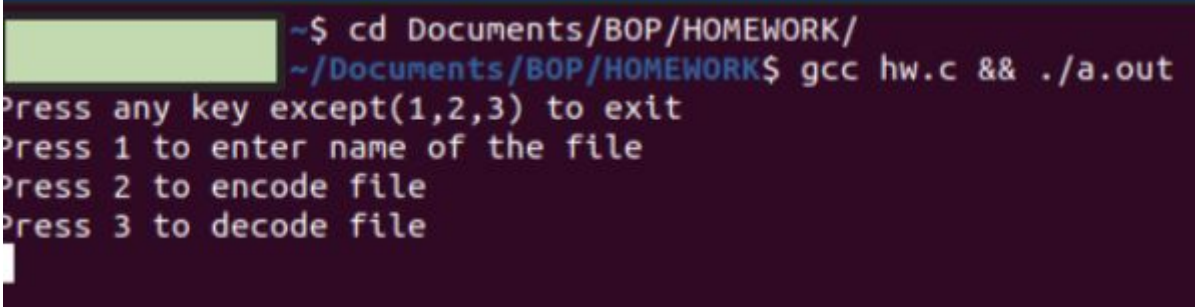


Home Work User Manual

Huffman compression

neptun code:RMUEW2

This program compresses and decompresses your files. To run the program you should: first of all go to the directory where the source code is located, then write following command in your terminal:

A terminal window with a dark purple background. The prompt is '~\$'. The user enters 'cd Documents/BOP/HOMEWORK/' and the prompt changes to '~/Documents/BOP/HOMEWORK\$'. The user then enters 'gcc hw.c && ./a.out'. The program outputs: 'Press any key except(1,2,3) to exit', 'Press 1 to enter name of the file', 'Press 2 to encode file', and 'Press 3 to decode file'.

```
~$ cd Documents/BOP/HOMEWORK/  
~/Documents/BOP/HOMEWORK$ gcc hw.c && ./a.out  
Press any key except(1,2,3) to exit  
Press 1 to enter name of the file  
Press 2 to encode file  
Press 3 to decode file
```

If you see this then you have successfully launched the program!

As a next step, if you want to compress a file you have to press “1” and enter the name of the file. For example, if the name of your file is “file.txt” you just need to type “file” without extension. Then it will show the set of symbols that contain your file and its frequencies.

```
Press any key except(1,2,3) to exit
Press 1 to enter name of the file
Press 2 to encode file
Press 3 to decode file
1
```

```
Please enter name of the file!
file
```

```
=21
=292
```

```
!=5
```

```
&=8
```

```
(=7
```

```
)=7
```

```
,=1
```

```
-=11
```

```
/=10
```

```
0=5
```

```
;=4
```

```
==19
```

```
>=11
```

```
L=14
```

```
N=7
```

```
U=7
```

```
[=2
```

```
]=2
```

```
a=7
```

```
b=4
```

```
c=5
```

```
d=7
```

```
e=40
```

```
f=7
```

```
h=7
```

```
i=20
```

```
k=6
```

```
l=5
```

```
m=6
```

```
n=24
```

```
o=1
```

```
p=3
```

```
r=17
```

```
s=8
```

```
t=35
```

```
u=2
```

```
v=2
```

```
w=2
```

```
x=14
```

```
y=13
```

```
{=6
```

```
=4
```

```
Press any key except(1,2,3) to exit
Press 1 to enter name of the file
Press 2 to encode file
Press 3 to decode file
```

Then, if you want to encode your file you have to press “2”, as an output you will see the encoded code of you original file and the file that contains that code and list of symbols with their codes called “huf_code_list.txt”.

```
Press any key except(1,2,3) to exit
Press 1 to enter name of the file
Press 2 to encode file
Press 3 to decode file
2
0111100110110111110010100110110100111000110101100111111100
0010110111001110001111100011111100001001100110001111011000
1100111011011101001010000111100011111010010111111010110001
1000011001101011100111111010001100010111011011010111110101
0101110110000101011001111111000010010101011110001101100101
1101001010000111100011111010010111111010110001101111001101
0111001111110101111010001011101101101011111010111010011101
0010101100111111100001001010101111000110110010111101001111
0001001111001110100110111010101111000111110100101111110101
0100101101101111001010111101000101111011111100000101111110
00000000000001001111001110110001110010110110111011011001101
0111010011101111110111010010110110111100101011110100010111
11001111111111011010110000000000000011110101

New File successfully created as huf_code_list.txt!
```

Finally, in order to decode you have to press “3”. Then the program will output the decoded data and created new file called “hufOut.txt” which will contain already decoded data.

```

Press any key except(1,2,3) to exit
Press 1 to enter name of the file
Press 2 to encode file
Press 3 to decode file
3
while (entry != NULL) {
    // check key
    if (strcmp(entry->key, key) == 0) {
        // first item and no next entry
        if (entry->next == NULL && idx == 0) {
            hashtable->entries[bucket] = NULL;
        }

        // first item with a next entry
        if (entry->next != NULL && idx == 0) {
            hashtable->entries[bucket] = entry->next;
        }

        // last item
        if (entry->next == NULL && idx != 0) {
            prev->next = NULL;
        }

        // middle item
        if (entry->next != NULL && idx != 0) {
            prev->next = entry->next;
        }
    }
}

New File successfully created as hufOut.txt!

Press any key except(1,2,3) to exit
Press 1 to enter name of the file
Press 2 to encode file
Press 3 to decode file

```

In order to leave the program you should press any key instead of 1,2 or 3.