTERA | 4 | 1.74 |
| Lex Min Binary String | LEXMINBIN | 0 | 0 |

NON SCORABLE PROBLEMS FOR PRACTICE

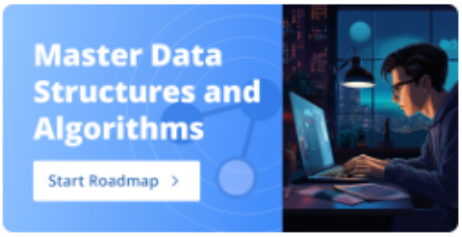
The following problems are **NOT part of the contest**, and will not be counted towards your rankings and ratings. These are problems from the other Division(s), made available for you to practice. Click here to know more. They will be considered for plagiarism though.

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Split Sort Permutation | SPLITSORT | 0 | 0 |

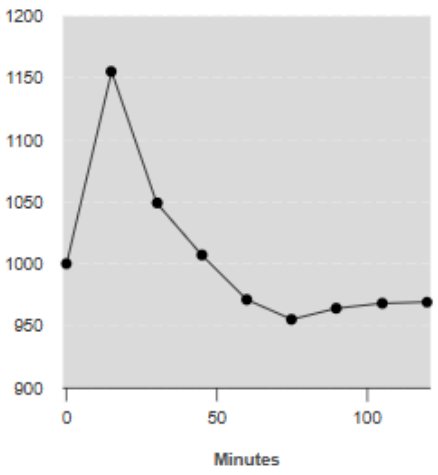
ANNOUNCEMENTS

Important links

Contest Introduction




Live Ratings Graph




Snapshot of your live ratings during the contest

Contest Ranks

Your Rank: 8559
Score: 200

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Volume Comparison ✔ | CABLE | 25756 | 67.5 |
| Gun Master ✔ | GMGM | 20416 | 77.65 |
| Make My Array Equal | MEBA | 7955 | 37.15 |
| Make Bob Win ✔ | DLSB | 4864 | 44.34 |
| Square String | SQING | 167 | 8.44 |
| Querified | QUERY1206 | 3 | 0.26 |
| Beautiful Array | ARRBEAUT | 2 | 0.34 |
| Token Passing on Tree | TOKTREE | 0 | 0 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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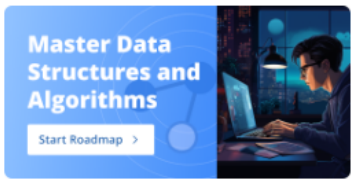
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Find the smallest array | SMLARR | 0 | 0 |

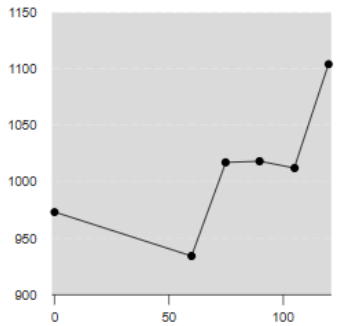
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 8313
Score: 300

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Olympics 2024 ✔ | OLYMPICS24 | 27517 | 80.06 |
| No Winner ✔ | NOWINNER | 17876 | 43.92 |
| Knockout tournament ✔ | KNOCKOUT | 7137 | 54.91 |
| Permutation Construction | CREATEP... | 5562 | 44.86 |
| Bouncing Ball | BOUNCE_... | 1525 | 23 |
| Back Front | BACKFRONT | 7 | 0.48 |
| Connect The Chains | CTC | 2 | 0.34 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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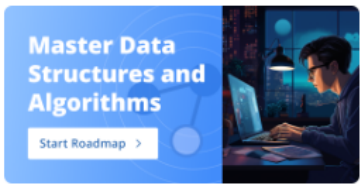
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Binary Strings Yet Again | BINSTRAG... | 0 | 0 |

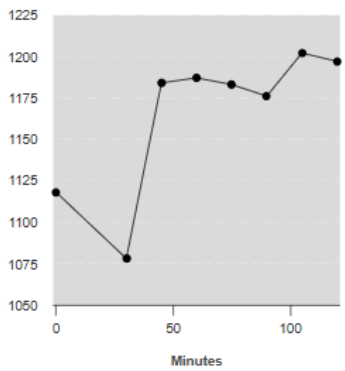
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions



