Huffman Design Document

Priority Queue

huffmanTree (linked list)
element Count

- Enqueues in O(n) due to priority of nodes. Sorts linked list nodes.
- Dequeues in O(1). Deletes head of queue.
- Peeks in O(1). returns the head of queue.

Freq Counter

*freqarr

- Return's freq of index (ascii)

- Generates freq table from input

- Uses one to one mapping concept of ascii values

Main

Compression

- Read input
- Make freq table
- Insert into priority Q
- Create huff tree
- generate code table
- Print code table to file

- Print num of char to file and its frequencies
- encode the output file

Decompression

- Read huff file (get freq table)
- Push items to priority Q
- recreate huffman tree
- Create codetable of huff codes
- Traverse tree to find Corresponding ascii to huff code
- Print ascii to output file
↳ Done..

Bit Stream

buffer, buffer Length

- Encodes bytes using bitshifting

huffman Tree

weight, height

1. Builds tree with char and freq

2. joins huffman trees together with two other trees

- Generates huffman Code by recursive tree traversal

- Traverse tree to get ascii

- Builds tree without parameters