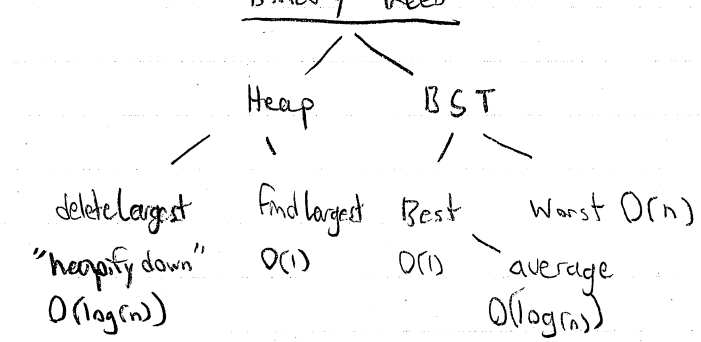
DMod

Review Trees + Binary Trees

10/3



★ Since data changes, we use these data structures

reTRIEval

- To replace BST for specific cases

ex: English Language has

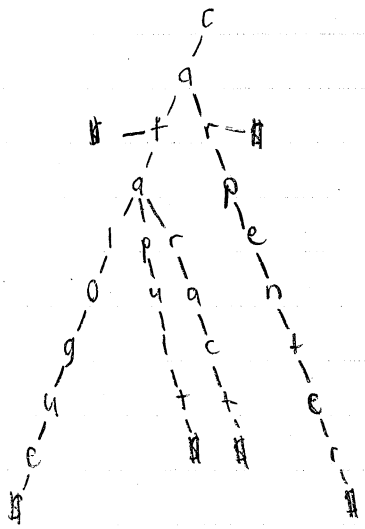
171,476 common
47,156 specialized
+ 9,500 archaic
~228,000

→ w/ BST it takes ~18 comparisons to discover a word is NOT in the dictionary

→ TRIE

cat, catalogue, Catapult, carport, cataract, carpenter

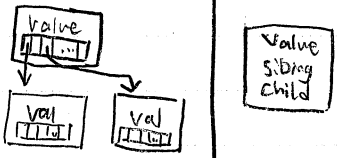
- sometimes used in DNA sequencing

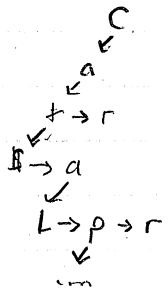


- Can be live
- Maybe constant runtime?
  - only as many comparisons as length of word
  - O(|w|)

- Implementation

Arrays (Mem cost) | Dynamic (Slower)





Data Compression

Huffman encoding

ex:

"All For one. For others." (24 char)

→ 8 bit rep/n of each letter

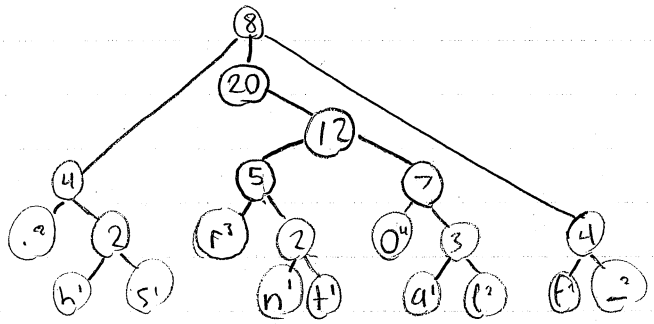
$8 \times 24 = 192$ bits

- Fixed Size

Huff:

① Variable-length encoding

② Reduce bits based on letter frequency



A	1
l	2
F	2
O	4
r	3
n	4
e	1
.	2
-	2
t	1
h	1
s	1