

Tutorial 11: Nov 29

1. **LZW**

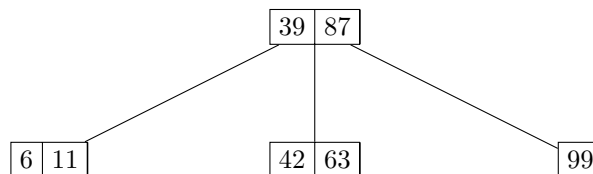
For the following LZW problems, consider the initial dictionary to be the ASCII table.

- a) Encode the following string using LZW: BANANA_BANDANA
- b) Decode the following encoded string using LZW:

71 – 73 – 86 – 69 – 95 – 77 – 131 – 82 – 69 – 128 – 137 – 65 – 83

2. **a-b Trees**

For the following 2-4 tree, perform the following operations: Insert 30, Insert 75, Insert 24, Insert 56.

3. **Red-Black Conversion**

Write the final 2-4 tree from Question 2 as a red-black tree. Use the upper median when converting a d-node with an even number of keys.