Question - 1

CO253 Programming Project Milestone 01

Look at the complete specification given in FEeLS for the introduction and background of the project. This task is the first milestone of the project. In this milestone, you have to implement reading the input and encoding/decoding parts.

If the input is the *message*, then it has to be encoded to its equivalent binary representation, and if the input is the *bit sequence*, then the sequence has to be decoded to the corresponding message.

To get the relevant binary representation of a message, you should first get the ASCII value of each character (of the plain text) and represent that in binary with 8 bits each. You should append all these binary representations together to form one binary sequence for each plain text. You need to do the vice versa for decoding.

What we expect you to do is implement 2 functions with the following signatures.
char* encode(int n, char* msg); // n is the length of the message
char* decode (int l, char* bitsq); // l is the length of the bit sequence

Input Format

- First-line contains a char[C or P] which indicates whether you are getting Message/Plain text (if P) or Bit sequence (if C)
- Next line contains an integer N that is the length of the message or the bit sequence you are receiving
- The next line contains a string.
  - It should be considered as the Message (Plain text) if you got P in the first line and you need to encode it.
  - If you got C in the first line, then the string is the encoded bit sequence that required to be decoded.

Constraints

- Length of message < 1000
- Length of bit sequence < 10000

Output Format

- If you got a plain text as the input, then you have to output the encoded bit sequence.
- If you got a bit sequence as the input, then you should output the decoded message.

Explanation
Input:
P
11
Hello world

'H' ascii value = 72								'e' ascii value = 101								'l' ascii value = 108								'l' ascii value = 108								'o' ascii value = 111								'<space>' ascii value = 32							
0	1	0	0	1	0	0	0	0	1	1	0	0	1	0	1	0	1	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	1	0	0	0	0

'w' ascii value = 119								'o' ascii value = 111								'r' ascii value = 114								'l' ascii value = 108								'd' ascii value = 100							
0	1	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0	1	1	1	0	0	1	0	0	1	1	0	1	1	0	0	0	1	1	0	0	1	0	0

Output
0100100001100101011011000110110001101111001000000111011101101111011100100110110001100100

Help

Input:
C
88
01001000011001010111011000110110001101111001000000111011101110110
11100100110110001100100

0	1	0	0	1	0	0	0	0	1	1	0	0	1	0	1	0	1	1	0	1	1	0	0	0	1	1	0	1	1	0	0	0	1	1	0	1	1	1	1	0	0	1	0	0	0	0
72								101								108								108								111								32								
H								e								l								l								o								<space>								

0	1	1	1	0	1	1	1	0	1	1	0	1	1	1	1	0	1	1	1	0	0	1	0	0	1	1	0	1	1	0	0	0	1	1	0	0	1	0	0
119								111								114								108								100																
w								o								r								l								d																

Output:
Hello world