

# Codeforces Online Judge

**Prepared by: Mohamed Ayman**

Algorithm Engineer at Valeo

Deep Learning Researcher and Teaching Assistant  
at The American University in Cairo (AUC)

spring 2020

**Valeo**



THE AMERICAN  
UNIVERSITY IN CAIRO



[sw.eng.MohamedAyman@gmail.com](mailto:sw.eng.MohamedAyman@gmail.com)



[facebook.com/cs.MohamedAyman](https://facebook.com/cs.MohamedAyman)



[linkedin.com/in/cs-MohamedAyman](https://linkedin.com/in/cs-MohamedAyman)



[github.com/cs-MohamedAyman](https://github.com/cs-MohamedAyman)



[codeforces.com/profile/Mohamed\\_Ayman](https://codeforces.com/profile/Mohamed_Ayman)

# Codeforces Online Judge - Phase 1.3

# Lecture Agenda

We will discuss in this lecture  
the following topics

- |                            |               |
|----------------------------|---------------|
| 1- Basic Operator Problems | [5 problems]  |
| 2- Condition Problems      | [11 problems] |
| 3- Loop Problems           | [21 problems] |
| 4- String Problems         | [22 problems] |
| 5- List Problems           | [40 problems] |



Let's  
**STARTUP**

# Lecture Agenda

---

Section 1: Basic Operator Problems

Section 2: Condition Problems

Section 3: Loop Problems

Section 4: String Problems

Section 5: List Problems



# Basic Operator Problems

---

- [01] CF-Round 138: <http://codeforces.com/problemset/problem/224/A>
- [02] CF-Round 277: <http://codeforces.com/problemset/problem/486/A>
- [03] CF-Round 266: <http://codeforces.com/problemset/problem/466/A>
- [04] CF-Round 133: <http://codeforces.com/problemset/problem/216/A>
- [05] CF-Round 198: <http://codeforces.com/problemset/problem/340/A>



# Basic Operator Problems Solution

---

- [01] CF-Round 138: <http://codeforces.com/contest/224/submission/45912806>
- [02] CF-Round 277: <http://codeforces.com/contest/486/submission/31056220>
- [03] CF-Round 266: <http://codeforces.com/contest/466/submission/30658003>
- [04] CF-Round 133: <http://codeforces.com/contest/216/submission/46821332>
- [05] CF-Round 198: <http://codeforces.com/contest/340/submission/45912939>







# Lecture Agenda

---

✓ Section 1: Basic Operator Problems

**Section 2: Condition Problems**

Section 3: Loop Problems

Section 4: String Problems

Section 5: List Problems



# Condition Problems

---

- [01] CF-Round 353: <http://codeforces.com/problemset/problem/675/A>
- [02] CF-Round 371: <http://codeforces.com/problemset/problem/714/A>
- [03] CF-Round 394: <http://codeforces.com/problemset/problem/761/A>
- [04] CF-Round 217: <http://codeforces.com/problemset/problem/370/A>
- [05] CF-Round 273: <http://codeforces.com/problemset/problem/478/A>
- [06] CF-Round 120: <http://codeforces.com/problemset/problem/190/A>
- [07] CF-Round 261: <http://codeforces.com/problemset/problem/459/A>
- [08] CF-Round 140: <http://codeforces.com/problemset/problem/227/A>
- [09] CF-Round 171: <http://codeforces.com/problemset/problem/279/A>
- [10] CF-Round 124: <http://codeforces.com/problemset/problem/197/A>
- [11] CF-Round 100: <http://codeforces.com/problemset/problem/140/A>
- [12] CF-Round 342: <http://codeforces.com/problemset/problem/625/A>



