Codeforces Online Judge

Prepared by: Mohamed Ayman

Algorithm Engineer at Valeo

Deep Learning Researcher

Teaching Assistant at The American University in Cairo (AUC)

spring 2020

sw.eng.MohamedAyman@gmail.com

facebook.com/cs.MohamedAyman

linkedin.com/in/cs-MohamedAyman

codeforces.com/profile/Mohamed_Ayman

Codeforces Online Judge - Phase 2.1

Lecture Agenda

We will discuss in this lecture the following topics

1- Data Structure Problems   [16 problems]
2- Mathematical Problems   [27 problems]
3- String Problems   [16 problems]
4- Greedy Problems   [27 problems]
5- Brute Force Problems   [8 problems]

Lecture Agenda

Section 1: Data Structure Problems

Section 2: Mathematical Problems

Section 3: String Problems

Section 4: Greedy Problems

Section 5: Brute Force Problems

Data Structure Problems

[01] CF-Round 215: http://codeforces.com/problemset/problem/368/B

[02] CF-Round 367: http://codeforces.com/problemset/problem/706/B

[03] CF-Round 377: http://codeforces.com/problemset/problem/732/B

[04] CF-Round 211: http://codeforces.com/problemset/problem/363/B

[05] CF-Round 227: http://codeforces.com/problemset/problem/387/B

[06] CF-Round 246: http://codeforces.com/problemset/problem/432/B

[07] CF-Round 251: http://codeforces.com/problemset/problem/439/B

[08] CF-Round 315: http://codeforces.com/problemset/problem/569/B

[09] CF-Round 345: http://codeforces.com/problemset/problem/651/B

[10] CF-Round 140: http://codeforces.com/problemset/problem/227/B

[11] CF-Round 149: http://codeforces.com/problemset/problem/242/B

[12] CF-Round 111: http://codeforces.com/problemset/problem/160/B

[13] CF-Round 187: http://codeforces.com/problemset/problem/315/B

[14] CF-Round 248: http://codeforces.com/problemset/problem/433/B

[15] CF-Round 359: http://codeforces.com/problemset/problem/686/B

[16] CF-Round 364: http://codeforces.com/problemset/problem/701/B

Data Structure Problems Solution

[01] CF-Round 215:   http://codeforces.com/contest/368/submission/50229325

[02] CF-Round 367:   http://codeforces.com/contest/706/submission/50278457

[03] CF-Round 377:   http://codeforces.com/contest/732/submission/50280027

[04] CF-Round 211:   http://codeforces.com/contest/363/submission/50426531

[05] CF-Round 227:   http://codeforces.com/contest/387/submission/50428321

[06] CF-Round 246:   http://codeforces.com/contest/432/submission/50430011

[07] CF-Round 251:   http://codeforces.com/contest/439/submission/50440130

[08] CF-Round 315:   http://codeforces.com/contest/569/submission/50456000

[09] CF-Round 345:   http://codeforces.com/contest/651/submission/50478213

[10] CF-Round 140:   http://codeforces.com/contest/227/submission/49468183

[11] CF-Round 149:   http://codeforces.com/contest/242/submission/50225836

[12] CF-Round 111:   http://codeforces.com/contest/160/submission/50284800

[13] CF-Round 187:   http://codeforces.com/contest/315/submission/50425975

[14] CF-Round 248:   http://codeforces.com/contest/433/submission/50438684

[15] CF-Round 359:   http://codeforces.com/contest/686/submission/50478577

[16] CF-Round 364:   http://codeforces.com/contest/701/submission/50478927

Lecture Agenda

✓ Section 1: Data Structure Problems

Section 2: Mathematical Problems

Section 3: String Problems

Section 4: Greedy Problems

Section 5: Brute Force Problems

Mathematical Problems

[01] CF-Round 126: http://codeforces.com/problemset/problem/200/B

[02] CF-Round 379: http://codeforces.com/problemset/problem/734/B

[03] CF-Round 117: http://codeforces.com/problemset/problem/182/B

[04] CF-Round 162: http://codeforces.com/problemset/problem/265/B

[05] CF-Round 164: http://codeforces.com/problemset/problem/268/B

[06] CF-Round 255: http://codeforces.com/problemset/problem/447/B

[07] CF-Round 299: http://codeforces.com/problemset/problem/535/B

[08] CF-Round 349: http://codeforces.com/problemset/problem/667/B

[09] CF-Round 350: http://codeforces.com/problemset/problem/670/B

[10] CF-Round 378: http://codeforces.com/problemset/problem/733/B

[11] CF-Round 118: http://codeforces.com/problemset/problem/186/B

[12] CF-Round 235: http://codeforces.com/problemset/problem/401/B

[13] CF-Round 242: http://codeforces.com/problemset/problem/424/B

[14] CF-Round 247: http://codeforces.com/problemset/problem/431/B

[15] CF-Round 260: http://codeforces.com/problemset/problem/456/B

[16] CF-Round 264: http://codeforces.com/problemset/problem/463/B

Mathematical Problems Solution

[01]   CF-Round 126:   http://codeforces.com/contest/200/submission/49268805
[02]   CF-Round 379:   http://codeforces.com/contest/734/submission/49269520
[03]   CF-Round 117:   http://codeforces.com/contest/182/submission/49273736
[04]   CF-Round 162:   http://codeforces.com/contest/265/submission/49453883
[05]   CF-Round 164:   http://codeforces.com/contest/268/submission/49453935
[06]   CF-Round 255:   http://codeforces.com/contest/447/submission/49454469
[07]   CF-Round 299:   http://codeforces.com/contest/535/submission/50275264
[08]   CF-Round 349:   http://codeforces.com/contest/667/submission/50276316
[09]   CF-Round 350:   http://codeforces.com/contest/670/submission/50276772
[10]   CF-Round 378:   http://codeforces.com/contest/733/submission/50280349
[11]   CF-Round 118:   http://codeforces.com/contest/186/submission/50285926
[12]   CF-Round 235:   http://codeforces.com/contest/401/submission/50429068
[13]   CF-Round 242:   http://codeforces.com/contest/424/submission/50429566
[14]   CF-Round 247:   http://codeforces.com/contest/431/submission/50431630
[15]   CF-Round 260:   http://codeforces.com/contest/456/submission/50444466
[16]   CF-Round 264:   http://codeforces.com/contest/463/submission/50445164

