Assignment #3

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1. 編譯結果

arcd

```
● richie0203@RichieG15:~/workspace/Assignment_3/arcd$ make
  [ 25%] Built target arcd
  [ 50%] Built target adaptive_model
  [ 75%] Built target arcd_stream
  [100%] Built target codec_tests
```

huffman

```
● richie0203@RichieG15:~/workspace/Assignment_3/huffman$ make
 cc -g -Wall -Werror -Wextra -O0 -std=c11 -D_POSIX_C_SOURCE=2    -c -o huffcode.o huffcode.c
 cc -g -Wall -Werror -Wextra -O0 -std=c11 -D_POSIX_C_SOURCE=2    -c -o huffman.o huffman.c
 ar r libhuffman.a huffman.o
 ar: creating libhuffman.a
 cc  -o huffcode huffcode.o libhuffman.a
```

2. 執行結果

Arcd – Compress

```
● richie0203@RichieG15:~/workspace/Assignment_3/arcd$ cd examples/
○ richie0203@RichieG15:~/workspace/Assignment_3/arcd/examples$ ./arcd_stream -e < text.txt | tee text_encoded.txt




Time used: 8492 µs
```

Arcd – Decompress

```
○ richie0203@RichieG15:~/workspace/Assignment_3/arcd/examples$ ./arcd_stream -d < text_encoded.txt | tee text_decoded.txt
   Accessibility Help
   Sign in
   Home

   TTime used: 17058 µs
```

Huffman – Compress

```
● richie0203@RichieG15:~/workspace/Assignment_3/huffman$ ./huffcode -i text.txt -o text_encoded.txt -c

  Time used: 7785 µs
```

Huffman – Decompress

```
● richie0203@RichieG15:~/workspace/Assignment_3/huffman$ ./huffcode -i text_encoded.txt -o text_decoded.txt -d

  Time used: 6598 µs
```

3. 分析

   text.txt 檔案大小: 40kB

   經由 arcd encode 過後之text_encode.txt檔案大小: 26kB 時長: 8492 μs

   經由 arcd decode 過後之text_decode.txt檔案大小: 40kB 時長: 17058 μs

   壓縮效率：35%

   經由 huffman encode 過後之text_encode.txt檔案大小: 26kB 時長: 7785 μs

   經由 huffman decode 過後之text_decode.txt檔案大小: 40kB 時長: 6598 μs

   壓縮效率：35%

   由上述可得知 arcd 與 Huffman coding之壓縮效率相差不大，但 Huffman decode 時所使用時長較 arcd 短了 1.5倍