User Manual

User Manual
Huffman

This program reads in a file that is then encoded using a huffman tree. This code consists of 0s and 1s which correspond to a move left in the tree for a 0 and a move right in the tree for a 1. Code generated from a huffman tree can then be decoded using that same huffman tree. The entire tree can be printed as well as the code list.

1. Executing the program

Turn on and boot your computer.

Insert the flash drive containing the program file Project4.exe in the appropriate drive. (We will assume it is the A drive, but it could be any drive. Substitute the appropriate letter where you see a :)

Enter the following at the prompt

a:Project4

The menu will appear, along with a prompt allowing you to input your choice for the menu options.

2. Input

2.1 Input Requirements

The input file for encoding consists of characters a through z and is terminated by a *.

The input file for decoding consists of 0s and 1s terminated by a *.

The main menu options require you to enter an integer associated with an option. The number will be next to the option it performs.

When prompted to enter a filename for input, the file must exists or you will be taken back to the main menu.

2.2 Input Restrictions

The input file must be formatted in the proper way. Any extraneous data in the file will cause the program to behave incorrectly.

3 Output

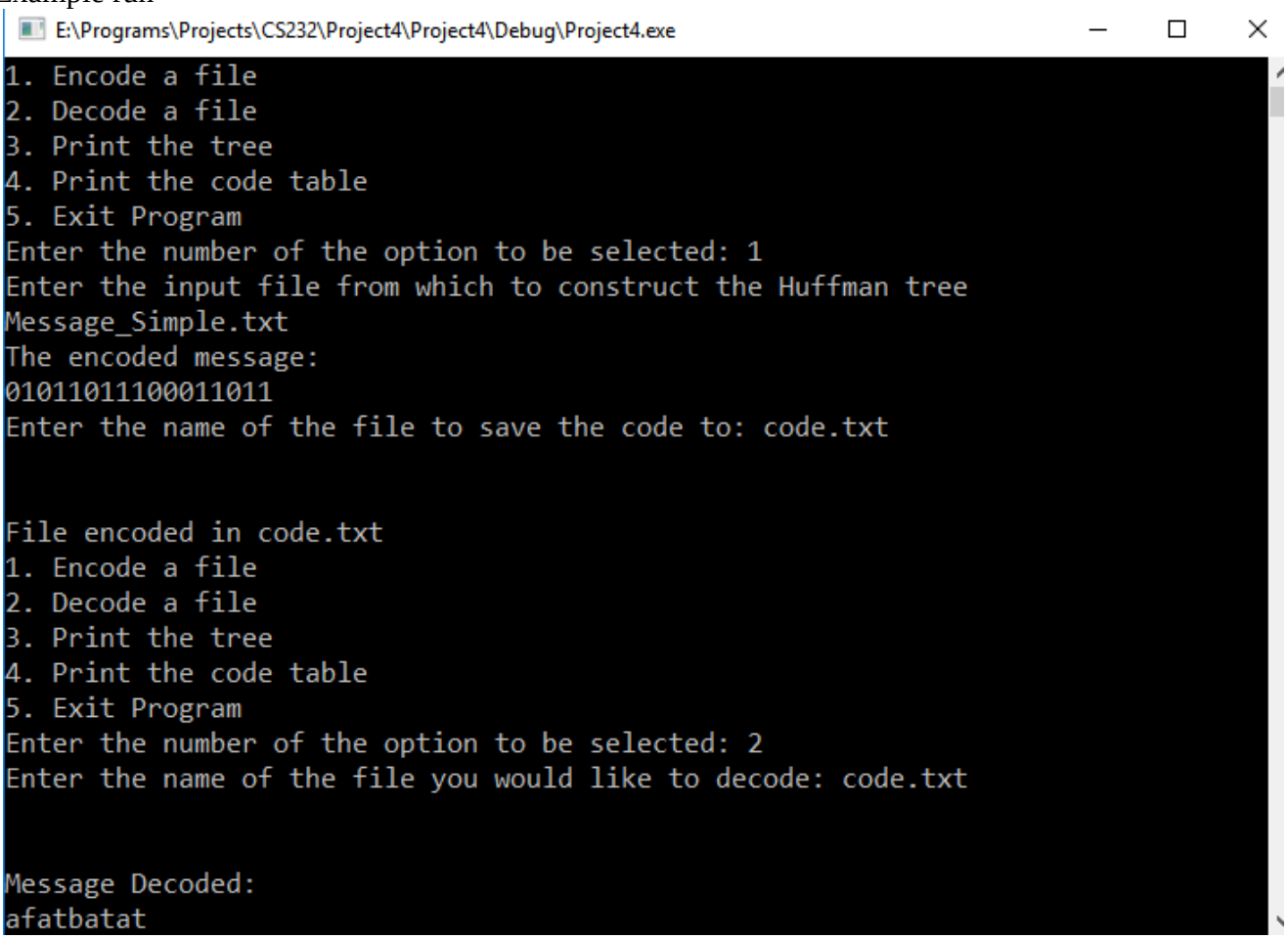
Encoding will print the coded message to the screen and then prompt for a filename to save the code to. The code will then be saved to an external file.

