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Systems Programming

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1) Tokenizer = $O(n)$

- For the n nodes needed to go through
- Size complexity = $\text{sizeof}(\text{strNode}) * n = O(n)$;

2) Build Min-Heap: $O(n)$

- There is n nodes needed to go through.
- Size complexity = $\text{sizeof}(\text{MinNode}) * n = O(n)$;

3) Build HuffmanCode: $O(n * \log(k))$

- Contains k nodes and, on average, it takes $O(\log k)$ to visit every node, n nodes.
- Size complexity = $\text{sizeof}(\text{HuffNode}) * n = O(n)$;

4) Decode: $O(n^2)$

- Need to go through n number of codes, n times (amount of words).
- Size complexity = $\text{sizeof}(\text{char} *) * n = O(n)$;