

Zadatak 0 – Mali princ

Mali Perica je D-tog dana u sedmici za zadataku dobio pročitati lektiru Mali princ. Knjiga ima ukupno S stranica. Kako bi uspio na vrijeme uraditi zadatka, odlučio je odmah krenuti sa čitanjem. Takođe, odlučio je da će knjigu čitati svakih A dana (tj. da će razmak između dva čitanja biti A dana) te da će svaki put pročitati tačno B stranica (ukoliko mu je ostalo manje od B stranica, pročitaje knjigu do kraja). Malog Pericu zanima kojeg će dana u sedmici u cijelosti pročitati Malog princa ako je sa čitanjem počeo, kako smo rekli, D-tog dana u sedmici.

Ulaz: U prvom redu nalaze se 3 prirodna broja S, A, B ($1 \leq S \leq 1\,000$, $1 \leq A \leq 1\,000$, $1 \leq B \leq 1\,000$). U drugom redu je D – dan u sedmici kada je Perica počeo čitati (“ponedjeljak”, “utorak”, “srijeda”, “četvrtak”, “petak”, “subota”, “nedjelja”). **Izlaz:** U jedini red izlaza potrebno je štampati dan u sedmici kada će Perica u cijelosti pročitati lektiru (“ponedjeljak”, “utorak”, “srijeda”, “četvrtak”, “petak”, “subota”, “nedjelja”).

Test primjeri:

Ulaz	Izlaz	Objašnjenje
7 2 3 subota	srijeda	Knjiga ima 7 stranica. Perica će u subotu pročitati 3 stranice. Sljedeće 3 stranice pročitaje u ponedjeljak, jer ima 2 dana između čitanja, a posljednju stranicu pročitaje u srijedu.
2 2 2 četvrtak	četvrtak	
9 1 1 ponedjeljak	utorak	

Zadatak 1 – Digitalni sat

Alice likes her digital alarm clock. She sets them up every evening. Last night Alice had a dream about her clock. Unfortunately, the only thing she is able to remember is the number of highlighted segments of the clock. Alice wonders what time was set on the clock in her dream. Alice's clock have four digits: two for hours and two for minutes. For example, the clock below shows 9:30 (note the leading zero).



The clock uses following digit representation.



Input

The only line of the input file contains single integer n - the number of highlighted segments of the clock in Alice's dream ($0 \leq n \leq 30$).

Output

Output five characters in "hh:mm" format – the time shown on the clock in Alice's dream. The time must be correct: $0 \leq hh < 24$ and $0 \leq mm < 60$. If there are many possible correct times, output any of them. If there is none, output "Impossible".

Ulaz	Izlaz
23	09:30
28	Impossible
2	Impossible

Zadatak 2 – Stringovi

Napredna grupa, 30.januar 2016.

Dat je string S dužine N sastavljen od malih slova engleskog alfabeta. Nad njim se, redom, izvršava Q upita jednog od sljedeća dva tipa:

- 1 i x - zamijeniti i -ti znak u trenutnom stringu znakom x ($1 \leq i \leq N$, x je malo slovo engleskog alfabeta).
- 2 - obrnuti trenutni string, tj. zamijeniti prvi i posljednji znak, drugi i pretposljednji itd.

Određiti izgled stringa S posle svih upita.

Ulaz. Prvi red standardnog ulaza sadrži, redom, brojeve N i Q razdvojene razmakom ($1 \leq N, Q \leq 2 \cdot 10^5$). Naredni red sadrži string S dužine N sastavljen od malih slova engleskog alfabeta. Narednih Q redova sadrže upite u gore pomenutom obliku. Upiti se izvršavaju u datom redosljed.

Izlaz. U prvi i jedini red standardnog izlaza štampati izgled stringa poslije svih upita.

Zadatak 3 – Borovnice

Perica i Jovica sakupljaju gomile borovnica. N gomila borovnica je poređano u red. Perica sakuplja gomile s početka reda, a Jovica s kraja reda. Nakon što sakupe sve gomile, svako prebroji svoje borovnice.

Dato je Q upita. Svaki upit sadrži jedan broj K , a vi trebate da odgovorite da li je moguće da na kraju i Perica i Jovica imaju više od K borovnica.

Ulaz. Prvi red standardnog ulaza sadrži dva cijela broja N i Q . ($1 \leq N \leq 100.000$, $1 \leq Q \leq 1.000.000$), broj gomila i broj upita, respektivno. U drugom redu nalazi se N cijelih brojeva iz intervala $[1, 1.000.000]$, koji predstavljaju broj borovnica na svakoj od N gomila. U sljedećih Q redova nalazi se po jedan broj K ($1 \leq K \leq 1.000.000.000$).

Izlaz. Na standardan izlaz ispisati Q redova, koji predstavljaju odgovore na svaki od Q upita. Svaki red mora da sadrži jedan karakter: d - ako je moguće da obojica sakupe više od K borovnica, ili n - ako nije moguće da obojica sakupe više od K borovnica.

Primjeri:

Zadatak 2		Zadatak 3	
Ulaz	Izlaz	Ulaz	Izlaz
5 4	emcnc	4 3	d
Abcde		3 8 5	n
1 2 n		6	n
2		7	
1 2 m		4	
1 5 c		11	
		4 1	d
		8 1 2	
		2	
		4	

Zadatak 4 - Buffcraft

Brenda enjoys a new role-playing game *Buffcraft*. Shields, swords, books and other carry-on items do not affect character stats in *Buffcraft*. The only way to increase the stats of your character is to buff her. There are two types of buffs in *Buffcraft*. Direct buffs increase a base value of the stat, while percentage buffs increase stats by the fraction of the base value. To be precise, if unbuffered base value of your character stat is b , you have buffed her using n direct buffs of strength d_1, d_2, \dots, d_n and m percentage buffs of strength p_1, p_2, \dots, p_m , the resulting stat will be equal to $(b + d_1 + d_2 + \dots + d_n)(100 + p_1 + p_2 + \dots + p_m)/100$. Note that the resulting stat may be fractional.

Unfortunately, your character has only k buff slots and if you apply more than k buffs on her, only the last k buffs remains active. Thus, there is no reason to apply more than k buffs simultaneously. You cannot apply the same buff more than once. Brenda is going to send his character to raid and wants to buff her health to maximal possible value. She has some direct and some percentage buffs at her disposal and needs your help to select the set of buffs that leads to maximal possible total health.

Input

Napredna grupa, 30.januar 2016.

The first line of the input file contains four integers b , k , c_d and c_p - the base health of the character, the number of buff slots, the number of available direct buffs, and the number of available percentage buffs. The following line contains c_d integers d_i - strengths of direct buffs. The last line of the input file contains c_p integer numbers p_i - strengths of percentage buffs. All numbers in the input file are greater than or equal to zero, and less than or equal to fifty thousand.

Output

The first line of the output file must contain two integers n and m - the number of direct and percentage buffs to use ($0 \leq n \leq c_d$; $0 \leq m \leq c_p$; $0 \leq n + m \leq k$).

The following line must contain n different numbers | indices of direct buffs to apply (buffs are numbered from one).

The last line of the output must contain m different numbers | indices of percentage buffs to apply (also numbered from one).

The resulting total health after application of all $n + m$ buffs must be maximal possible.

Examples

Ulaz	Izlaz
70 3 2 2	2 1
40 30	2 1
50 40	1
1 2 3 4	12 0
6 6 5	1 2
8 10 7 9	