
Wedding cake

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 megabytes

Julia's wedding is going to have a huge one ton cake. All n guests want to taste the cake, so it's going to be cut in n pieces. But this task is not that easy, because all guests are on a special mathematical diet. Guest i is only willing to eat the cake if the weight of his piece in tons w_i has exactly a_i significant digits after the decimal point. In decimal representation all digits up to the last non-zero digit after the decimal point are significant. For example, number 0.007 contains three significant digits after the decimal point, number 1.45 — two, and number 17.0 has no significant digits after the decimal point.

Your task is to cut the cake for Julia's wedding so that every guest could taste it.

Input

First line contains single integer n — number of guests ($1 \leq n \leq 10^5$).

Next line contains n integers a_i — constraint for the weight of i -th piece ($1 \leq a_i \leq 10^5$).

Sum of all a_i doesn't exceed 10^5 .

Output

Output should contain "NO", if there is no way to cut the cake.

Otherwise, output "YES" on the first line. Each of the next n lines should contain one single real number w_i — weight of the piece for the i -th guest with exactly a_i digits after the decimal point. All a_i digits after the decimal point have to be significant.

Scoring

Subtask	Points	Constraints		Scoring	Required subtasks
		n	a_i		
1	17	$n \leq 100$	$a_i \leq 10$	subtask	—
2	21	$n \leq 10^5$	all a_i are equal	subtask	—
3	25	$n \leq 10^3$	sum of all a_i doesn't exceed 10^3	subtask	1
4	37	$n \leq 10^5$	sum of all a_i doesn't exceed 10^5	subtask	1, 2 and 3

Feedback

In subtask 1 outcome for every test is shown.

In subtasks 2, 3 and 4, points for the subtask and outcome for the first failed test are shown.

Example

standard input	standard output
5 2 4 4 3 2	YES 0.47 0.1234 0.1326 0.024 0.25