COS 350 Systems Programming
2024 Spring
Assignment 3

Q1: Utilize LZW compression algorithm to compress the string "**EFGFGFGEF**", calculate the compression ratio, then decompress it. Please present both the answers and the calculation processes. It's essential to note that only the final answers will incur a deduction of half points. (20 points)

Q2: Utilize LZW compression algorithm to compress the string "**EGFGFEGEGEGF**", calculate the compression ratio, then decompress it. Please present both the answers and the calculation processes. It's essential to note that only the final answers will incur a deduction of half points. (20 points)

Q3: Utilize Huffman Coding algorithm to compress the string "**AAABBCBBCDEFFEADEEEFDDF**", calculate the compression ratio, then decompress it. Please present both the answers and the calculation processes. It's essential to note that only the final answers will incur a deduction of half points. (15 points)

Q4: Utilize Huffman Coding algorithm to compress the string "**EFGHJJHGFEEFEFHJHJHO**", calculate the compression ratio, then decompress it. Please present both the answers and the calculation processes. It's essential to note that only the final answers will incur a deduction of half points. (15 points)

Q5: Bash Script practice. Write Bash Scripts to accomplish the following tasks. You can paste your code and a screenshot of your execution result in. (30 points)

a) Declare an array with elements [1,2,3,4,5,6,7,8,9,10]. Calculate the sum of the array and print the calculation result to the console. Utilize **command substitution** to print. (10 points, 5 points for code, 5 points for screenshot)

b) Create a folder named YOURNAME, then create 100 empty files named from test1.txt to test100.txt. Count how many files inside this folder and display the count in the console (**do not directly print 100, use proper commands to count**). Use **command substitution** to print. (20 points, 15 points for code, 5 points for screenshot)