# Condition Problems Solution

---

- [01] CF-Round 353: <http://codeforces.com/contest/675/submission/26638037>
- [02] CF-Round 371: <http://codeforces.com/contest/714/submission/45915875>
- [03] CF-Round 394: <http://codeforces.com/contest/761/submission/26638140>
- [04] CF-Round 217: <http://codeforces.com/contest/370/submission/26694303>
- [05] CF-Round 273: <http://codeforces.com/contest/478/submission/30658958>
- [06] CF-Round 120: <http://codeforces.com/contest/190/submission/26693954>
- [07] CF-Round 261: <http://codeforces.com/contest/459/submission/30743799>
- [08] CF-Round 140: <http://codeforces.com/contest/227/submission/26695288>
- [09] CF-Round 171: <http://codeforces.com/contest/279/submission/46012037>
- [10] CF-Round 124: <http://codeforces.com/contest/197/submission/46011640>
- [11] CF-Round 100: <http://codeforces.com/contest/140/submission/46822716>
- [12] CF-Round 342: <http://codeforces.com/contest/625/submission/46815928>





# Lecture Agenda

---

✓ Section 1: Basic Operator Problems

✓ Section 2: Condition Problems

**Section 3: Loop Problems**

Section 4: String Problems

Section 5: List Problems



# Loop Problems

---

- [01] CF-Round 345: <http://codeforces.com/problemset/problem/651/A>
- [02] CF-Round 367: <http://codeforces.com/problemset/problem/706/A>
- [03] CF-Round 102: <http://codeforces.com/problemset/problem/143/A>
- [04] CF-Round 128: <http://codeforces.com/problemset/problem/203/A>
- [05] CF-Round 139: <http://codeforces.com/problemset/problem/225/A>
- [06] CF-Round 148: <http://codeforces.com/problemset/problem/239/A>
- [07] CF-Round 165: <http://codeforces.com/problemset/problem/270/A>
- [08] CF-Round 236: <http://codeforces.com/problemset/problem/402/A>
- [09] CF-Round 358: <http://codeforces.com/problemset/problem/682/A>
- [10] CF-Round 119: <http://codeforces.com/problemset/problem/189/A>
- [11] CF-Round 121: <http://codeforces.com/problemset/problem/192/A>
- [12] CF-Round 183: <http://codeforces.com/problemset/problem/304/A>
- [13] CF-Round 381: <http://codeforces.com/problemset/problem/740/A>
- [14] CF-Round 115: <http://codeforces.com/problemset/problem/175/A>
- [15] CF-Round 158: <http://codeforces.com/problemset/problem/260/A>
- [16] CF-Round 174: <http://codeforces.com/problemset/problem/284/A>



# Loop Problems Solution

---

- [01] CF-Round 345: <http://codeforces.com/contest/651/submission/30786394>
- [02] CF-Round 367: <http://codeforces.com/contest/706/submission/46650094>
- [03] CF-Round 102: <http://codeforces.com/contest/143/submission/26830572>
- [04] CF-Round 128: <http://codeforces.com/contest/203/submission/46194865>
- [05] CF-Round 139: <http://codeforces.com/contest/225/submission/46195351>
- [06] CF-Round 148: <http://codeforces.com/contest/239/submission/26783668>
- [07] CF-Round 165: <http://codeforces.com/contest/270/submission/26767931>
- [08] CF-Round 236: <http://codeforces.com/contest/402/submission/26967952>
- [09] CF-Round 358: <http://codeforces.com/contest/682/submission/26970759>
- [10] CF-Round 119: <http://codeforces.com/contest/189/submission/37728563>
- [11] CF-Round 121: <http://codeforces.com/contest/192/submission/46075913>
- [12] CF-Round 183: <http://codeforces.com/contest/304/submission/46195766>
- [13] CF-Round 381: <http://codeforces.com/contest/740/submission/46063159>
- [14] CF-Round 115: <http://codeforces.com/contest/175/submission/46821841>
- [15] CF-Round 158: <http://codeforces.com/contest/260/submission/26830485>
- [16] CF-Round 174: <http://codeforces.com/contest/284/submission/26968009>



# Loop Problems

---

- [17] CF-Round 276: <http://codeforces.com/problemset/problem/485/A>
- [18] CF-Round 281: <http://codeforces.com/problemset/problem/493/A>
- [19] CF-Round 315: <http://codeforces.com/problemset/problem/569/A>
- [20] CF-Round 339: <http://codeforces.com/problemset/problem/614/A>
- [21] CF-Round 220: <http://codeforces.com/problemset/problem/374/A>





