Problem E. Poker Game: Construction

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

Alice and Bob invent a new game based on Texas hold'em. **Please read the following rules carefully as they are different from the usual rules. The background of this problem is exactly the same as problem D.**

There are 13 ranks, which are A, K, Q, J, T, 9, 8, 7, 6, 5, 4, 3, and 2 from high to low. There are 4 suits, which are S, H, C, and D. Every combination of a rank and a suit occurs exactly once, so there are $52(= 13 \times 4)$ cards.

A hand is a set of five cards. Each hand has a rank. There are 10 types of hands. Each type also has a rank. If two hands are of different types, the hand of the type with a higher rank always ranks higher. A hand can be represented as a sequence $(r_1, r_2, r_3, r_4, r_5)$, where r_i is the rank of the i-th card and the order of the five cards depends on the type of the hand. If two hands are of the same type, the hand represented as the lexicographically larger sequence ranks higher: formally, if we find the smallest index i such that r_i of two hands are different, the hand with higher r_i ranks higher. If the types and the sequences r of two hands are equal, two hands have the same rank.

The 10 types are given below, from lowest to highest rank. If a hand matches the patterns of multiple types, it belongs to the one with the highest rank.

- **Highcard**: Any five cards. The sequence r satisfies $r_1 > r_2 > r_3 > r_4 > r_5$.

- **Pair**: Two cards with the same rank. The sequence r satisfies $r_1 = r_2$, $r_3 > r_4 > r_5$.

- **Two pairs**: Two cards with the same rank and another two cards with the same rank. The sequence r satisfies $r_1 = r_2 > r_3 = r_4$.

- **Three of a kind**: Three cards with the same rank. The sequence r satisfies $r_1 = r_2 = r_3$, $r_4 > r_5$.

- **Straight**: Five cards with five consecutive ranks. The sequence r satisfies $r_1 > r_2 > r_3 > r_4 > r_5$. Additionally, A 2 3 4 5 is a straight, and A is regarded as a rank lower than 2 in this case. Hence A 2 3 4 5 is the straight with the lowest ranks.

- **Flush**: Five cards with the same suit. The sequence r satisfies $r_1 > r_2 > r_3 > r_4 > r_5$.

- **Full house**: Three cards with the same rank and another two cards with the same rank. The sequence r satisfies $r_1 = r_2 = r_3$, $r_4 = r_5$.

- **Four of a kind**: Four cards with the same rank. The sequence r satisfies $r_1 = r_2 = r_3 = r_4$.

- **Straight flush**: A straight with the same suit. The sequence r satisfies $r_1 > r_2 > r_3 > r_4 > r_5$. Additionally, A 2 3 4 5 with the same suit is a straight flush, and A is regarded as a rank lower than 2 in this case. Hence A 2 3 4 5 with the same suit is the straight flush with the lowest ranks.

- **Royal flush**: Straight flush with the ranks T, J, Q, K, and A. Four different royal flushes are of the same rank.

Two cards are dealt to each of Alice and Bob. Instead of the regular rules, 6 community cards are dealt. Two players take community cards one by one, in turn, until each player has five cards, completing a hand. **Alice takes first.** The player who has a hand with higher rank wins. If two hands have same rank, there is a draw. **Note that all ten cards are shown to both, and they always choose the optimal strategy.**

The above are the same in problem D. The task is the following.

Given the cards of Alice and the cards of Bob, find possible 6 community cards such that Alice wins, that Bob wins, and that there is a draw.

Input

There are multiple test cases. The first line of input contains an integer T ($1 \le T \le 10^5$), the number of test cases. For each test case:

The first line contains two strings a_1 and a_2: Alice's initial cards.

The second line contains two strings b_1 and b_2: Bob's initial cards.

The third line contains six strings c_1, c_2, c_3, c_4, c_5, and c_6: the community cards.

Each string is of length two. The first character is one of "A", "K", "Q", "J", "T", "9", "8", "7", "6", "5", "4", "3", "2", which represents the rank of a card. The second character is one of "S", "H", "C", "D", which represents the suit of a card.

It is guaranteed that all 4 given cards are pairwise distinct.

Output

For each test case:

Print a single line for each of the three questions: how to make Alice win, how to make Bob win, and how to make the game end in a draw. For each question, if it is possible, output "YES" and 6 strings representing the 6 cards; otherwise, output "NO".

The format of the cards in the output should be the same as the format in the input.

All 10 cards in input and output must be pairwise distinct.

Examples

standard input	standard output
3	YES JS JH JD 4S 4C 4D
JC 4H	YES TH TC TD 5S 5H 5C
TS 5D	YES 4S JS 5S TH TC TD
7C 3C	YES 3S 3H 3D 2C 4H 5S
7H TH	YES 2H 4H 5H 6H 8H 9H
2D KH	YES TS 3S 2S 2H 4C 4D
4D JC	YES 2S 2H 2C KS KC KD
	YES 4S 4H 4C JS JH JD
	YES 2S KS 4S JS JH JD
2	YES 2H 3S 4D 5C 6H 7S
AS AH	NO
AC AD	YES 2C 2D 3S 3H 4C 4D
AS AH	YES AC AD 3D 4C 5H 6S
2S 2H	YES 2C 2D 3D 4C 5H 6S
	NO