

# Codeforces Online Judge

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# Codeforces Online Judge - Phase 3.1

# Lecture Agenda

We will discuss in this lecture  
the following topics

- 1- Divide and Conquer Problems [5 problems]
  - 2- Graph Problems [10 problems]
  - 3- String Problems [10 problems]
  - 4- Data Structures Problems [25 problems]
  - 5- Mathematical Problems [25 problems]
  - 6- Greedy Problems [25 problems]
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Let's  
**STARTUP**

# Lecture Agenda

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**Section 1: Divide and Conquer Problems**

Section 2: Graph Problems

Section 3: String Problems

Section 4: Data Structures Problems

Section 5: Mathematical Problems

Section 6: Greedy Problems



# Divide and Conquer Problems

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- [01] CF-Round 481: <http://codeforces.com/contest/978/problem/C>
- [02] CF-Round 118: <http://codeforces.com/contest/185/problem/A>
- [03] CF-Round 153: <http://codeforces.com/contest/251/problem/A>
- [04] CF-Round 478: <http://codeforces.com/contest/975/problem/C>
- [05] CF-Round 140: <http://codeforces.com/contest/226/problem/A>



# Divide and Conquer Problems Solution

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- [01] CF-Round 481: <https://codeforces.com/contest/978/submission/54802156>
- [02] CF-Round 118: <https://codeforces.com/contest/185/submission/54967377>
- [03] CF-Round 153: <https://codeforces.com/contest/251/submission/55388335>
- [04] CF-Round 478: <https://codeforces.com/contest/975/submission/55708404>
- [05] CF-Round 140: <https://codeforces.com/contest/226/submission/55972567>







# Lecture Agenda

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✓ Section 1: Divide and Conquer Problems

Section 2: Graph Problems

Section 3: String Problems

Section 4: Data Structures Problems

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# Graph Problems

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- [01] CF-Round 134: <http://codeforces.com/contest/217/problem/A>
- [02] CF-Round 236: <http://codeforces.com/contest/403/problem/A>
- [03] CF-Round 245: <http://codeforces.com/contest/429/problem/A>
- [04] CF-Round 321: <http://codeforces.com/contest/580/problem/C>
- [05] CF-Round 360: <http://codeforces.com/contest/687/problem/A>
- [06] CF-Round 385: <http://codeforces.com/contest/744/problem/A>
- [07] CF-Round 403: <http://codeforces.com/contest/781/problem/A>
- [08] CF-Round 428: <http://codeforces.com/contest/839/problem/C>



# Graph Problems Solution

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- [01] CF-Round 134: <https://codeforces.com/contest/217/submission/55386740>
- [02] CF-Round 236: <https://codeforces.com/contest/403/submission/56040036>
- [03] CF-Round 245: <https://codeforces.com/contest/429/submission/56166759>
- [04] CF-Round 321: <https://codeforces.com/contest/580/submission/56670516>
- [05] CF-Round 360: <https://codeforces.com/contest/687/submission/65296821>
- [06] CF-Round 385: <https://codeforces.com/contest/744/submission/65261971>
- [07] CF-Round 403: <https://codeforces.com/contest/781/submission/65256784>
- [08] CF-Round 428: <https://codeforces.com/contest/839/submission/80290052>





# Lecture Agenda

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✓ Section 1: Divide and Conquer Problems

✓ Section 2: Graph Problems

**Section 3: String Problems**

Section 4: Greedy Problems

Section 5: Mathematical Problems

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# String Problems

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- [01] CF-Round 490: <http://codeforces.com/contest/999/problem/C>
- [02] CF-Round 177: <http://codeforces.com/contest/288/problem/A>
- [03] CF-Round 460: <http://codeforces.com/contest/919/problem/C>
- [04] CF-Round 162: <http://codeforces.com/contest/264/problem/A>
- [05] CF-Round 211: <http://codeforces.com/contest/363/problem/C>
- [06] CF-Round 235: <http://codeforces.com/contest/401/problem/C>
- [07] CF-Round 270: <http://codeforces.com/contest/472/problem/C>
- [08] CF-Round 277.5: <http://codeforces.com/contest/489/problem/C>
- [09] CF-Round 389: <http://codeforces.com/contest/752/problem/C>
- [10] CF-Round 451: <http://codeforces.com/contest/898/problem/C>
- [11] CF-Round 472: <http://codeforces.com/contest/956/problem/A>