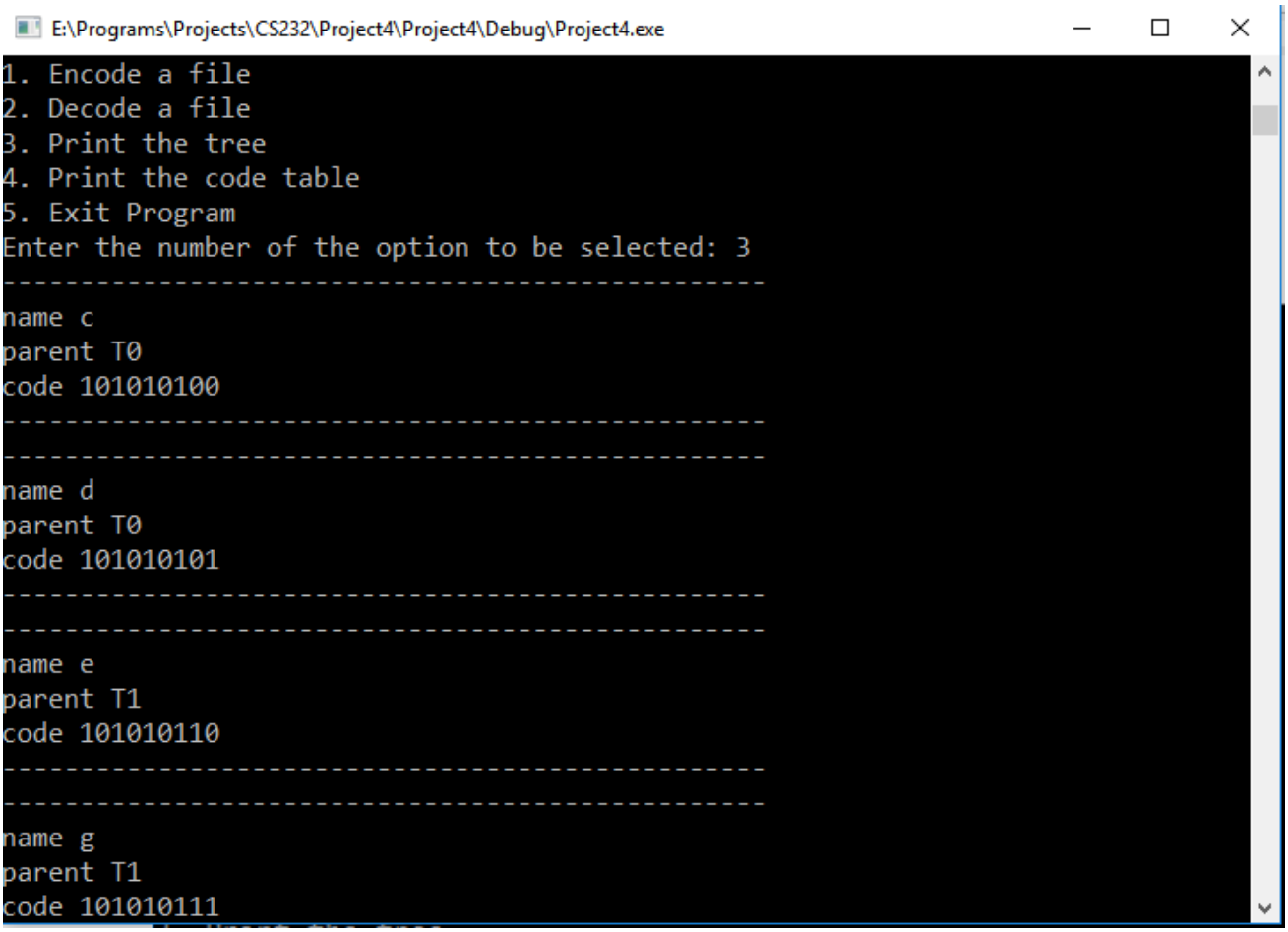
Decoding will print out the decoded message to the screen.