# Loop Problems Solution

---

- [17] CF-Round 276: <http://codeforces.com/contest/485/submission/26783895>
- [18] CF-Round 281: <http://codeforces.com/contest/493/submission/46479805>
- [19] CF-Round 315: <http://codeforces.com/contest/569/submission/26967487>
- [20] CF-Round 339: <http://codeforces.com/contest/614/submission/46062791>
- [21] CF-Round 220: <http://codeforces.com/contest/374/submission/46819689>





# Lecture Agenda

---

✓ Section 1: Basic Operator Problems

✓ Section 2: Condition Problems

✓ Section 3: Loop Problems

**Section 4: String Problems**

Section 5: List Problems



# String Problems

---

- [01] CF-Round 154: <http://codeforces.com/problemset/problem/253/A>
- [02] CF-Round 176: <http://codeforces.com/problemset/problem/287/A>
- [03] CF-Round 254: <http://codeforces.com/problemset/problem/445/A>
- [04] CF-Round 286: <http://codeforces.com/problemset/problem/505/A>
- [05] CF-Round 291: <http://codeforces.com/problemset/problem/514/A>
- [06] CF-Round 297: <http://codeforces.com/problemset/problem/525/A>
- [07] CF-Round 305: <http://codeforces.com/problemset/problem/548/A>
- [08] CF-Round 329: <http://codeforces.com/problemset/problem/593/A>
- [09] CF-Round 384: <http://codeforces.com/problemset/problem/743/A>
- [10] CF-Round 180: <http://codeforces.com/problemset/problem/298/A>
- [11] CF-Round 185: <http://codeforces.com/problemset/problem/312/A>
- [12] CF-Round 193: <http://codeforces.com/problemset/problem/332/A>
- [13] CF-Round 328: <http://codeforces.com/problemset/problem/592/A>
- [14] CF-Round 241: <http://codeforces.com/problemset/problem/416/A>
- [15] CF-Round 250: <http://codeforces.com/problemset/problem/437/A>
- [16] CF-Round 361: <http://codeforces.com/problemset/problem/689/A>



# String Problems Solution

---

- [01] CF-Round 154: <http://codeforces.com/contest/253/submission/46198403>
- [02] CF-Round 176: <http://codeforces.com/contest/287/submission/46199483>
- [03] CF-Round 254: <http://codeforces.com/contest/445/submission/46203904>
- [04] CF-Round 286: <http://codeforces.com/contest/505/submission/29098890>
- [05] CF-Round 291: <http://codeforces.com/contest/514/submission/30744275>
- [06] CF-Round 297: <http://codeforces.com/contest/525/submission/46205400>
- [07] CF-Round 305: <http://codeforces.com/contest/548/submission/46205666>
- [08] CF-Round 329: <http://codeforces.com/contest/593/submission/46636175>
- [09] CF-Round 384: <http://codeforces.com/contest/743/submission/46637116>
- [10] CF-Round 180: <http://codeforces.com/contest/298/submission/46573148>
- [11] CF-Round 185: <http://codeforces.com/contest/312/submission/46572319>
- [12] CF-Round 193: <http://codeforces.com/contest/332/submission/46637673>
- [13] CF-Round 328: <http://codeforces.com/contest/592/submission/46635376>
- [14] CF-Round 241: <http://codeforces.com/contest/416/submission/46203588>
- [15] CF-Round 250: <http://codeforces.com/contest/437/submission/46203803>
- [16] CF-Round 361: <http://codeforces.com/contest/689/submission/46636622>



# String Problems

---

- [17] CF-Round 212: <http://codeforces.com/problemset/problem/362/A>
- [18] CF-Round 300: <http://codeforces.com/problemset/problem/538/A>
- [19] CF-Round 306: <http://codeforces.com/problemset/problem/550/A>
- [20] CF-Round 230: <http://codeforces.com/problemset/problem/393/A>
- [21] CF-Round 231: <http://codeforces.com/problemset/problem/394/A>
- [22] CF-Round 293: <http://codeforces.com/problemset/problem/518/A>



