資節作業(open source)

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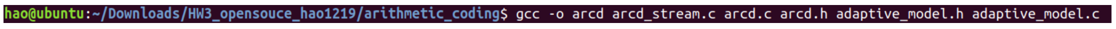
系級:通訊四

1.arithmetic coding

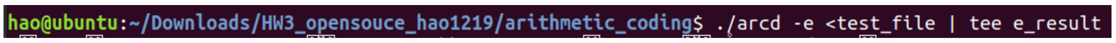
a) Compile



```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/arithmetic_coding$ gcc -o arcd arcd_stream.c arcd.c arcd.h adaptive_model.h adaptive_model.c
```

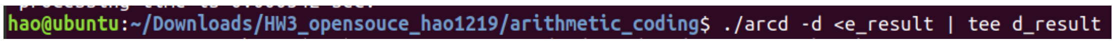
b) Run

(encode)



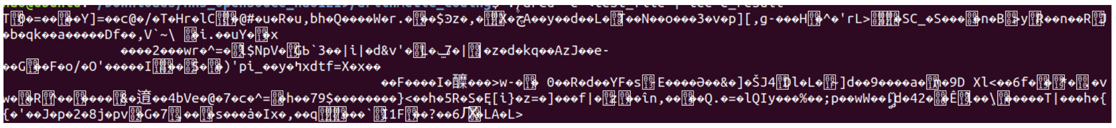
```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/arithmetic_coding$ ./arcd -e <test_file | tee e_result
```

(decode)

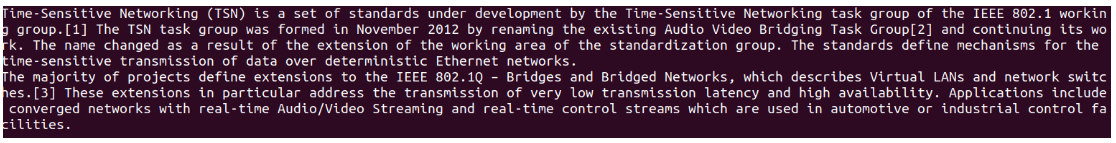


```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/arithmetic_coding$ ./arcd -d <e_result | tee d_result
```

c) Encode/Decode result shown below



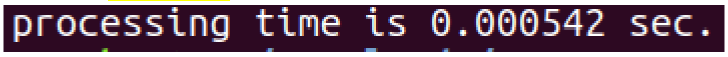
```
T[illegible]�=��[illegible]�Y]=��c@�/�T�Hr�lC[illegible]@#�u�R�u,bh�Q����W�r.�[illegible]�$ɔz�,�[illegible]�ȡA��y��d��L�[illegible]��N��o���3�v�p][,g-���H[illegible]^�'rL>[illegible]SC_�S���[illegible]n�B[illegible]y[illegible]��n��R[illegible]
�b�qk��a�����Df��,V`~\ [illegible]i.��uY�[illegible]x
               ����2���wr�^=�[illegible]$NpV�[illegible]b`3��|i|�d&v'�[illegible]�_7�|[illegible]�z�d�kq��AzJ��e-
��G[illegible]�F�o/�O'�����I[illegible]�[illegible]�[illegible])'pi_��y�ٴxdtf=X�x��
                                         ��F����I�[illegible]���>w-�[illegible] O��R�d��YF�s[illegible]E����ə��&�]�ŠJ4[illegible]l�L�[illegible]]d��9����a�[illegible]�9D Xl<��6f�[illegible]�[illegible]�v
w�[illegible]R[illegible]��[illegible]���[illegible]�逭��4bVe�@�7�c�^=[illegible]h��79$��������}<��h�5R�S�E[i}�z=�]���f|�[illegible]�în,��[illegible]�Q.�=�lQIy���%��;p��wW��[illegible]d�42�[illegible]Ê[illegible]��\[illegible]����T|���h�{
{�'��J�p�2�8j�pv[illegible]G�7[illegible]��[illegible]s���à�Ix�,��q[illegible]��`[illegible]1F[illegible]�?��6Л[illegible]LA�L>
```



```
Time-Sensitive Networking (TSN) is a set of standards under development by the Time-Sensitive Networking task group of the IEEE 802.1 workin
g group.[1] The TSN task group was formed in November 2012 by renaming the existing Audio Video Bridging Task Group[2] and continuing its wo
rk. The name changed as a result of the extension of the working area of the standardization group. The standards define mechanisms for the
time-sensitive transmission of data over deterministic Ethernet networks.
The majority of projects define extensions to the IEEE 802.1Q - Bridges and Bridged Networks, which describes Virtual LANs and network switc
hes.[3] These extensions in particular address the transmission of very low transmission latency and high availability. Applications include
 converged networks with real-time Audio/Video Streaming and real-time control streams which are used in automotive or industrial control fa
cilities.
```