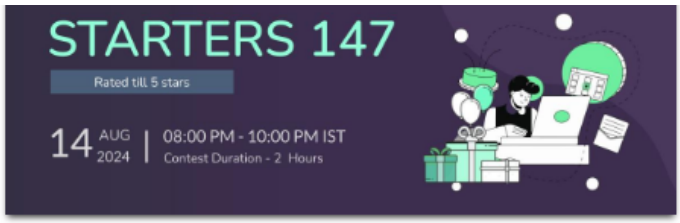

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 6853
Score: 300

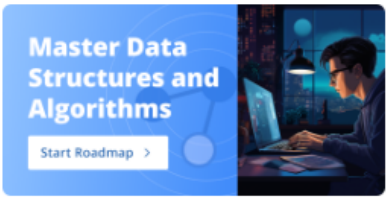



### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Gold Coins 101 ✔ | GOLDCOINS | 25533 | 84.14 |
| Independence Day 101 ✔ | INDEPEND... | 20055 | 48.36 |
| Truth Teller And Liars 101 | TRUTHLIE | 11623 | 30.27 |
| Non-Primes 101 | NONPRIM... | 1839 | 9.41 |
| Shortest Distances 101 | DATA101 | 33 | 0.83 |
| K Subsequence 101 | REMK | 7 | 0.74 |
| Counting Triangles 101 | CNTTRIAN... | 7 | 0.96 |
| Counting is Fun 101 | CNTSTILL... | 3 | 0.48 |

### Important links

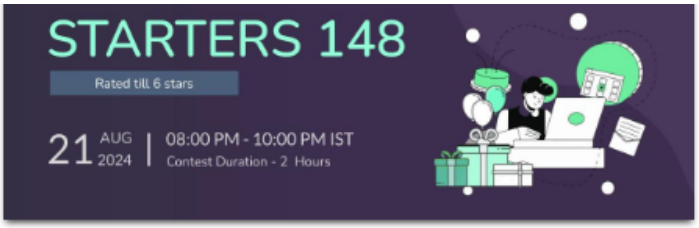
Contest Introduction
Textual Problem Solutions




### Contest Ranks

Your Rank: 15736
Score: 200

Go to Contest Ranks




### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Clearance Sale ✔ | CLEARANCE | 29849 | 83.88 |
| Let Me Eat Cake! ✔ | CAKEHALF | 24541 | 74.08 |
| FightBots ✔ | FIGBOT | 7783 | 37.27 |
| The Undisappearance | ALL3 | 25 | 0.59 |
| Double Trouble | JUSTTWO | 21 | 0.25 |
| Beautiful Flip | KBFLIP | 10 | 0.63 |
| ZigZag Tree Sequences ... | ZIGZAGTR... | 3 | 0.68 |
| Xor Minimization (Easy) | XIN | 0 | 0 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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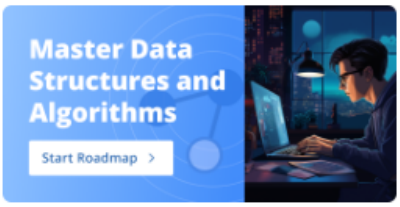
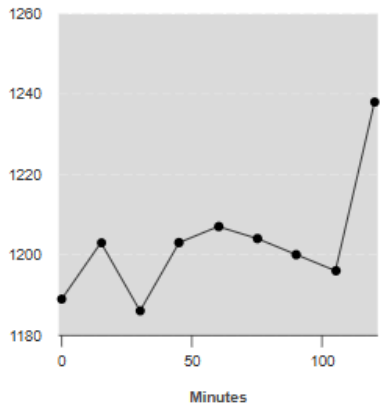
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Xor Minimization (Hard) | XIN2 | 0 | 0 |
| ZigZag Tree Sequences ... | ZIGZAGTR... | 0 | 0 |