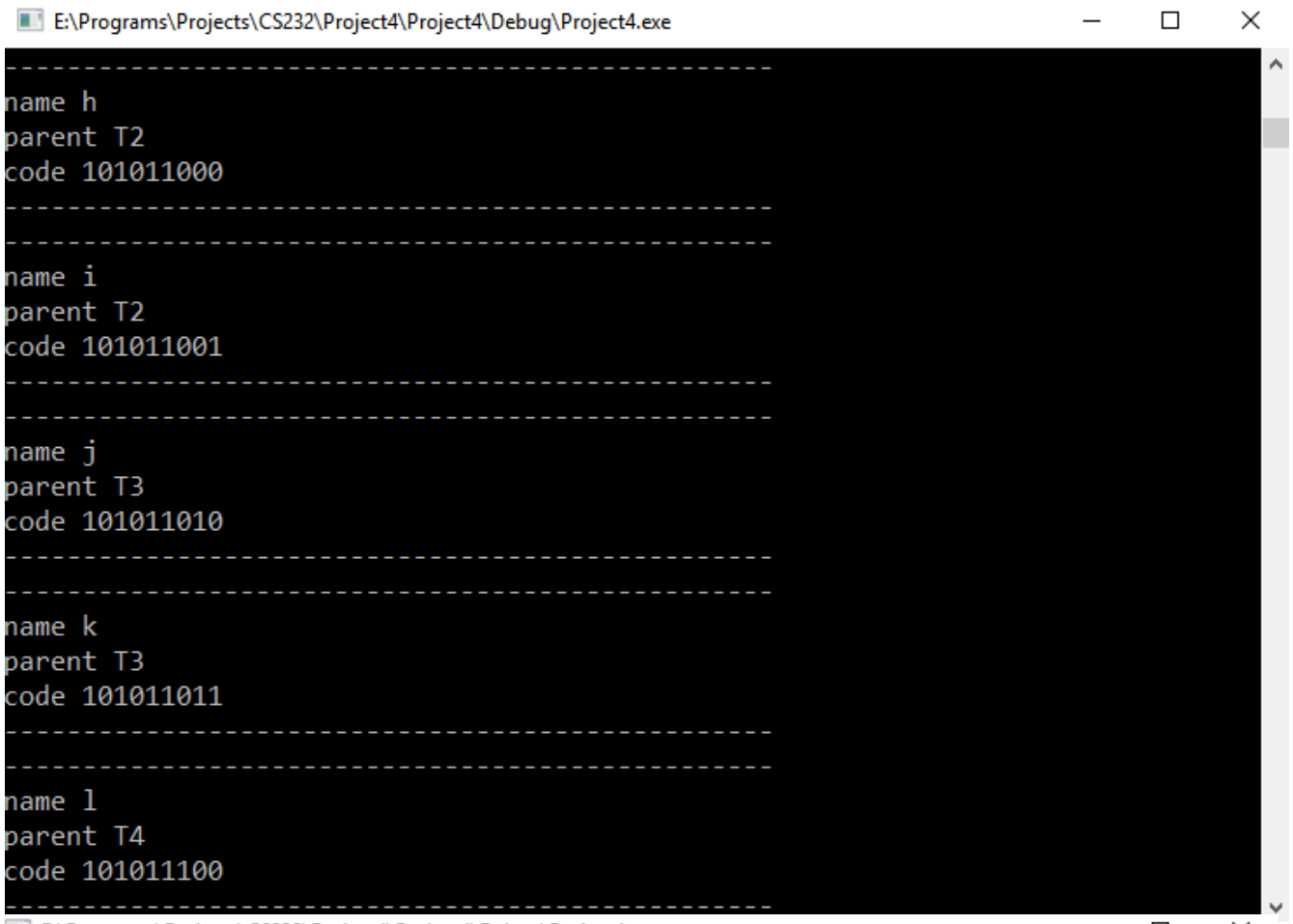
Printing the tree will results in all of the nodes as well as corresponding child and parent nodes to be printed to the screen

