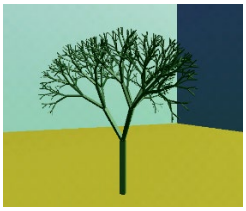

GATS Companion to rle Project

Author: Garth Santor
Editors: n/a
Version/Copyright: 2.1.0 (2021-03-08)

Overview

Background and FAQs about the rle/d project.

How to get started?

Consider:

- Perform the simplest core feature first.
- Can I use read command-line arguments?
- What information do I need to collect?
- How do I store the information collected? Or in what do I store the information collected?

Things to watch for…

1. Files will have to be opened in binary mode so that none of the characters are converted (carriage return, ^D, ^Z could all be changed)
2. If you want to convert a signed char to a unsigned integer, you'll have to cast it to a unsigned char first!

Support Files

The archives:

- rle.binaries.v2.0.0.zip (my demos + test program)
- rltest.datafiles.zip (the data files that rltest creates during its execution).

Use 'rltest -v' to see the full output of the test program comparison.

rltest

rle trivial test

Command	rle trivial.txt trivial.txt.rle
Description	A single letter a
Input file	a
Output file	Characters with ASCII codes: 1 97

rle simple test

Command	rle simple.txt simple.txt.rle
Description	A single repeated letter a
Input file	aaaaaaaaaaaaa
Output file	Characters with ASCII codes: 13 97

rle typical test

Command	rle typical.txt typical.txt.rle

Description	A variety of different letters with different repeat counts.
Input file	aaaaaaaaaaaaabbbcbccbbbed
Output file	Characters with ASCII codes: 10 97 03 98 1 99 1 98 2 99 3 98 1 101 1 100

rle oneK test

Command	rle oneK.txt oneK.txt.rle
Description	Test blocking. This is exactly 4 blocks of 255 letter a. 255 is the maximum block size.
Input file	1020 instances of letter 'a'
Output file	Characters with ASCII codes: 255 97 255 97 255 97 255 97

rle oneKone test

Command	rle oneKone.txt oneKone.txt.rle
Description	Test blocking. This is exactly 4 blocks of 255, a one block of a single letter a. 255 is the maximum block size.
Input file	1021 instances of letter 'a'
Output file	Characters with ASCII codes: 255 97 255 97 255 97 255 97 1 97

rld trivialcoded test

Command	rld trivial.txt.rle trivial.txt
Description	A single repeated letter a
Input file	Characters with ASCII codes: 1 97
Output file	a

rld simplecoded test

Command	rld simplecoded.txt.rle simplecoded.txt
Description	A single repeated letter a
Input file	Characters with ASCII codes: 15 97
Output file	aaaaaaaaaaaaaaa

rld typical test

Command	rld typicalcoded.txt.rle typicalcoded.txt
Description	A variety of different letters with different repeat counts.
Input file	Characters with ASCII codes: 10 97 2 88 1 55 1 56 3 45 7 44
Output file	aaaaaaaaaXXUVEEEDDDDDDD

rld oneK test

Command	rld oneKcoded.txt.rle oneKcoded.txt
Description	Test blocking. This is exactly 4 blocks of 255 letter a. 255 is the maximum block size.
Input file	Characters with ASCII codes: 255 97 255 97 255 97 255 97
Output file	1020 instances of the letter 'a'

rld oneKone test

Command	rld oneKonecoded.txt.rle oneKonecoded.txt
Description	Test blocking. This is exactly 4 blocks of 255, a one block of a single letter a. 255 is the maximum block size.
Input file	Characters with ASCII codes: 255 97 255 97 255 97 255 97 1 97
Output file	1021 instances of the letter 'a'

rle default test

Command	rle default.txt
Description	Test automatic extension creation.
Input file	aaaaaaaaaaaa
Output file	File called “default.txt.rle”, characters with ASCII codes: 13 97

rld default test

Command	rld defaultcoded.txt.rle
Description	Test if .rle extension is correctly removed for the output filename.
Input file	Characters with ASCII codes: 10 97 2 88 1 55 1 56 3 45 7 44
Output file	File called “defaultcoded.txt”, characters with ASCII codes: aaaaaaaaaXXUVEEEDDDDDDD

rle binary test

Command	rle binary.bin binary.bin.rle
Description	Tests all of the
Input file	All the ASCII character codes from 0 to 255
Output file	Characters with ASCII codes: 1 0 1 1 1 2 1 3 1 4 1 5 …. 1 254 1 255

rld binary test

Command	rld binarycoded.bin.rle binarycoded.bin
Description	A single repeated letter a
Input file	Characters with ASCII codes: 1 0 1 1 1 2 1 3 1 4 1 5 …. 1 254 1 255
Output file	All the ASCII character codes from 0 to 255

rle help test

Command	rle --help
Description	Test the help output.
Input file	n/a
Output file	n/a

rld help test

Command	rld --help
Description	Test the help output.
Input file	n/a
Output file	n/a

rle default test

Command	rle
Description	No arguments should show the help.
Input file	n/a
Output file	n/a

rld default test

Command	rld
Description	No arguments should show the help.
Input file	n/a
Output file	n/a

FAQ

Q: Can we use third-party libraries?

No, only C++ 17 standard libraries.

Document History

Version	Date	Notes
1.0.0	2020-03-30	Document creation.
2.0.0	2021-03-08	Switched file format.