Insertion sort is a simple sorting algorithm which sorts a set of items by inserting an unsorted item into an appropriate position in the set of sorted items. Write a program to sort items by selection sort.

Input

The input has several cases and ends with EOF. Each case contains a set of characters with a maximum size of 20.

Output

For each case, sort the input by insertion sort. The output should be in ascending order according to the following definition: 2 < 3 < 4 < … < 8 < 9 < T < J < Q < K < A. Output the partial result in each pass according to the format given in sample output. Each two consecutive cases should be separated by a line.

Sample Input

A K Q J T 9 8 7 6 5 4 3 2

Sample Output

Pass 0: A / K Q J T 9 8 7 6 5 4 3 2
Pass 1: K A / Q J T 9 8 7 6 5 4 3 2
Pass 2: Q K A / J T 9 8 7 6 5 4 3 2
Pass 3: J Q K A / T 9 8 7 6 5 4 3 2
Pass 4: T J Q K A / 9 8 7 6 5 4 3 2
Pass 5: 9 T J Q K A / 8 7 6 5 4 3 2
Pass 6: 8 9 T J Q K A / 7 6 5 4 3 2
Pass 7: 7 8 9 T J Q K A / 6 5 4 3 2
Pass 8: 6 7 8 9 T J Q K A / 5 4 3 2
Pass 9: 5 6 7 8 9 T J Q K A / 4 3 2
Pass 10: 4 5 6 7 8 9 T J Q K A / 3 2
Pass 11: 3 4 5 6 7 8 9 T J Q K A / 2
Pass 12: 2 3 4 5 6 7 8 9 T J Q K A /