Mathematical Problems

[17]   CF-Round 267:   http://codeforces.com/problemset/problem/467/B

[18]   CF-Round 280:   http://codeforces.com/problemset/problem/492/B

[19]   CF-Round 294:   http://codeforces.com/problemset/problem/519/B

[20]   CF-Round 322:   http://codeforces.com/problemset/problem/581/B

[21]   CF-Round 328:   http://codeforces.com/problemset/problem/592/B

[22]   CF-Round 374:   http://codeforces.com/problemset/problem/721/B

[23]   CF-Round 376:   http://codeforces.com/problemset/problem/731/B

[24]   CF-Round 381:   http://codeforces.com/problemset/problem/740/B

[25]   CF-Round 384:   http://codeforces.com/problemset/problem/743/B

[26]   CF-Round 400:   http://codeforces.com/problemset/problem/776/B

[27]   CF-Round 110:   http://codeforces.com/problemset/problem/157/B

Mathematical Problems Solution

[17] CF-Round 267: http://codeforces.com/contest/467/submission/50446103

[18] CF-Round 280: http://codeforces.com/contest/492/submission/50450317

[19] CF-Round 294: http://codeforces.com/contest/519/submission/50451035

[20] CF-Round 322: http://codeforces.com/contest/581/submission/50457691

[21] CF-Round 328: http://codeforces.com/contest/592/submission/50477591

[22] CF-Round 374: http://codeforces.com/contest/721/submission/50479584

[23] CF-Round 376: http://codeforces.com/contest/731/submission/50479691

[24] CF-Round 381: http://codeforces.com/contest/740/submission/50479776

[25] CF-Round 384: http://codeforces.com/contest/743/submission/50481211

[26] CF-Round 400: http://codeforces.com/contest/776/submission/50482542

[27] CF-Round 110: http://codeforces.com/contest/157/submission/49456302

Lecture Agenda

✓ Section 1: Data Structure Problems

✓ Section 2: Mathematical Problems

Section 3: String Problems

Section 4: Greedy Problems

Section 5: Brute Force Problems

String Problems

[01] CF-Round 163: http://codeforces.com/problemset/problem/266/B

[02] CF-Round 386: http://codeforces.com/problemset/problem/746/B

[03] CF-Round 284: http://codeforces.com/problemset/problem/499/B

[04] CF-Round 352: http://codeforces.com/problemset/problem/672/B

[05] CF-Round 360: http://codeforces.com/problemset/problem/688/B

[06] CF-Round 387: http://codeforces.com/problemset/problem/747/B

[07] CF-Round 174: http://codeforces.com/problemset/problem/284/B

[08] CF-Round 285: http://codeforces.com/problemset/problem/501/B

[09] CF-Round 348: http://codeforces.com/problemset/problem/669/B

[10] CF-Round 375: http://codeforces.com/problemset/problem/723/B

[11] CF-Round 397: http://codeforces.com/problemset/problem/765/B

[12] CF-Round 102: http://codeforces.com/problemset/problem/143/B

[13] CF-Round 156: http://codeforces.com/problemset/problem/255/B

[14] CF-Round 186: http://codeforces.com/problemset/problem/313/B

[15] CF-Round 228: http://codeforces.com/problemset/problem/389/B

[16] CF-Round 238: http://codeforces.com/problemset/problem/405/B

String Problems Solution

[01]   CF-Round 163:   http://codeforces.com/contest/266/submission/49270406

[02]   CF-Round 386:   http://codeforces.com/contest/746/submission/49271154

[03]   CF-Round 284:   http://codeforces.com/contest/499/submission/49454705

[04]   CF-Round 352:   http://codeforces.com/contest/672/submission/49454795

[05]   CF-Round 360:   http://codeforces.com/contest/688/submission/49455379

