**Huffman Encoder/Decoder**

**Description**

Design a Huffman encoding/decoding system, which can encode and decode the messages to be transmitted. When you build a Huffman tree, you need put the little weight on the left and the large on the right. The right child tree is encoded as 1, the left is encoded as 0.

**Input**

Enter a positive integer *n* representing the size of the character set (n <=100) as well as n characters and n weights (weight is a positive integer. It has a larger value, then it has the greater probability of occurrence); You need to enter messages whose length is smaller or equal to 100.

**Output**

The output of the system is the encoding binary code taking a line; and the corresponding messages taking a line; Finally, a carriage return is output.

**Input sample**

5 a b c d e 12 40 15 8 25  
bbbaddeccbbb

**Output sample**

00011111110111010110110000  
bbbaddeccbbb

**Reminder**

Using the encoding prefix nature.