### Important links

Contest Introduction
Textual Problem Solutions



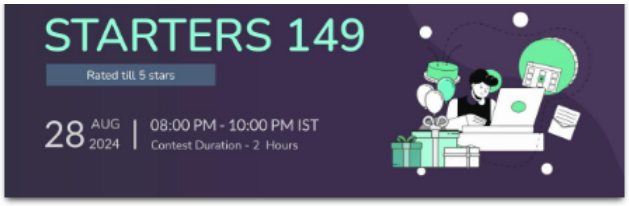

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 6834
Score: 300




### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Approximate Answer ✔ | P1149 | 30645 | 66.57 |
| Magical World ✔ | P2149 | 17468 | 38.06 |
| Easy Subarray Sum | P3149 | 9513 | 33.01 |
| Maximise Sum ✘ | P4149 | 6330 | 30.14 |
| Chef Loves Beautiful Stri... | ZXC | 475 | 20.87 |
| Kill Monsters (Easy Versi... | CXZ | 28 | 1.13 |
| Kill Monsters (Hard Versi... | MMA | 17 | 5.73 |
| Chef Loves Beautiful Stri... | P5149 | 2 | 0.68 |
| Construct Degree | P7149 | 0 | 0 |

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| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Magician In War | P149 | 0 | 0 |

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| IOI 2024 ✔ | IOI2024 | 23556 | 77.12 |
| Ratio By 2 ✔ | RATIO2 | 12140 | 48.47 |
| Find Multiset State ✔ | ARRAYSTA... | 9699 | 46.83 |
| Equal Pairs (Easy) ✘ | MAXEQEA... | 4476 | 38.19 |
| Equal Pairs (Hard) | MAXEQUAL | 506 | 11.77 |
| Min Ops (Easy) | MINOPS1 | 20 | 3.04 |
| Replacing Game | REPLACE... | 12 | 1.1 |
| Min Ops (Hard) | MINOPSII | 8 | 5.03 |
| Tree Requirements (Easy) | TREEREQ1 | 2 | 0.58 |

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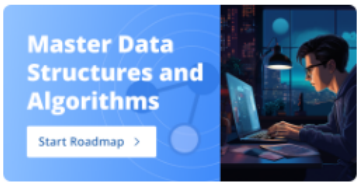
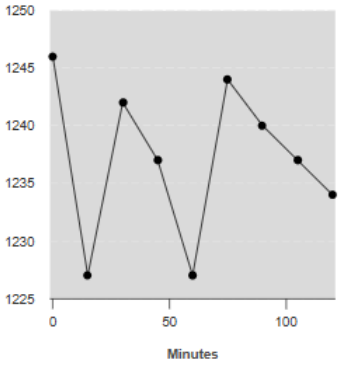
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Not Equal On Tree | NOTEQUA... | 0 | 0 |

### Important links

Contest Introduction




### Live Ratings Graph




Snapshot of your live ratings during the contest

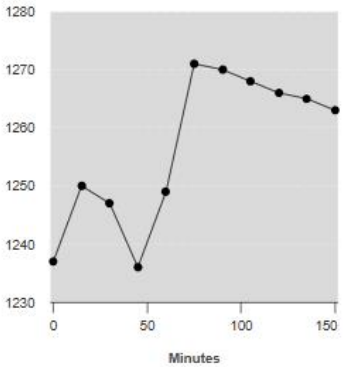
### Contest Ranks

Your Rank: 15185
Score: 200

### Important links

Contest Introduction
Textual Problem Solutions

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 6363
Score: 300

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Weightlifting ✔ | WEIGHTLIFT | 29478 | 83.76 |
| International Gym Day | GYMDAY | 10813 | 19.7 |
| Convert string | SAMESTR | 5968 | 43.88 |
| Ball Game | BALL_GAME | 577 | 18.13 |
| Shooting (Easy) | SHOOT0 | 147 | 2.3 |
| Sequence Search | SEQSEAR... | 48 | 1.49 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| RGB Grid (Easy) | RGBGRID_... | 0 | 0 |
| Shooting (Hard) | SHOOT | 0 | 0 |
| RGB Grid (Medium) | RGBGRID_... | 0 | 0 |
| RGB Grid (Hard) | RGBGRID | 0 | 0 |

