Sort! Sort!! And Sort!!!

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Timelimit: 2

Hmm! Here you are asked to do a simple sorting. You will be given **N** numbers and a positive integer **M**. You will have to sort the **N** numbers in ascending order of their modulo M value. If there is a tie between an odd number and an even number (that is their modulo **M** value is the same) then the odd number will precede the even number. If there is a tie between two odd numbers (that is their modulo **M** value is the same) then the larger odd number will precede the smaller odd number and if there is a tie between two even numbers (that is their modulo **M** value is the same) then the smaller even number will precede the larger even number. For remainder value of negative numbers follow the rule of C programming language: A negative number can never have modulus greater than zero. E.g. -100 MOD 3 = -1, -100 MOD 4 = 0 etc.

Input

The input file contains many sets of inputs. Each set starts with two integers **N** ($0 < N \leq 10000$) and **M** ($0 < M \leq 10000$) which denotes how many numbers are within this set. Each of the next **N** lines contains one number each. These numbers should all fit in 32-bit signed integer. Input is terminated by a line containing two zeroes.

Output

The first line of each set contains the value of **N** and **M**. The next **N** lines contain **N** numbers, sorted according to the rules mentioned above. Print the last two zeroes of the input file in the output file also.

Sample Input	Sample Output
15 3 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 3 3 9	15 3 15 9 3 6 12 13 7 1 4 10 11 5 2 8 14 3 3 9

12 10 0 0	12 10 0 0

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