

4.3 Run-Length Encoding (graded assignment)

Due 30 Sep 2019 by 23:59 **Points** 10 **Submitting** an external tool

Write a program that implements a simple form of run-length encoding as described on [Wikipedia](https://en.wikipedia.org/wiki/Run-length_encoding) (https://en.wikipedia.org/wiki/Run-length_encoding). On the Wikipedia page, read the introduction and the first part of the example carefully to be sure you fully understand the algorithm. For this assignment, 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:

```
aaaaaae = 2a4e1a1e
rr44errre = invalid input
eeeeeeeeeeeeeeeeeeee = 21e
```

The program should take 'uncompressed data' as input: a string from *cin*. It should then compress the data and store the compressed data in two corresponding vectors, one for the run lengths, and one for the characters. (compare Section 6.1 in the zyBook)

Finally, it should print the compressed data: print the contents of the two vectors to *cout*.

Examples of correct execution of the program are shown below:

```
Enter the data to be compressed: aaabbssssaad
The compressed data is: 3a2b4s2a1d

Enter the data to be compressed: aaAbbcccd
error: invalid input
```

This tool needs to be loaded in a new browser window

Load 4.3 Run-Length Encoding (graded assignment) in a new window