[06]   CF-Round 387:   http://codeforces.com/contest/747/submission/49455500

[07]   CF-Round 174:   http://codeforces.com/contest/284/submission/50228057

[08]   CF-Round 285:   http://codeforces.com/contest/501/submission/50273506

[09]   CF-Round 348:   http://codeforces.com/contest/669/submission/50276186

[10]   CF-Round 375:   http://codeforces.com/contest/723/submission/50278978

[11]   CF-Round 397:   http://codeforces.com/contest/765/submission/50281373

[12]   CF-Round 102:   http://codeforces.com/contest/143/submission/50283226

[13]   CF-Round 156:   http://codeforces.com/contest/255/submission/50286444

[14]   CF-Round 186:   http://codeforces.com/contest/313/submission/50425696

[15]   CF-Round 228:   http://codeforces.com/contest/389/submission/50428607

[16]   CF-Round 238:   http://codeforces.com/contest/405/submission/50429204

Lecture Agenda

✓ Section 1: Data Structure Problems

✓ Section 2: Mathematical Problems

✓ Section 3: String Problems

Section 4: Greedy Problems

Section 5: Brute Force Problems

Greedy Problems

[01] CF-Round 145: http://codeforces.com/problemset/problem/234/B

[02] CF-Round 161: http://codeforces.com/problemset/problem/263/B

[03] CF-Round 265: http://codeforces.com/problemset/problem/465/B

[04] CF-Round 356: http://codeforces.com/problemset/problem/680/B

[05] CF-Round 395: http://codeforces.com/problemset/problem/764/B

[06] CF-Round 134: http://codeforces.com/problemset/problem/218/B

[07] CF-Round 197: http://codeforces.com/problemset/problem/339/B

[08] CF-Round 223: http://codeforces.com/problemset/problem/381/B

[09] CF-Round 244: http://codeforces.com/problemset/problem/427/B

[10] CF-Round 109: http://codeforces.com/problemset/problem/155/B

[11] CF-Round 182: http://codeforces.com/problemset/problem/302/B

[12] CF-Round 201: http://codeforces.com/problemset/problem/347/B

[13] CF-Round 206: http://codeforces.com/problemset/problem/355/B

[14] CF-Round 210: http://codeforces.com/problemset/problem/361/B

[15] CF-Round 212: http://codeforces.com/problemset/problem/362/B

[16] CF-Round 213: http://codeforces.com/problemset/problem/365/B

Greedy Problems Solution

[01] CF-Round 145:   http://codeforces.com/contest/234/submission/49453646

[02] CF-Round 161:   http://codeforces.com/contest/263/submission/49453813

[03] CF-Round 265:   http://codeforces.com/contest/465/submission/49454608

[04] CF-Round 356:   http://codeforces.com/contest/680/submission/49455128

[05] CF-Round 395:   http://codeforces.com/contest/764/submission/49456208

[06] CF-Round 134:   http://codeforces.com/contest/218/submission/49467770

[07] CF-Round 197:   http://codeforces.com/contest/339/submission/50228947

[08] CF-Round 223:   http://codeforces.com/contest/381/submission/50230991

[09] CF-Round 244:   http://codeforces.com/contest/427/submission/50273109

[10] CF-Round 109:   http://codeforces.com/contest/155/submission/50284211

[11] CF-Round 182:   http://codeforces.com/contest/302/submission/50292013

[12] CF-Round 201:   http://codeforces.com/contest/347/submission/50426224

[13] CF-Round 206:   http://codeforces.com/contest/355/submission/50426337

[14] CF-Round 210:   http://codeforces.com/contest/361/submission/50426409

[15] CF-Round 212:   http://codeforces.com/contest/362/submission/50427748