# String Problems Solution

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- [01] CF-Round 490: <https://codeforces.com/contest/999/submission/54833488>
- [02] CF-Round 177: <https://codeforces.com/contest/288/submission/54970066>
- [03] CF-Round 460: <https://codeforces.com/contest/919/submission/55324148>
- [04] CF-Round 162: <https://codeforces.com/contest/264/submission/55395618>
- [05] CF-Round 211: <https://codeforces.com/contest/363/submission/55422399>
- [06] CF-Round 235: <https://codeforces.com/contest/401/submission/55426233>
- [07] CF-Round 270: <https://codeforces.com/contest/472/submission/55432205>
- [08] CF-Round 277.5: <https://codeforces.com/contest/489/submission/55433250>
- [09] CF-Round 389: <https://codeforces.com/contest/752/submission/55681765>
- [10] CF-Round 451: <https://codeforces.com/contest/898/submission/55684228>
- [11] CF-Round 472: <https://codeforces.com/contest/956/submission/55685710>









# Lecture Agenda

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✓ Section 1: Divide and Conquer Problems

✓ Section 2: Graph Problems

✓ Section 3: String Problems

**Section 4: Data Structures Problems**

Section 5: Mathematical Problems

Section 6: Greedy Problems



# Data Structures Problems

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- [01] CF-Round 124: <http://codeforces.com/contest/197/problem/C>
- [02] CF-Round 402: <http://codeforces.com/contest/779/problem/C>
- [03] CF-Round 145: <http://codeforces.com/contest/234/problem/C>
- [04] CF-Round 429: <http://codeforces.com/contest/840/problem/A>
- [05] CF-Round 445: <http://codeforces.com/contest/889/problem/A>
- [06] CF-Round 494: <http://codeforces.com/contest/1003/problem/C>
- [07] CF-Round 116: <http://codeforces.com/contest/180/problem/C>
- [08] CF-Round 160: <http://codeforces.com/contest/261/problem/A>
- [09] CF-Round 304: <http://codeforces.com/contest/546/problem/C>
- [10] CF-Round 348: <http://codeforces.com/contest/668/problem/A>
- [11] CF-Round 350: <http://codeforces.com/contest/670/problem/C>
- [12] CF-Round 387: <http://codeforces.com/contest/747/problem/C>
- [13] CF-Round 495: <http://codeforces.com/contest/1004/problem/C>
- [14] CF-Round 496: <http://codeforces.com/contest/1005/problem/C>
- [15] CF-Round 170: <http://codeforces.com/contest/277/problem/A>
- [16] CF-Round 179: <http://codeforces.com/contest/295/problem/A>



# Data Structures Problems Solution

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- [01] CF-Round 124: <https://codeforces.com/contest/197/submission/54825863>
- [02] CF-Round 402: <https://codeforces.com/contest/779/submission/80290382>
- [03] CF-Round 145: <https://codeforces.com/contest/234/submission/54968883>
- [04] CF-Round 429: <https://codeforces.com/contest/840/submission/55006296>
- [05] CF-Round 445: <https://codeforces.com/contest/889/submission/55075308>
- [06] CF-Round 494: <https://codeforces.com/contest/1003/submission/55324807>
- [07] CF-Round 116: <https://codeforces.com/contest/180/submission/55327561>
- [08] CF-Round 160: <https://codeforces.com/contest/261/submission/55392885>
- [09] CF-Round 304: <https://codeforces.com/contest/546/submission/55492953>
- [10] CF-Round 348: <https://codeforces.com/contest/668/submission/55503132>
- [11] CF-Round 350: <https://codeforces.com/contest/670/submission/55519183>
- [12] CF-Round 387: <https://codeforces.com/contest/747/submission/55615965>
- [13] CF-Round 495: <https://codeforces.com/contest/1004/submission/55740841>
- [14] CF-Round 496: <https://codeforces.com/contest/1005/submission/55743175>
- [15] CF-Round 170: <https://codeforces.com/contest/277/submission/55996855>
- [16] CF-Round 179: <https://codeforces.com/contest/295/submission/56002994>