# String Problems Solution

---

- [17] CF-Round 212: <http://codeforces.com/contest/362/submission/46638501>
- [18] CF-Round 300: <http://codeforces.com/contest/538/submission/46205477>
- [19] CF-Round 306: <http://codeforces.com/contest/550/submission/29097452>
- [20] CF-Round 230: <http://codeforces.com/contest/393/submission/46884349>
- [21] CF-Round 231: <http://codeforces.com/contest/394/submission/46884568>
- [22] CF-Round 293: <http://codeforces.com/contest/518/submission/29098636>









# Lecture Agenda

---

✓ Section 1: Basic Operator Problems

✓ Section 2: Condition Problems

✓ Section 3: Loop Problems

✓ Section 4: String Problems

**Section 5: List Problems**



# List Problems

---

- [01] CF-Round 325: <http://codeforces.com/problemset/problem/586/A>
- [02] CF-Round 336: <http://codeforces.com/problemset/problem/608/A>
- [03] CF-Round 373: <http://codeforces.com/problemset/problem/719/A>
- [04] CF-Round 113: <http://codeforces.com/problemset/problem/166/A>
- [05] CF-Round 137: <http://codeforces.com/problemset/problem/222/A>
- [06] CF-Round 147: <http://codeforces.com/problemset/problem/237/A>
- [07] CF-Round 153: <http://codeforces.com/problemset/problem/252/A>
- [08] CF-Round 159: <http://codeforces.com/problemset/problem/257/A>
- [09] CF-Round 181: <http://codeforces.com/problemset/problem/300/A>
- [10] CF-Round 191: <http://codeforces.com/problemset/problem/327/A>
- [11] CF-Round 202: <http://codeforces.com/problemset/problem/349/A>
- [12] CF-Round 207: <http://codeforces.com/problemset/problem/357/A>
- [13] CF-Round 218: <http://codeforces.com/problemset/problem/371/A>
- [14] CF-Round 248: <http://codeforces.com/problemset/problem/433/A>
- [15] CF-Round 260: <http://codeforces.com/problemset/problem/456/A>
- [16] CF-Round 269: <http://codeforces.com/problemset/problem/471/A>



# List Problems Solution

---

- [01] CF-Round 325: <http://codeforces.com/contest/586/submission/46358334>
- [02] CF-Round 336: <http://codeforces.com/contest/608/submission/46358084>
- [03] CF-Round 373: <http://codeforces.com/contest/719/submission/30759018>
- [04] CF-Round 113: <http://codeforces.com/contest/166/submission/46587991>
- [05] CF-Round 137: <http://codeforces.com/contest/222/submission/46577222>
- [06] CF-Round 147: <http://codeforces.com/contest/237/submission/30756643>
- [07] CF-Round 153: <http://codeforces.com/contest/252/submission/46354171>
- [08] CF-Round 159: <http://codeforces.com/contest/257/submission/46354048>
- [09] CF-Round 181: <http://codeforces.com/contest/300/submission/46573081>
- [10] CF-Round 191: <http://codeforces.com/contest/327/submission/30697542>
- [11] CF-Round 202: <http://codeforces.com/contest/349/submission/30784844>
- [12] CF-Round 207: <http://codeforces.com/contest/357/submission/46514303>
- [13] CF-Round 218: <http://codeforces.com/contest/371/submission/46352976>
- [14] CF-Round 248: <http://codeforces.com/contest/433/submission/46483593>
- [15] CF-Round 260: <http://codeforces.com/contest/456/submission/30759469>
- [16] CF-Round 269: <http://codeforces.com/contest/471/submission/30786200>



# List Problems

---

- [17] CF-Round 282: <http://codeforces.com/problemset/problem/495/A>
- [18] CF-Round 288: <http://codeforces.com/problemset/problem/508/A>
- [19] CF-Round 311: <http://codeforces.com/problemset/problem/557/A>
- [20] CF-Round 312: <http://codeforces.com/problemset/problem/558/A>
- [21] CF-Round 316: <http://codeforces.com/problemset/problem/570/A>
- [22] CF-Round 318: <http://codeforces.com/problemset/problem/574/A>
- [23] CF-Round 331: <http://codeforces.com/problemset/problem/596/A>
- [24] CF-Round 333: <http://codeforces.com/problemset/problem/602/A>
- [25] CF-Round 335: <http://codeforces.com/problemset/problem/606/A>
- [26] CF-Round 398: <http://codeforces.com/problemset/problem/767/A>
- [27] CF-Round 155: <http://codeforces.com/problemset/problem/254/A>
- [28] CF-Round 199: <http://codeforces.com/problemset/problem/342/A>
- [29] CF-Round 201: <http://codeforces.com/problemset/problem/347/A>
- [30] CF-Round 203: <http://codeforces.com/problemset/problem/350/A>
- [31] CF-Round 205: <http://codeforces.com/problemset/problem/353/A>
- [32] CF-Round 264: <http://codeforces.com/problemset/problem/463/A>