[16] CF-Round 213:   http://codeforces.com/contest/365/submission/50427887

Greedy Problems

[17] CF-Round 323: http://codeforces.com/problemset/problem/583/B

[18] CF-Round 331: http://codeforces.com/problemset/problem/596/B

[19] CF-Round 358: http://codeforces.com/problemset/problem/682/B

[20] CF-Round 366: http://codeforces.com/problemset/problem/705/B

[21] CF-Round 371: http://codeforces.com/problemset/problem/714/B

[22] CF-Round 382: http://codeforces.com/problemset/problem/735/B

[23] CF-Round 103: http://codeforces.com/problemset/problem/144/B

[24] CF-Round 151: http://codeforces.com/problemset/problem/246/B

[25] CF-Round 160: http://codeforces.com/problemset/problem/262/B

[26] CF-Round 175: http://codeforces.com/problemset/problem/285/B

[27] CF-Round 191: http://codeforces.com/problemset/problem/327/B

Greedy Problems Solution

[17]   CF-Round 323:   http://codeforces.com/contest/583/submission/50477277

[18]   CF-Round 331:   http://codeforces.com/contest/596/submission/50477792

[19]   CF-Round 358:   http://codeforces.com/contest/682/submission/50478452

[20]   CF-Round 366:   http://codeforces.com/contest/705/submission/50479146

[21]   CF-Round 371:   http://codeforces.com/contest/714/submission/50479340

[22]   CF-Round 382:   http://codeforces.com/contest/735/submission/50480020

[23]   CF-Round 103:   http://codeforces.com/contest/144/submission/54016458

[24]   CF-Round 151:   http://codeforces.com/contest/246/submission/54024327

[25]   CF-Round 160:   http://codeforces.com/contest/262/submission/54053529

[26]   CF-Round 175:   http://codeforces.com/contest/285/submission/54053581

[27]   CF-Round 191:   http://codeforces.com/contest/327/submission/54053926

Lecture Agenda

✓ Section 1: Data Structure Problems

✓ Section 2: Mathematical Problems

✓ Section 3: String Problems

✓ Section 4: Greedy Problems

Section 5: Brute Force Problems

Brute Force Problems

[01] CF-Round 121:   http://codeforces.com/problemset/problem/192/B

[02] CF-Round 157:   http://codeforces.com/problemset/problem/259/B

[03] CF-Round 310:   http://codeforces.com/problemset/problem/556/B

[04] CF-Round 214:   http://codeforces.com/problemset/problem/366/B

[05] CF-Round 343:   http://codeforces.com/problemset/problem/629/B

[06] CF-Round 241:   http://codeforces.com/problemset/problem/416/B

[07] CF-Round 276:   http://codeforces.com/problemset/problem/485/B

[08] CF-Round 304:   http://codeforces.com/problemset/problem/546/B

Brute Force Problems Solution

[01] CF-Round 121: http://codeforces.com/contest/192/submission/49456459

[02] CF-Round 157: http://codeforces.com/contest/259/submission/50227918

[03] CF-Round 310: http://codeforces.com/contest/556/submission/50275734

[04] CF-Round 214: http://codeforces.com/contest/366/submission/50428131

[05] CF-Round 343: http://codeforces.com/contest/629/submission/50478029

[06] CF-Round 241: http://codeforces.com/contest/416/submission/53181753

[07] CF-Round 276: http://codeforces.com/contest/485/submission/53560715

[08] CF-Round 304: http://codeforces.com/contest/546/submission/53563016

Lecture Agenda

✓ Section 1: Data Structure Problems

✓ Section 2: Mathematical Problems

✓ Section 3: String Problems

✓ Section 4: Greedy Problems

✓ Section 5: Brute Force Problems