第六次实验报告

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Test1.txt 哈夫曼解码运行结果（另可见 txt 附件）：

Educators, generals, dieticians, psychologists, and parents program. Armies, students, and some societies are programmed. An assault on large problems employs a succession of programs, most of which spring into existence en route. These programs are rife with issues that appear to be particular to the problem at hand. To appreciate programming as an intellectual activity in its own right you must turn to computer programming; you must read and write computer programs -- many of them. It doesn't matter much what the programs are about or what applications they serve. What does matter is how well they perform and how smoothly they fit with other programs in the creation of still greater programs. The programmer must seek both perfection of part and adequacy of collection.

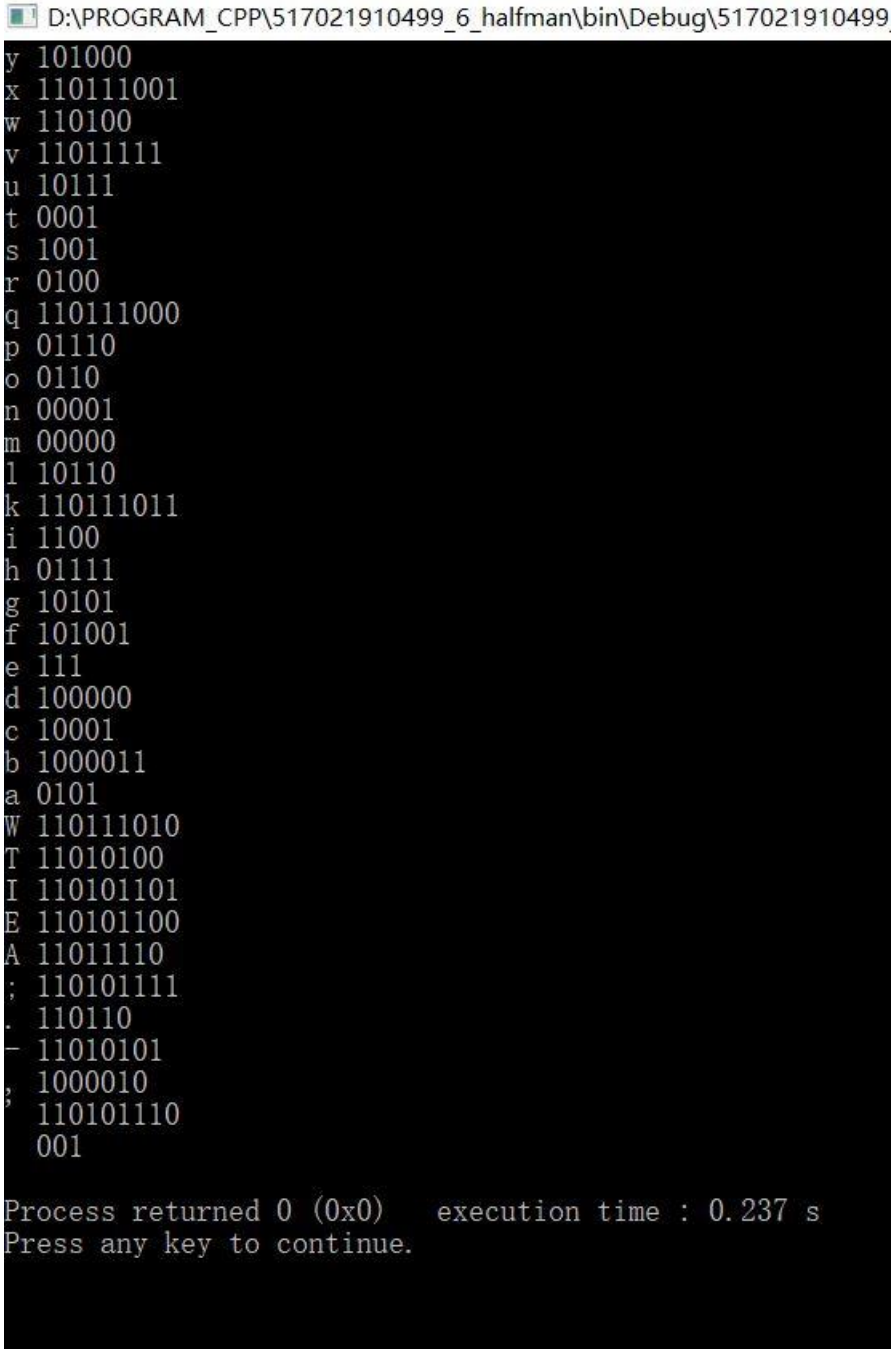
Test2.txt 哈夫曼解码运行结果（另可见 txt 附件）：

As to this, his natural and not to be alienated inheritance, themessenger on horseback had exactly the same possessions as the King, the first Minister of State, or the richest merchant in London. Sowith the three passengers shut up in the narrow compass of onelumbering old mail coach; they were mysteries to one another, ascomplete as if each had been in his own coach and six, or his owncoach and sixty, with the breadth of a county between him and the next.