# Data Structures Problems

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- [17] CF-Round 215: <http://codeforces.com/contest/367/problem/A>
- [18] CF-Round 225: <http://codeforces.com/contest/383/problem/A>
- [19] CF-Round 345: <http://codeforces.com/contest/650/problem/A>
- [20] CF-Round 351: <http://codeforces.com/contest/674/problem/A>
- [21] CF-Round 362: <http://codeforces.com/contest/696/problem/A>
- [22] CF-Round 433: <http://codeforces.com/contest/853/problem/A>
- [23] CF-Round 453: <http://codeforces.com/contest/901/problem/A>
- [24] CF-Round 112: <http://codeforces.com/contest/165/problem/C>
- [25] CF-Round 119: <http://codeforces.com/contest/187/problem/A>



# Data Structures Problems Solution

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- [17] CF-Round 215: <https://codeforces.com/contest/367/submission/56029119>
- [18] CF-Round 225: <https://codeforces.com/contest/383/submission/56029448>
- [19] CF-Round 345: <https://codeforces.com/contest/650/submission/57884507>
- [20] CF-Round 351: <https://codeforces.com/contest/674/submission/57887314>
- [21] CF-Round 362: <https://codeforces.com/contest/696/submission/65286804>
- [22] CF-Round 433: <https://codeforces.com/contest/853/submission/70975141>
- [23] CF-Round 453: <https://codeforces.com/contest/901/submission/80291641>
- [24] CF-Round 112: <https://codeforces.com/contest/165/submission/65336435>
- [25] CF-Round 119: <https://codeforces.com/contest/187/submission/73494134>





# Lecture Agenda

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✓ Section 1: Divide and Conquer Problems

✓ Section 2: Graph Problems

✓ Section 3: String Problems

✓ Section 4: Data Structures Problems

**Section 5: Mathematical Problems**

Section 6: Greedy Problems



# Mathematical Problems

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- [01] CF-Round 411: <http://codeforces.com/contest/804/problem/A>
- [02] CF-Round 441: <http://codeforces.com/contest/875/problem/A>
- [03] CF-Round 377: <http://codeforces.com/contest/732/problem/C>
- [04] CF-Round 397: <http://codeforces.com/contest/765/problem/C>
- [05] CF-Round 440: <http://codeforces.com/contest/871/problem/A>
- [06] CF-Round 185: <http://codeforces.com/contest/311/problem/A>
- [07] CF-Round 280: <http://codeforces.com/contest/492/problem/C>
- [08] CF-Round 292: <http://codeforces.com/contest/516/problem/A>
- [09] CF-Round 318: <http://codeforces.com/contest/573/problem/A>
- [10] CF-Round 322: <http://codeforces.com/contest/581/problem/C>
- [11] CF-Round 356: <http://codeforces.com/contest/679/problem/A>
- [12] CF-Round 113: <http://codeforces.com/contest/166/problem/C>
- [13] CF-Round 167: <http://codeforces.com/contest/273/problem/A>
- [14] CF-Round 194: <http://codeforces.com/contest/333/problem/A>
- [15] CF-Round 234: <http://codeforces.com/contest/400/problem/C>
- [16] CF-Round 252: <http://codeforces.com/contest/441/problem/C>





