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Asgn 5 Design.pdf

1. The compress program reduces the size of a file by representing frequent characters with 1 nibble and less common characters with 3 nibbles. The program uses fgetc(fin) to read one byte at a time from the input file. If the character is in the lookup table, it is converted to the corresponding nibble. If the character is not in the table, it is represented using three nibbles: the first nibble is 0, the second nibble represents the high nibble, and the third nibble represents the low nibble. The program then uses nib_put_nibble(nibble, nib) to write the resulting nibbles to the compressed file.

2. 1) Array Lookup: Use two arrays byte_to_nibble[256] and nibble_to_byte[16] and map byte/nibble values to their corresponding nibbles/bytes

   2) Switch Statement: Use switch statements to map byte values to nibbles and nibbles to bytes

   3) Conditional Logic: Use logical comparisons to directly map byte values to nibbles or vice versa

3. The method I ended up using is the array lookup method since it's faster and more efficient than iterating over a switch statement. It was also much simpler for me to debug.