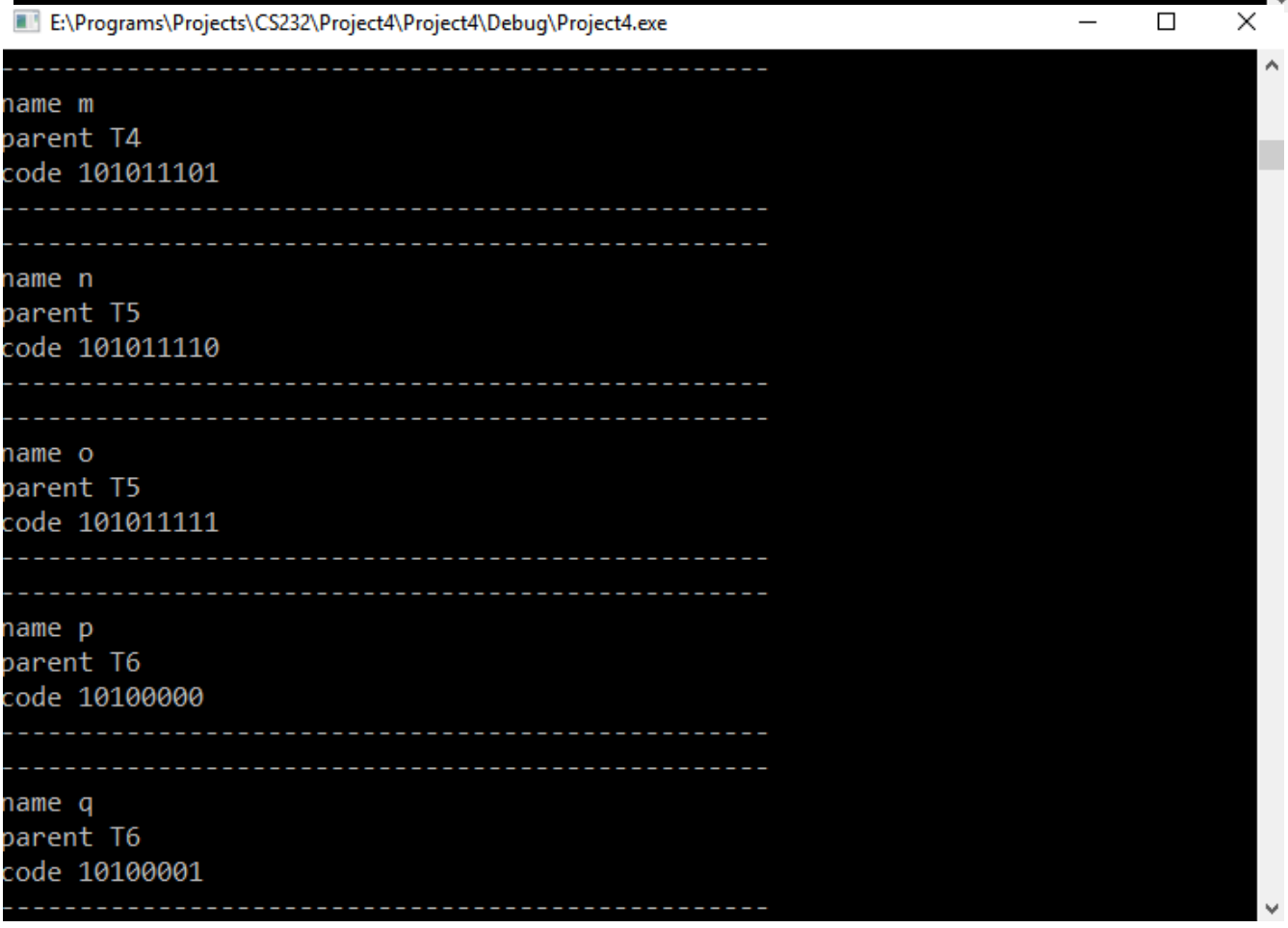
Printing the code table will print out each character along with its corresponding huffman code