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| AI is Coming ✔ | AICOM | 34148 | 84.47 |
| Make Arithmetic Progres... ✔ | AP | 28040 | 61.03 |
| Butterfly ✔ | BFLY | 24260 | 69.11 |
| Another Game | KARR | 6690 | 25.96 |
| Colorful Tree (Easy Versi... | CTRE | 2897 | 50.61 |
| Xometry (Easy Version) | XSQR | 592 | 14.41 |
| Xometry (Hard Version) | XSQRH | 4 | 0.69 |
| Colorful Tree (Hard Versi... | CTRH | 0 | 0 |

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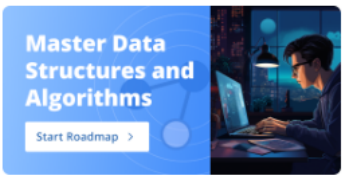
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Paired Tree | PTRE | 0 | 0 |

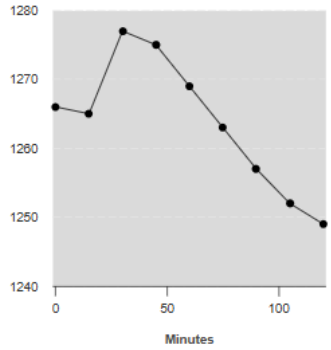
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph



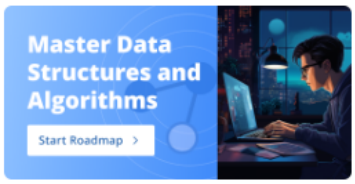

Snapshot of your live ratings during the contest

### Contest Ranks

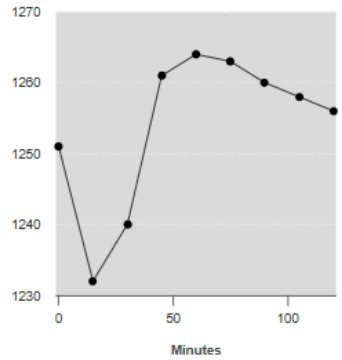
Your Rank: 15903
Score: 100

### Important links

Contest Introduction
Textual Problem Solutions



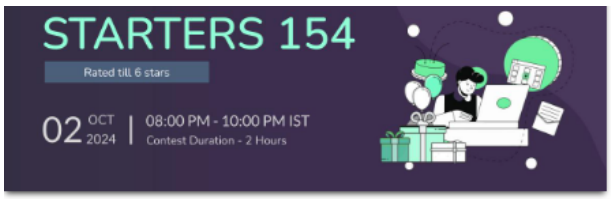

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 11696
Score: 300




### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Coldplay Tickets ✔ | COLDPLA... | 27551 | 72.89 |
| Calorie Limit ✔ | CALLIM | 22426 | 68.77 |
| Add 1 or 2 Game ✔ | ADD12GAME | 14855 | 31.72 |
| GCD and XOR | GCDXOR | 1806 | 16.33 |
| Triangle Count (Easy) | TRICOUNT1 | 191 | 3.3 |
| Count Winning Subarrays | COUNTWI... | 24 | 0.43 |
| Tree Cut Xor | TREECUT... | 11 | 0.66 |

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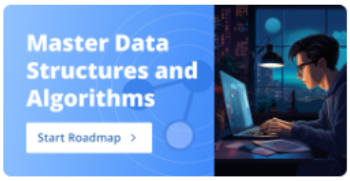
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Triangle Count (Hard) | TRICOUNT2 | 0 | 0 |
| Min Max Paths | MINMAXPA... | 1 | 0.75 |

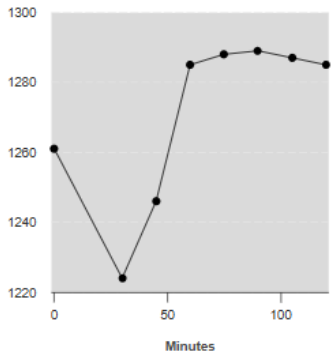
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions



