# **Assignment #3**

110503520 通訊二 葉易展

#### #Huffman

1.編譯結果

```
easonyeh@easonyeh-VirtualBox:~/homework3/huffman$ make
cc -g -Wall -Werror -Wextra -00 -std=c11 -D_POSIX_C_SOURCE=2 -c -o huffcode.o huffcode.c
cc -g -Wall -Werror -Wextra -00 -std=c11 -D_POSIX_C_SOURCE=2 -c -o huffman.o huffman.c
ar r libhuffman.a huffman.a
ar: creating libhuffman.a
cc -o huffcode huffcode.o libhuffman.a
```

### 2.執行結果

●壓縮

```
easonyeh@easonyeh-VirtualBox:~/homework3/huffman$ ./huffcode -c -i test.txt -o testafter.txt

Compressed/Decompressed time : 1676 µs
```

●解壓縮

```
easonyeh@easonyeh-VirtualBox:~/homework3/huffman$ ./huffcode -d -i testafter.txt -o testdecode.txt Compressed/Decompressed time : 1473 µs
```

#### #Arcd

1.編譯結果

```
easonyeh@easonyeh-VirtualBox:~/arcd$ make
[ 25%] Built target arcd
[ 50%] Built target adaptive_model
[ 62%] Building C object examples/CMakeFiles/arcd_stream.dir/arcd_stream.c.o
[ 75%] Linking C executable arcd_stream
[ 75%] Built target arcd_stream
[ 87%] Building CXX object tests/CMakeFiles/codec_tests.dir/codec_tests.cpp.o
[100%] Linking CXX executable codec_tests
[100%] Built target codec_tests
easonyeh@easonyeh-VirtualBox:~/arcd$
```

### 2.執行結果

●壓縮

Compressed/Decompressed time : 22853 µs

# ●解壓縮

# #分析

Huffman 與 Arcd 的執行時間比較

●壓縮

 $huffman \rightarrow$ 

easonyeh@easonyeh-VirtualBox:~/huffman\$ ./huffcode -c -i test.txt -o testafter.txt

Compressed/Decompressed time : 732 µs

arcd →

easonyeh@easonyeh-VirtualBox:~/arcd/examples\$ ./arcd\_stream -e <test.txt | tee testafter.txt
Compressed/Decompressed time : 1336 μs</pre>

# ●解壓縮

huffman →

easonyeh@easonyeh-VirtualBox:~/huffman\$ ./huffcode -d -i testafter.txt -o testdecode.txt

Compressed/Decompressed time : 1077 µs

 $arcd \rightarrow$ 

1--- CC--- ---

easonyeh@easonyeh-VirtualBox:~/arcd/examples\$ ./arcd\_stream -d <testafter.txt | tee testdecode.txt | Compressed/Decompressed time : 2470 µs

huffman →		arcd →	
test.txt	9.2 kB	test.txt	9.2 kB
testafter.txt	6.8 kB	testafter.txt	6.8 kB
testdecode.txt	9.2 kB	testdecode.txt	9.2 kB

經由壓縮同樣字數的.txt 檔,比較得出 huffman 壓縮的時間比 arcd 短

### Reference:

https://github.com/wonder-mice/arcd
https://github.com/drichardson/huffman