# Mathematical Problems Solution

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- [01] CF-Round 411: <https://codeforces.com/contest/804/submission/54802792>
- [02] CF-Round 441: <https://codeforces.com/contest/875/submission/54830455>
- [03] CF-Round 377: <https://codeforces.com/contest/732/submission/55005401>
- [04] CF-Round 397: <https://codeforces.com/contest/765/submission/55005794>
- [05] CF-Round 440: <https://codeforces.com/contest/871/submission/55071624>
- [06] CF-Round 185: <https://codeforces.com/contest/311/submission/55404072>
- [07] CF-Round 280: <https://codeforces.com/contest/492/submission/55433983>
- [08] CF-Round 292: <https://codeforces.com/contest/516/submission/55492147>
- [09] CF-Round 318: <https://codeforces.com/contest/573/submission/55496752>
- [10] CF-Round 322: <https://codeforces.com/contest/581/submission/55499415>
- [11] CF-Round 356: <https://codeforces.com/contest/679/submission/55520004>
- [12] CF-Round 113: <https://codeforces.com/contest/166/submission/55959283>
- [13] CF-Round 167: <https://codeforces.com/contest/273/submission/55994073>
- [14] CF-Round 194: <https://codeforces.com/contest/333/submission/56027832>
- [15] CF-Round 234: <https://codeforces.com/contest/400/submission/56064930>
- [16] CF-Round 252: <https://codeforces.com/contest/441/submission/56076320>



# Mathematical Problems

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- [17] CF-Round 306: <http://codeforces.com/contest/550/problem/C>
- [18] CF-Round 319: <http://codeforces.com/contest/576/problem/A>
- [19] CF-Round 368: <http://codeforces.com/contest/707/problem/C>
- [20] CF-Round 384: <http://codeforces.com/contest/743/problem/C>
- [21] CF-Round 415: <http://codeforces.com/contest/809/problem/A>
- [22] CF-Round 438: <http://codeforces.com/contest/868/problem/C>
- [23] CF-Round 444: <http://codeforces.com/contest/887/problem/C>
- [24] CF-Round 493: <http://codeforces.com/contest/997/problem/A>
- [25] CF-Round 499: <http://codeforces.com/contest/1010/problem/A>
- [26] CF-Round 500: <http://codeforces.com/contest/1012/problem/A>



# Mathematical Problems Solution

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- [17] CF-Round 306: <https://codeforces.com/contest/550/submission/56381236>
- [18] CF-Round 319: <https://codeforces.com/contest/576/submission/56466682>
- [19] CF-Round 368: <https://codeforces.com/contest/707/submission/65286087>
- [20] CF-Round 384: <https://codeforces.com/contest/743/submission/65262070>
- [21] CF-Round 415: <https://codeforces.com/contest/809/submission/65246138>
- [22] CF-Round 438: <https://codeforces.com/contest/868/submission/70999296>
- [23] CF-Round 444: <https://codeforces.com/contest/887/submission/71000853>
- [24] CF-Round 493: <https://codeforces.com/contest/997/submission/65312050>
- [25] CF-Round 499: <https://codeforces.com/contest/1010/submission/80291939>
- [26] CF-Round 500: <https://codeforces.com/contest/1012/submission/73501127>





# Lecture Agenda

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- ✓ Section 1: Divide and Conquer Problems
- ✓ Section 2: Graph Problems
- ✓ Section 3: String Problems
- ✓ Section 4: Data Structures Problems
- ✓ Section 5: Mathematical Problems