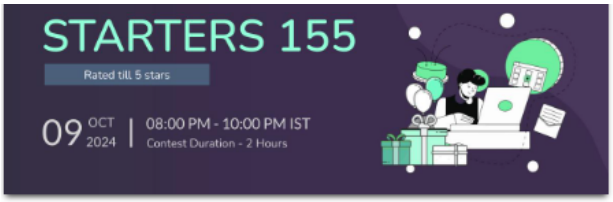

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 6891
Score: 300




### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Chef and Parole ✔ | CHEFPAR... | 25951 | 74.31 |
| Rectangled ✔ | RCTGLD | 20391 | 61.08 |
| GCD to 1 (Easy) | GCD_1 | 6256 | 29.18 |
| GCD to 1 (Hard) | MINGCD_1 | 2119 | 17.19 |
| Replace With First | STRFIRST... | 174 | 2.15 |
| Prefix Suffix Min Max | PREFSUM... | 115 | 4.94 |
| Array Concatanation | ARRCONC... | 17 | 1.14 |

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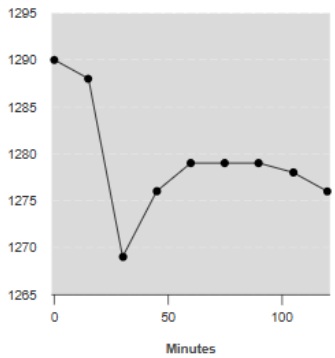
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Replace With First Literally | FIRSTSTR... | 0 | 0 |
| Numismatics | NUMMAT | 0 | 0 |

### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions

### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 12275
Score: 200

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Sweets Shop ✔ | SWEETSH... | 33027 | 78.47 |
| Long Queue ✔ | LONGQUE... | 26689 | 74.29 |
| Even Numbers Hate | EVENHATE | 12179 | 39.85 |
| Partition Score | PARTSCORE | 5596 | 40.44 |
| Count Triplets | COUNTTRIP | 134 | 2.79 |
| Balance Difficulties | BALDIFF | 124 | 6.93 |
| Interval Cliques | INTCLIQUE | 44 | 4.67 |
| Keep Magnets Separated | MAGNET | 9 | 0.88 |

### NON SCORABLE PROBLEMS FOR PRACTICE

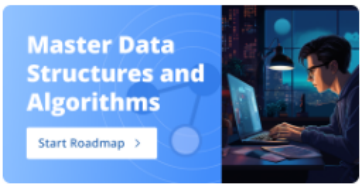
The following problems are **NOT part of the contest**, and will not be counted towards your rankings and ratings. These are problems from the other Division(s), made available for you to practice. Click here to know more. They will be considered for plagiarism though.

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Expected Value Problem | EVVAL | 1 | 0.55 |

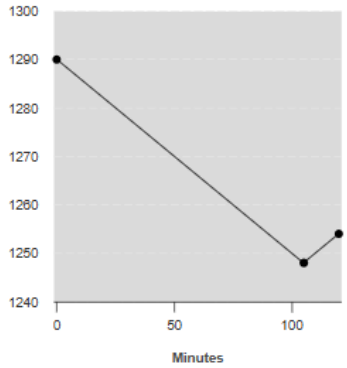
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 26753
Score: 200

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Glass Prices ✔ | GLPR | 27380 | 63.43 |
| Non-matching Name ✔ | ABNOMAT | 15855 | 55.96 |
| Not-too-far Replacement | TWOCLOSE | 4585 | 28.29 |
| Small, Smaller, Smallest | BSHORT | 2763 | 22.78 |
| Normal is Good (Easy) | NORMALEZ | 871 | 15.26 |
| Unmedian | MEDIANT | 106 | 7.71 |
| Normal is Good | NORMAL | 18 | 0.94 |
| MEXtreme Divisibility | ONEDIF | 2 | 0.16 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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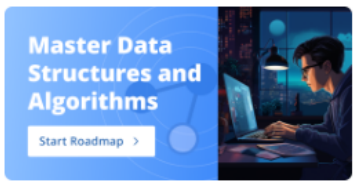
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Saturated Subarrays | SATSUB | 0 | 0 |

