

CS 180

Final homework

To be submitted on the last day of class

1. R-10.6 from page 492 of the text.
2. Draw the AVL tree that results from inserting the elements 1, 2, 3, 4, 5, 6 (in that order).
3. Draw the AVL tree from the previous problem after inserting 7, 8, 9 (in that order).
4. R-12.14 on page 588 of the text.
5. Using the Huffman tree from the previous problem, write the binary encoding of the message “spot soda too”.
6. How many bits did your encoding of the message in the previous problem take? How many bits would a standard ASCII encoding have taken (assuming 8 bits per character)?
7. Problems R-9.7 to R-9.9 on page 417 of the textbook.
8. Problem R-9.14 on Page 418 of the textbook.
9. Draw the treap that results when the following pairs are inserted, where we form a BST over the letters and a min heap over the numbers: $(R, 5), (S, 9), (E, 7), (H, 1), (W, 13), (D, 8), (J, 2), (K, 4), (P, 11)$.