DSA Assignment4 Result

-Open Source Practice

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1. Result

```
       <Following is Huffman Coding>
e: 0
d: 10
a: 1100
b: 1101
c: 111
       <Following is Arithmetic Coding>
Enter probability of each character:
Symbol  Probability     Range_from      Range_to
-------------------------------------------------------
a       0.05            0               0.05
b       0.1             0.05            0.15
c       0.2             0.15            0.35
d       0.25            0.35            0.6
e       0.4             0.6             1

Please enter abcde within length of 5, for example:abcde acedb

Encoding
Symbol  Low_v   High_v  diff
a       0       0.05    0.05
c       0.0075  0.0175  0.01
e       0.0135  0.0175  0.004
d       0.0149  0.0159  0.001
b       0.01495 0.01505 0.0001
Code word for acedb is: 0.01495

Decoding:
Code     Output  Range_from      Range_to
0.01495 a       0               0.05
0.299   c       0.15            0.35
0.745   e       0.6             1
0.3625  d       0.35            0.6
0.05    a       0               0.05
Text for 0.01495 is: aceda
The time of two algorithm is:

Huffman Coding: 0.007seconds
Arithmetic Coding: 0.005seconds
PS C:\Users\penguin\.vscode> []
```

比較:

Huffman 是先建立一棵 2 元樹，並進行解碼及編碼，因此其系統所需時間會較為短