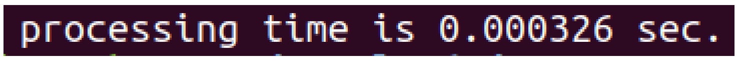
d) processing time

encode:0.000542 sec.



```
processing time is 0.000542 sec.
```

decode:0.000326 sec.

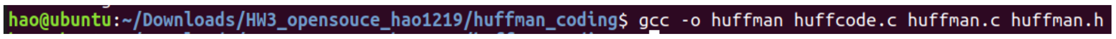


```
processing time is 0.000326 sec.
```

In order to calculate processing time, I use the std library <time.h> in C. Timer will start when program detect a valid input file, and pause when the decode/encode process stop.

2.Huffman coding

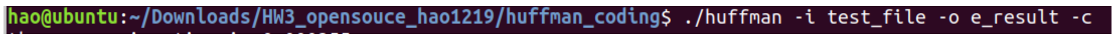
a) Compile



```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/huffman_coding$ gcc -o huffman huffcode.c huffman.c huffman.h
```

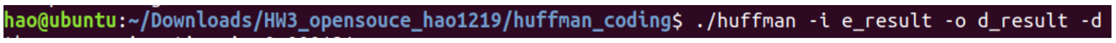
b) Run

(encode)



```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/huffman_coding$ ./huffman -i test_file -o e_result -c
```

(decode)

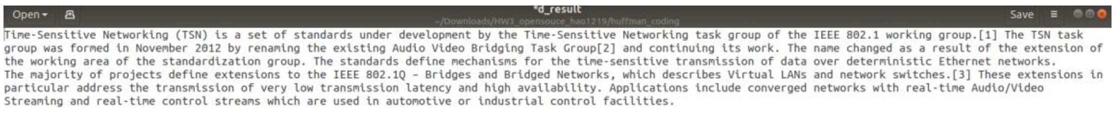


```
hao@ubuntu:~/Downloads/HW3_opensouce_hao1219/huffman_coding$ ./huffman -i e_result -o d_result -d
```

c) Encode/Decode result

Coding content is in the assigiment_3-hao1219/huffman_coding/e_result

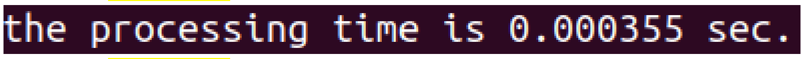
Decode:



```
Time-Sensitive Networking (TSN) is a set of standards under development by the Time-Sensitive Networking task group of the IEEE 802.1 working group.[1] The TSN task
group was formed in November 2012 by renaming the existing Audio Video Bridging Task Group[2] and continuing its work. The name changed as a result of the extension of
the working area of the standardization group. The standards define mechanisms for the time-sensitive transmission of data over deterministic Ethernet networks.
The majority of projects define extensions to the IEEE 802.1Q - Bridges and Bridged Networks, which describes Virtual LANs and network switches.[3] These extensions in
particular address the transmission of very low transmission latency and high availability. Applications include converged networks with real-time Audio/Video
Streaming and real-time control streams which are used in automotive or industrial control facilities.
```

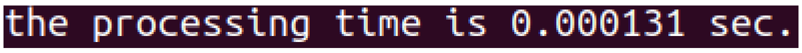
d) processing time

encode:0.000355 sec.



```
the processing time is 0.000355 sec.
```

decode:0.000131 sec.



```
the processing time is 0.000131 sec.
```

3.Conclusion

In my case, the efficiency of Huffman coding (both for encoding and decoding) is way better than the arithmetic coding.

4.Problem

When compiling the arithmetic open source code,I met an error which is initializer element is not constant. After search on google, I found the error came from gcc (version below 8.1).I upgrade the gcc version and solved the problem.