# List Problems Solution

---

- [17] CF-Round 282: <http://codeforces.com/contest/495/submission/45915425>
- [18] CF-Round 288: <http://codeforces.com/contest/508/submission/46470490>
- [19] CF-Round 311: <http://codeforces.com/contest/557/submission/46059818>
- [20] CF-Round 312: <http://codeforces.com/contest/558/submission/46358719>
- [21] CF-Round 316: <http://codeforces.com/contest/570/submission/30784653>
- [22] CF-Round 318: <http://codeforces.com/contest/574/submission/46313063>
- [23] CF-Round 331: <http://codeforces.com/contest/596/submission/46638954>
- [24] CF-Round 333: <http://codeforces.com/contest/602/submission/46358262>
- [25] CF-Round 335: <http://codeforces.com/contest/606/submission/46635018>
- [26] CF-Round 398: <http://codeforces.com/contest/767/submission/46639492>
- [27] CF-Round 155: <http://codeforces.com/contest/254/submission/46821075>
- [28] CF-Round 199: <http://codeforces.com/contest/342/submission/46572141>
- [29] CF-Round 201: <http://codeforces.com/contest/347/submission/46571683>
- [30] CF-Round 203: <http://codeforces.com/contest/350/submission/46571651>
- [31] CF-Round 205: <http://codeforces.com/contest/353/submission/46515167>
- [32] CF-Round 264: <http://codeforces.com/contest/463/submission/46481536>



# List Problems

---

- [33] CF-Round 278: <http://codeforces.com/problemset/problem/489/A>
- [34] CF-Round 390: <http://codeforces.com/problemset/problem/754/A>
- [35] CF-Round 187: <http://codeforces.com/problemset/problem/315/A>
- [36] CF-Round 208: <http://codeforces.com/problemset/problem/358/A>
- [37] CF-Round 229: <http://codeforces.com/problemset/problem/390/A>
- [38] CF-Round 232: <http://codeforces.com/problemset/problem/397/A>
- [39] CF-Round 233: <http://codeforces.com/problemset/problem/399/A>
- [40] CF-Round 184: <http://codeforces.com/problemset/problem/305/A>
- [41] CF-Round 245: <http://codeforces.com/problemset/problem/430/A>
- [42] CF-Round 116: <http://codeforces.com/problemset/problem/180/A>



# List Problems Solution

---

- [33] CF-Round 278: <http://codeforces.com/contest/489/submission/46481209>
- [34] CF-Round 390: <http://codeforces.com/contest/754/submission/46355230>
- [35] CF-Round 187: <http://codeforces.com/contest/315/submission/46353407>
- [36] CF-Round 208: <http://codeforces.com/contest/358/submission/46514151>
- [37] CF-Round 229: <http://codeforces.com/contest/390/submission/46884230>
- [38] CF-Round 232: <http://codeforces.com/contest/397/submission/46884716>
- [39] CF-Round 233: <http://codeforces.com/contest/399/submission/46884990>
- [40] CF-Round 184: <http://codeforces.com/contest/305/submission/46642256>
- [41] CF-Round 245: <http://codeforces.com/contest/430/submission/46817243>
- [42] CF-Round 116: <http://codeforces.com/contest/180/submission/46822069>



# Lecture Agenda

---

- ✓ Section 1: Basic Operator Problems
- ✓ Section 2: Condition Problems
- ✓ Section 3: Loop Problems
- ✓ Section 4: String Problems
- ✓ Section 5: List Problems







DO  
MORE.