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Assignment 1

„Multimedia"

Deadline 15.04.2019, F033.

Description of assignment

The goal of this assignment is to read a long text („*A MIDSUMMER NIGHT'S DREAM*", Shakespeare) into Matlab, analyze the relative occurrence frequencies of the ACSII symbols, and compute the corresponding Huffman code and its average code word length. Encode the text using the corresponding Huffman-code.

For the solution realize the following four steps:
1. Read the data.
2. Analyze the text.
3. Compute the average code word length and the entropy.
4. Output of the codes.

Hints:

- http://www-home.htwg-konstanz.de/~umlauf/Skript/Matlab.en.pdf
- A detailed documentation for each Matlab-command is obtained by `help <command>` in the terminal or by full-text search in the `helpdesk`.
- To reading the text file use the Matlab command `textread` or the C-style command `fopen, fread, fclose`.
- Using the commands `char` and `double` Double-Vectors and Char-Vectors can be converted.
- The commands `length` and `size` yield the dimension of a vectors or of a matrix.
- The command `hist` yields a histogram (number of occurrences).
- The commands `min, max, find, sort` are useful for data analysis.
- Removing ASCII-symbols with frequency zero can be done by logical indexing.

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