1. Second smallest:

Take an unknown number of integers as input and print the second smallest number.

If there is no second smallest number in the sequence the program should print an error message and quit.

The program should read integers until something non-numeric is entered.

Two examples of the program are shown below:

Enter the numbers in random order: (close by entering q)

34 254 1 -5 -13 q

The second smallest number is -5

And:

Enter the numbers in random order: (close by entering q)

4 4 4 4 4 q

error: no second smallest

2. Run-length encoding

Write a program that implements a simple form of run-length encoding.

Accepted input characters are all characters from 'a' to 'z'. The expected output is <number><character>, repeated for each run of characters. Here <number> is the amount of times <character> is repeated in sequence.

Some examples:

aaeeeeae = 2a4e1a1e rr44errre = invalid input eeeeeeeeeeeeeeeeeeee = 21e

The program should take 'uncompressed data' as input. It should then compress the data and store the compressed data in two corresponding **strings** or **lists**. Finally, it should print the compressed data.

Examples of the program are shown below:

Enter the data to be compressed: aaabbssssaad

The compressed data is: 3a2b4s2a1d

Enter the data to be compressed: aaAbbcccddd

error: invalid input