Spurdo LLC.

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1.5 seconds
Memory limit:	256 megabytes

Spurdo LLC. is currently trying to overcome a staggering financial crisis and has decided to cut financial expenses. The company consists of n departments. Each department has its own allocated budget for the next year, so i-th department has the exact next year budget of a_i.

To save k ebin-cents it was decided to repeat the actions below k times: find the most funded department and substract 1 ebin-cent from its budget. If several departments have the same amount of funding, you should choose the department with the lowest sequential number.

Spurdo, the CEO of Spurdo LLC., is too dumb to calculate it by himself, so he asked you to calculate the new budget plan for the next year using the above algorithm repeated k times.

Input

In the first line, two values n and k are set ($1 \le n \le 2 \cdot 10^5; 1 \le k \le 4 \cdot 10^{14}$) — the number of Spurdo LLC. departments and the planned funding cuts.

In the second line, there are n integers separated by a space $a_1, a_2, ..., a_n$ ($1 \le a_i \le 2 \cdot 10^9$) — the budgets of each department.

It is guaranteed that the total budget of all departments is greater than or equal to the planned budget reduction k. ($\sum a_i \ge k$)

Output

Print n integers $b_1, b_2, ..., b_n$ — budgets of each department of Spurdo LLC. after funding cuts.

You can separate numbers with spaces or line breaks

Examples

standard input	standard output
10 25 1 9 7 6 2 9 3 2 8 6	1 3 3 3 2 3 3 2 4 4
6 10 1 2 3 3 2 1	0 0 0 0 1 1