

Problem F. Game

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 256 mebibytes

Alice and Bob are playing *Luzhanqi*. Each of them has a *permutation* of the following 24 pieces:

- one Field Marshal, order 9
- one General, order 8
- two Major Generals, order 7
- two Brigadier Generals, order 6
- two Colonels, order 5
- two Majors, order 4
- three Captains, order 3
- three Lieutenants, order 2
- three Engineers, order 1
- two Bombs
- three Landmines

To determine the winner, we repeat the following process until someone wins the game or the game ends in a draw:

- If both permutations are empty, the game ends in a draw.
- If Alice's permutation is empty, Bob wins the game.
- If Bob's permutation is empty, Alice wins the game.
- Let the first piece in Alice's permutation be A and the first piece in Bob's permutation be B . The following is the outcome of the battle between A and B :
 1. If A and B are the same types of pieces, or if one of A and B is Bomb, they are both removed.
 2. Otherwise, if one of A and B is Landmine and the other is Engineer, the Landmine is removed and the Engineer stays alive.
 3. Otherwise, if one of A and B is Landmine and the other's order is greater than 1, the Landmine stays alive and the other one is removed.
 4. Otherwise, we compare the order of A and B and the piece with smaller order is removed.

Bob knows Alice's permutation in advance and can decide his permutation based on that information. After Bob deciding his permutation, Alice can swap two pieces in Bob's permutation. Can Bob construct a permutation that wins against Alice's permutation no matter which pair of pieces she swaps?

Input

The first line contains one integer T denoting the number of test cases ($1 \leq T \leq 100$).

Each of the next T lines contains 24 integers denoting Alice's permutation:

- 40 represents Field Marshal
- 39 represents General
- 38 represents Major Generals
- 37 represents Brigadier Generals
- 36 represents Colonels
- 35 represents Majors
- 34 represents Captains
- 33 represents Lieutenants
- 32 represents Engineers
- 31 represents Landmines
- 30 represents Bombs

It is guaranteed that all permutations are chosen uniformly at random and contains exactly the 24 pieces described in the statement.

Output

Output one line for each test case.

If Bob cannot construct the required permutation, print -1 .

Otherwise, print 24 integers representing Bob's permutation in the same format as in the input. If there are multiple solutions, print any. Bob's permutation must contain exactly the 24 pieces described in the statement.

Example

standard input																							
4																							
40	39	38	38	37	37	36	36	35	35	34	34	34	33	33	33	32	32	32	31	31	31	30	30
34	31	36	33	31	39	37	38	35	32	32	35	36	31	34	32	38	40	30	33	30	34	33	37
37	30	40	38	36	38	32	34	36	35	37	32	34	33	31	30	33	31	35	34	33	39	31	32
30	33	32	39	37	38	35	40	34	30	31	37	31	33	31	33	34	32	36	36	35	34	32	38
standard output																							
34	36	30	39	33	38	37	31	34	30	33	35	38	31	37	33	40	31	35	32	32	36	32	34
34	32	32	38	40	33	33	30	31	34	31	35	37	32	34	36	33	31	38	30	36	37	35	39
38	33	32	31	36	34	30	34	33	40	32	37	38	30	37	35	33	35	32	31	34	31	39	36
37	34	33	36	34	35	31	38	32	38	31	32	37	30	30	31	33	36	32	33	40	39	34	35