## Section 6: Greedy Problems



# Greedy Problems

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- [01] CF-Round 157: <http://codeforces.com/contest/258/problem/A>
- [02] CF-Round 263: <http://codeforces.com/contest/461/problem/A>
- [03] CF-Round 346: <http://codeforces.com/contest/659/problem/C>
- [04] CF-Round 479: <http://codeforces.com/contest/977/problem/C>
- [05] CF-Round 104: <http://codeforces.com/contest/145/problem/A>
- [06] CF-Round 175: <http://codeforces.com/contest/285/problem/C>
- [07] CF-Round 275: <http://codeforces.com/contest/482/problem/A>
- [08] CF-Round 294: <http://codeforces.com/contest/519/problem/C>
- [09] CF-Round 342: <http://codeforces.com/contest/625/problem/C>
- [10] CF-Round 452: <http://codeforces.com/contest/899/problem/C>
- [11] CF-Round 497: <http://codeforces.com/contest/1007/problem/A>
- [12] CF-Round 498: <http://codeforces.com/contest/1006/problem/C>
- [13] CF-Round 128: <http://codeforces.com/contest/203/problem/C>
- [14] CF-Round 136: <http://codeforces.com/contest/220/problem/A>
- [15] CF-Round 183: <http://codeforces.com/contest/303/problem/A>
- [16] CF-Round 186: <http://codeforces.com/contest/313/problem/C>



# Greedy Problems Solution

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- [01] CF-Round 157: <https://codeforces.com/contest/258/submission/54826365>
- [02] CF-Round 263: <https://codeforces.com/contest/461/submission/54827237>
- [03] CF-Round 346: <https://codeforces.com/contest/659/submission/54829988>
- [04] CF-Round 479: <https://codeforces.com/contest/977/submission/54831835>
- [05] CF-Round 104: <https://codeforces.com/contest/145/submission/54834320>
- [06] CF-Round 175: <https://codeforces.com/contest/285/submission/54969501>
- [07] CF-Round 275: <https://codeforces.com/contest/482/submission/54970373>
- [08] CF-Round 294: <https://codeforces.com/contest/519/submission/55004236>
- [09] CF-Round 342: <https://codeforces.com/contest/625/submission/55004714>
- [10] CF-Round 452: <https://codeforces.com/contest/899/submission/55076669>
- [11] CF-Round 497: <https://codeforces.com/contest/1007/submission/55325023>
- [12] CF-Round 498: <https://codeforces.com/contest/1006/submission/55325779>
- [13] CF-Round 128: <https://codeforces.com/contest/203/submission/55386488>
- [14] CF-Round 136: <https://codeforces.com/contest/220/submission/55387559>
- [15] CF-Round 183: <https://codeforces.com/contest/303/submission/55396619>
- [16] CF-Round 186: <https://codeforces.com/contest/313/submission/55421609>



# Greedy Problems

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- [17] CF-Round 228: <http://codeforces.com/contest/388/problem/A>
- [18] CF-Round 363: <http://codeforces.com/contest/698/problem/A>
- [19] CF-Round 486: <http://codeforces.com/contest/988/problem/C>
- [20] CF-Round 485: <http://codeforces.com/contest/987/problem/C>
- [21] CF-Round 106: <http://codeforces.com/contest/149/problem/C>
- [22] CF-Round 164: <http://codeforces.com/contest/268/problem/C>
- [23] CF-Round 166: <http://codeforces.com/contest/271/problem/C>
- [24] CF-Round 240: <http://codeforces.com/contest/414/problem/A>
- [25] CF-Round 274: <http://codeforces.com/contest/480/problem/A>





# Greedy Problems Solution

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- [17] CF-Round 228: <https://codeforces.com/contest/388/submission/55424474>
- [18] CF-Round 363: <https://codeforces.com/contest/698/submission/55613761>
- [19] CF-Round 486: <https://codeforces.com/contest/988/submission/55720699>
- [20] CF-Round 485: <https://codeforces.com/contest/987/submission/79967616>
- [21] CF-Round 106: <https://codeforces.com/contest/149/submission/55957161>
- [22] CF-Round 164: <https://codeforces.com/contest/268/submission/55973063>
- [23] CF-Round 166: <https://codeforces.com/contest/271/submission/55991444>
- [24] CF-Round 240: <https://codeforces.com/contest/414/submission/56070501>
- [25] CF-Round 274: <https://codeforces.com/contest/480/submission/56079189>



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- ✓ Section 1: Divide and Conquer Problems
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DO  
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