

Hw14

Huffman Code

Part A. Programming (50%)

Write a program to implement the Huffman Code.

Input: input.txt

Output: output.txt

The program should be named as studentID.c/.cpp

Input format:

6

45 13 12 16 9 5

aacd

Description:

There are three rows and one end line("\n") in the input file. The first row contains one number n with $1 < n \leq 10$. The second row contains n numbers indicating the frequency with characters in alphabetical order. In our case, a:45, b:13, c:12, d:16, e:9, f:5. Each frequency is in the range $[1 \dots 10 \cdot n]$. The last row contains one string S and the length of the string will not exceed n .

Output format:

00100111

Please output the huffman code of the string S . In our case: a=0, c=100, d=111. Therefore, the output should be 00100111.

Part B. Report (50%)

- A report should contain the following content:
 - Explain your algorithm clearly.
 - The worst-case running time of your algorithm.

The report should be named as studentID.pdf

The more detail you report; the more scores you can get.