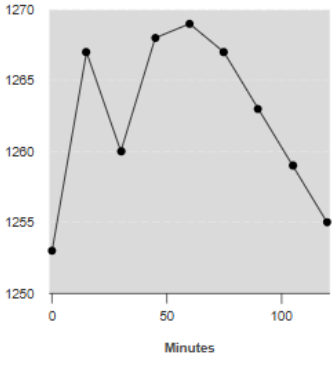
### ANNOUNCEMENTS

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 8183
Score: 200

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Diwali Discount ✔ | DIWALIDISC | 23942 | 84.25 |
| Even vs Odd Divisors ✔ | EVENODD... | 20104 | 75.86 |
| Largest Subsequence | LARGESUB | 5252 | 33 |
| XOR Smaller ✘ | XORSMALL | 3131 | 36.57 |
| Multiply 2 to Minimize | MUL2 | 656 | 15.95 |
| Buying Game | BUYGAME | 332 | 9.63 |
| Make a Tree | MAKETREE | 4 | 0.6 |
| Index Compression (Eas... | INDEXCOMP | 2 | 0.44 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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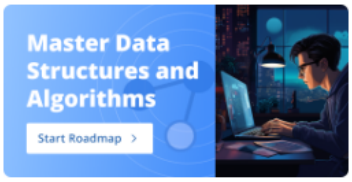
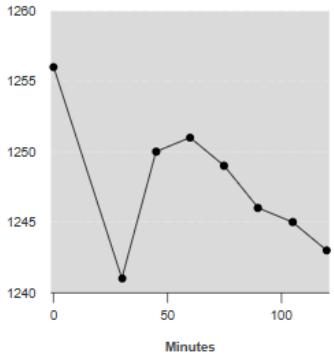
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Global Warming | GLOBALW... | 0 | 0 |
| Index Compression (Har... | INDEXCO... | 0 | 0 |

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph




Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 11184
Score: 200

### Scorable Problems for Division 4

| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Icecream and Cone ✔ | ICECONE | 32110 | 80 |
| Card Game ✔ | CARDGAM... | 26811 | 65.73 |
| Elections ✔ | USELEC | 13268 | 45.03 |
| Random Nim | RANDOM_... | 5093 | 48.69 |
| Super Hero | SUPER_H... | 761 | 7.62 |
| Chess Colouring | CHESSCO... | 428 | 10.72 |
| Glass Bridge (Easy) | SQUIDGA... | 64 | 6.44 |
| Crafty Coloring (Easy) | CRCOLEZ | 60 | 6.3 |

### NON SCORABLE PROBLEMS FOR PRACTICE

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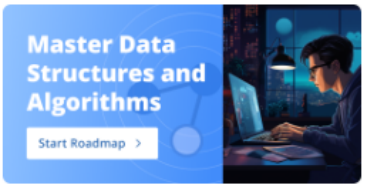
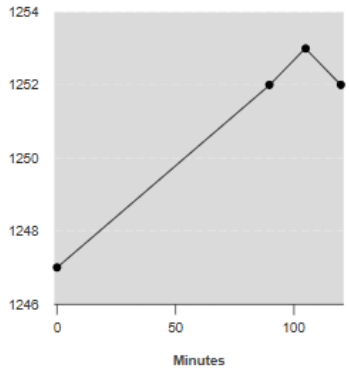
| Name | Code | Successful Submissions | Accuracy |
|---|---|---|---|
| Crafty Coloring (Hard) | CRCOL | 6 | 4.08 |
| Glass Bridge (Hard) | SQUIDGA... | 6 | 8.54 |

