ACSL
American Computer Science League

2016 - 2017 **Contest #2**

ASCENDING STRINGS
SENIOR DIVISION

PROBLEM: This program requires you to take a string of digits and form a sequence of numbers from that string, such that each number is larger than the previous number in the sequence. To form the numbers in the sequence, you take digits from the left side of the initial string, then from the right, then from the left, then from the right, and so on, until the remaining digits of the string cannot be formed into a number larger than the previous number in the sequence.

For example, the string 31415926538 would form the sequence of numbers 3, 8, 14, 35, and 159:

The first number in the sequence is the leftmost digit in the input string, the number 3.

The next digit to consider is from the right side, the 8. This is larger than the 3, so it's in the sequence.

Next, we go back to and look at the left side. The number 1is not greater than 8, so we go further and combine it with the 4 to make the number 14, which is larger than 8; it's part of the sequence.

Back to the right side, where we consider the number 3 then 5. The number 35 is larger than 14, so it's part of the sequence.

Back to the left side and select 159.

Back to the right side and ignore the 62 since it is smaller than 159.

Scan Direction	**String**	**Output**
Left-to-right	⇒[3]1415926538	3
Right-to-left	141592653[8]⇐	8
Left-to-right	⇒ [14]1592653	14
Right-to-left	15926[53]⇐	35
Left-to-right	⇒ [159]26	159
Right-to-left	26⇐	

INPUT: There will be 5 lines of input. Each line will contain a string of digits. Its length will be at least 1 and no more than 32.

OUTPUT: The sequence of numbers formed as described above; each number in the sequence must be separated by a single space. Any number in the output sequence that starts with a zero must not show the leading zero.

SAMPLE INPUT
1. 31415926538
2. 314159265
3. 201617
4. 123456789
5. 1223334444

SAMPLE OUTPUT
1. 3 8 14 35 159
2. 3 5 14 62 159
3. 2 7 16
4. 1 9 23 87 456
5. 1 4 22 44 333

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TEST DATA

TEST INPUT	TEST OUTPUT
1. 2718281828	1. 2 8 71 281 828
2. 12233221	2. 1 12 22 23
3. 5005	3. 5 50
4. 250	4. 2 5
5. 9	5. 9