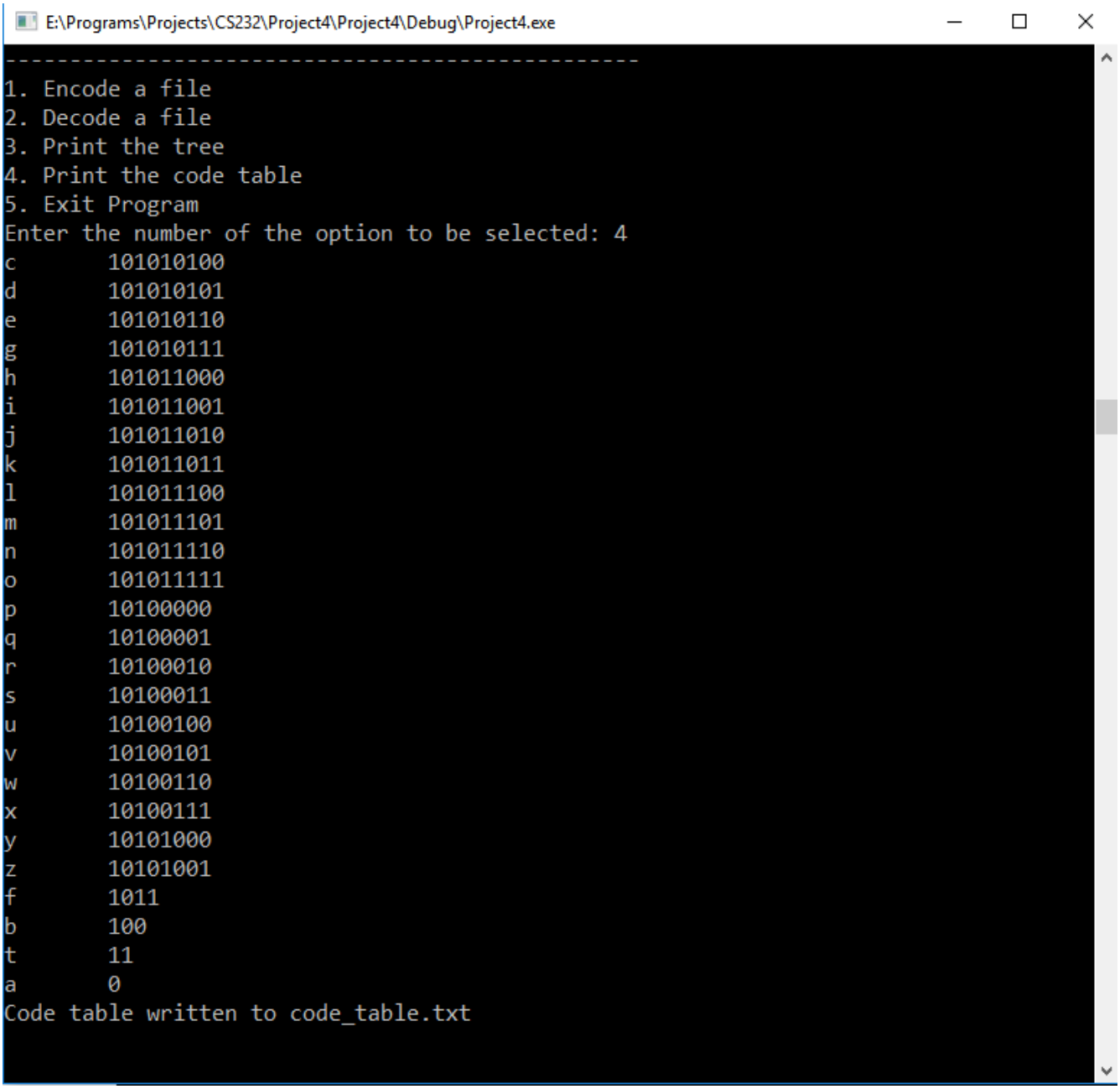
Example run


E:\Programs\Projects\CS232\Project4\Project4\Debug\Project4.exe
1. Encode a file
2. Decode a file
3. Print the tree
4. Print the code table
5. Exit Program
Enter the number of the option to be selected: 1
Enter the input file from which to construct the Huffman tree
Message_Simple.txt
The encoded message:
01011011100011011
Enter the name of the file to save the code to: code.txt
File encoded in code.txt
1. Encode a file
2. Decode a file
3. Print the tree
4. Print the code table
5. Exit Program
Enter the number of the option to be selected: 2
Enter the name of the file you would like to decode: code.txt
Message Decoded:
afatbatat


E:\Programs\Projects\CS232\Project4\Project4\Debug\Project4.exe
1. Encode a file
2. Decode a file
3. Print the tree
4. Print the code table
5. Exit Program
Enter the number of the option to be selected: 3
name c
parent T0
code 101010100
name d
parent T0
code 101010101
name e
parent T1
code 101010110
name g
parent T1
code 101010111


E:\Programs\Projects\CS232\Project4\Project4\Debug\Project4.exe
name h
parent T2
code 101011000
name i
parent T2
code 101011001
name j
parent T3
code 101011010
name k
parent T3
code 101011011
name l
parent T4
code 101011100


E:\Programs\Projects\CS232\Project4\Project4\Debug\Project4.exe
name m
parent T4
code 101011101
name n
parent T5
code 101011110
name o
parent T5
code 101011111
name p
parent T6
code 10100000
name q
parent T6
code 10100001


E:\Programs\Projects\CS232\Project4\Project4\Debug\Project4.exe
1. Encode a file
2. Decode a file
3. Print the tree
4. Print the code table
5. Exit Program
Enter the number of the option to be selected: 4
c 101010100
d 101010101
e 101010110
g 101010111
h 101011000
i 101011001
j 101011010
k 101011011
l 101011100
m 101011101
n 101011110
o 101011111
p 10100000
q 10100001
r 10100010
s 10100011
u 10100100
v 10100101
w 10100110
x 10100111
y 10101000
z 10101001
f 1011
b 100
t 11
a 0
Code table written to code_table.txt