

6. CC (cc)

5 sec / 10 sec

100 points

In the card game CC, the player's goal is to accumulate a total of at least 200 points. The game is played in rounds. In each round, the player collects cards to earn points.

The deck contains one card with a value of 1, two cards with a value of 2, three cards with a value of 3, ..., twelve cards with a value of 12, as well as two special cards: $\times 2$ and $/2$. Before the first game, the deck is shuffled randomly.

Each round proceeds as follows:

- You are dealt one card from the deck.
- You can then choose whether to ask for another card or end the round.
- If you end the round, you receive points based on the sum of the values of the number cards in front of you.
 - The $\times 2$ card multiplies the accumulated sum by two.
 - The $/2$ card divides the accumulated sum by two.
- If you ask for the next card and receive a card that is already in front of you, you “go bust”: the round ends and you receive 0 points for the round.
- However, if you receive a card that is not yet in front of you, it remains there. You can then choose again whether to ask for the next card or end the round, and so on.
- If the deck runs out when a card is to be dealt, all previously discarded cards are shuffled together to form a new deck. The cards you have received in the current round remain in place. The game continues with the new deck, and the next card is dealt from it.

After the round ends, the cards used in that round are discarded. If you have a total of at least 200 points at the end of the round, you win and the game is over. If your score is still below 200, a new round begins.

Your task is to write a program that wins the game in as few rounds as possible.

Interaction. This is an interactive task; the grading program deals the cards. Your program plays a total of 100 games. Specifically, your program is tested across 10 test cases, with 10 consecutive games played in each.

At the start of each round, the grading program gives you a card from the deck. The card is presented on a single line: a number from 1 to 12 for number cards, or the text ' $\times 2$ ' or ' $/2$ ' for special cards.

After each received card, your program must output one of two words on a single line:

- 'V6TA' — take another card;
- 'J2TA' — end the current round.

If your program outputs 'V6TA', the grading program outputs the next card.

If you receive a second card of the same type during the same round, you “go bust.” In this case, the grading program outputs the line

card,L6HKI

where *card* is the card that caused the “bust.” The round ends immediately, and you receive 0 points for that round.

If your program outputs ‘J2TA’, the round ends, and the points earned in the round are added to the total score from previous rounds.

If the game score is still below 200, a new round begins immediately, and the grading program outputs its first card.

If the game score reaches at least 200 points, the game ends. After the first nine games, the grading program outputs the line

UUS

after which a new game begins. After the tenth game ends, the grading program outputs the line

K6IK

Your program does not need to respond to the lines ‘UUS’ and ‘K6IK’.

Example.	Input	Output
	12	V6TA
	12,L6HKI	
	11	V6TA
	/2	J2TA
	x2	V6TA
	12	V6TA
	11	V6TA
	10	V6TA
	9	V6TA
	8	V6TA
	7	V6TA
	6	V6TA
	5	V6TA
	4	V6TA
	3	V6TA
	2	V6TA
	1	J2TA
	12	V6TA
	11	V6TA
	10	V6TA
	6	J2TA
	UUS	
	2	

A few blank lines have been added to the example for readability.

In the first round, you have two cards with the number 12 in front of you; thus, you “go bust.”

By the end of the second round, your cards are 11 and /2; you receive 5.5 points for this round.

In the third round, you receive the x2 card and all number cards from 1 to 12, resulting in a total of 156 points.

In the fourth round, you receive 39 points.

The total score for the game is now

$$0 + 5.5 + 156 + 39 = 200.5,$$

meaning you won this game in 4 rounds. Then the next game begins, and so on.

Grading. The number of points received for each test case depends on the number of rounds it takes to win all 10 games of the test case.

For each test case, a solution receives

$$10 \cdot \left(\frac{p}{v}\right)^6$$

points, where v is the total number of rounds your solution used to win the 10 games of the test case, and p is the minimum total number of rounds among all solutions that correctly completed this test case.

The best result may change during the competition, and the final score for each solution is determined only at the end of the competition.

If your program fails to win a game within 30 rounds, the grading program outputs the line 'K6IK' instead of the first card of the next round. In response to that line, your program must terminate immediately and you receive 0 points for the entire test case. If your program does not terminate itself, the grading environment will terminate it and CMS may report that the program ended with an error condition.

Remark. To ensure your program's output is delivered to the grading system, you have to flush the output buffer after each line:

Language	Command
Python	<code>print(..., flush=True)</code> or <code>sys.stdout.write(...)</code> <code>sys.stdout.flush()</code>
C++	<code>cout << ... << endl;</code> or <code>cout << ... << "\n" << flush;</code>
C/C++	<code>fprintf(stdout, ...);</code> or <code>printf(...);</code> <code>fflush(stdout);</code>