### Important links

Contest Introduction
Textual Problem Solutions




### Live Ratings Graph

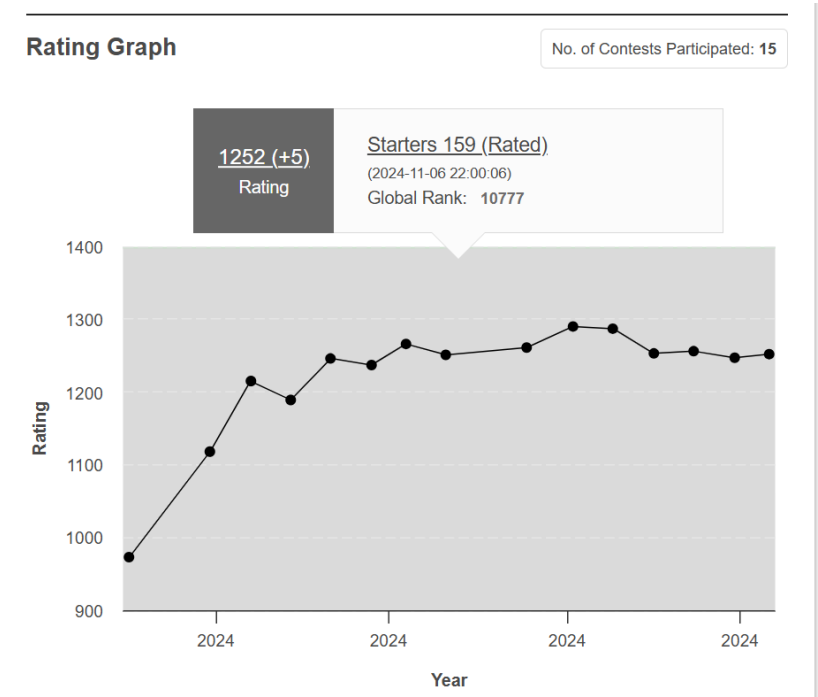



Snapshot of your live ratings during the contest

### Contest Ranks

Your Rank: 10777
Score: 300

## CodeChef Overall Rating Graph

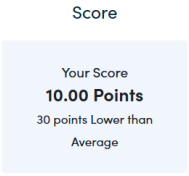



## CodeChef Profile

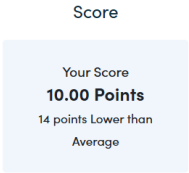
**Username:** varunkaza20
**Highest Rating:** 1290
**Global Rank:** 74903
**Country Rank:** 69657
Profile Link

# *GEEKS FOR GEEKS*

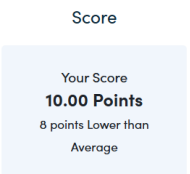
## GFG Weekly 177



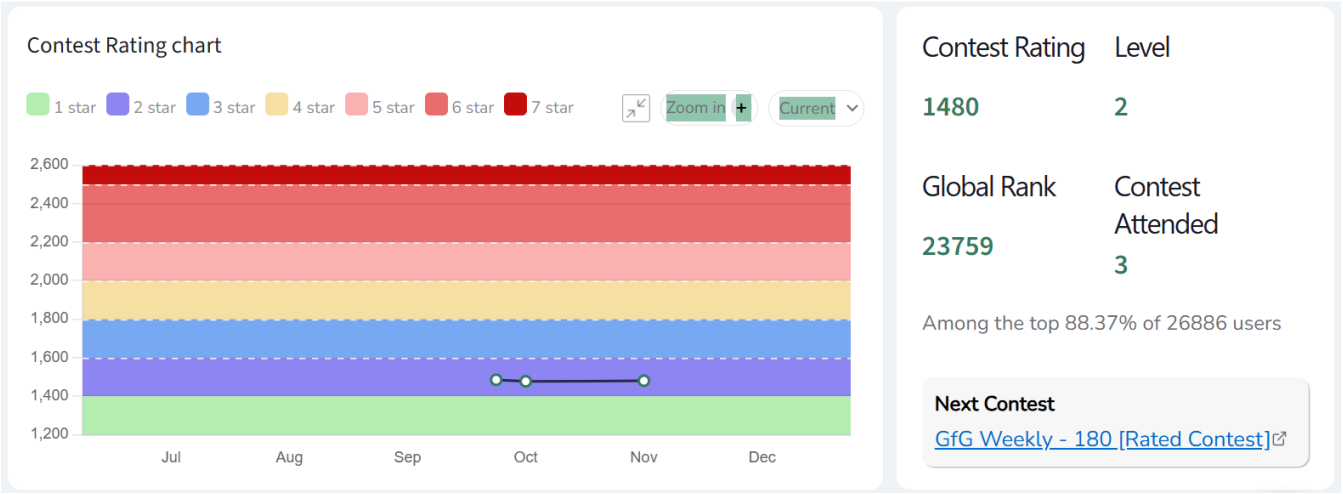

## GFG Weekly 178




## GFG Weekly 179



## Geeks for Geeks Contest Rating Graph




## Geeks for Geeks Profile

**Username:** varunkaza20
**Institute Rank:** 356
**Problems Solved:** 20 (GFG Practice)
Profile Link