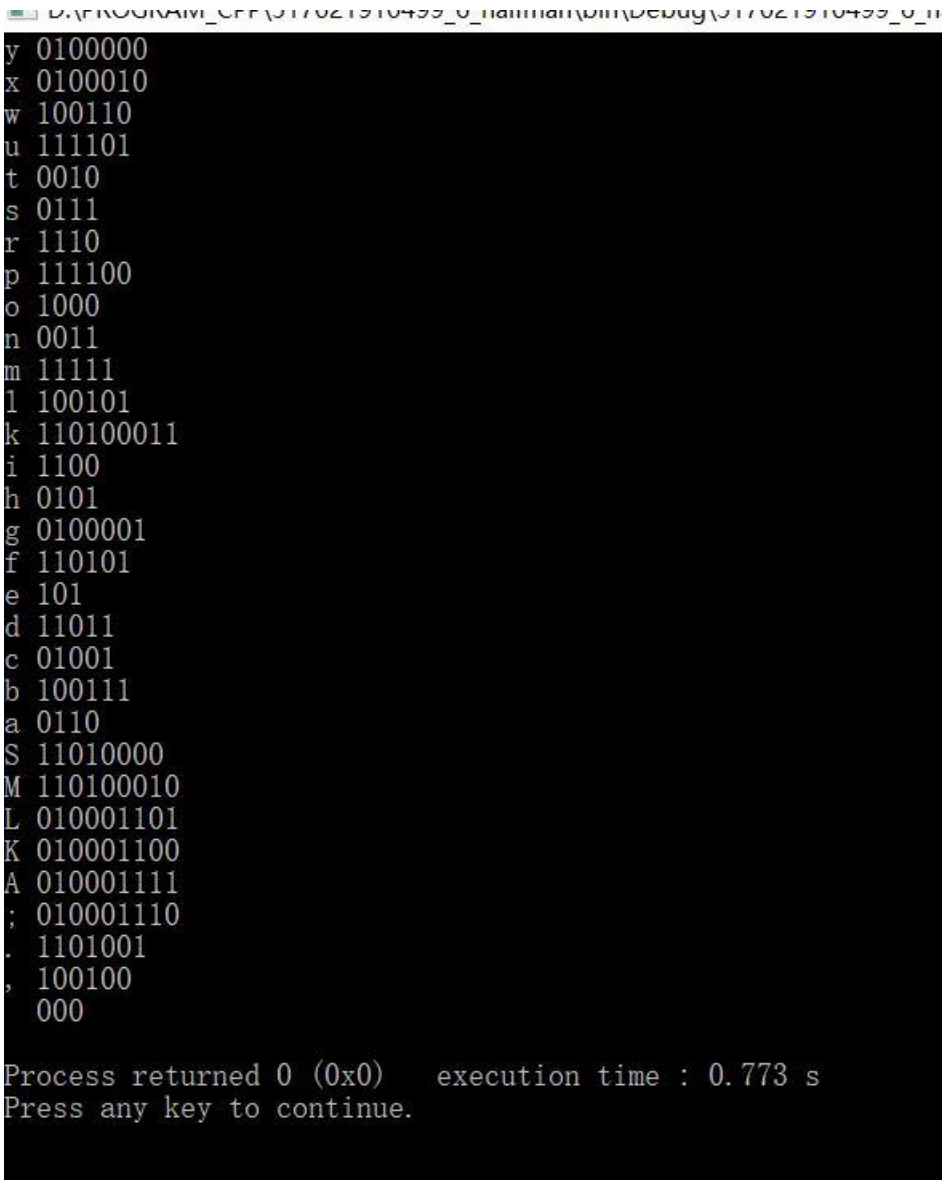
Test3.txt 哈夫曼解码运行结果（另可见 txt 附件）：

You know some birds are not meant to be caged, their feathers are just too bright. There is something inside, that they can't get to, that they can't touch. That's yours. Hope is a good thing and maybe the best of things. And no good thing ever dies.

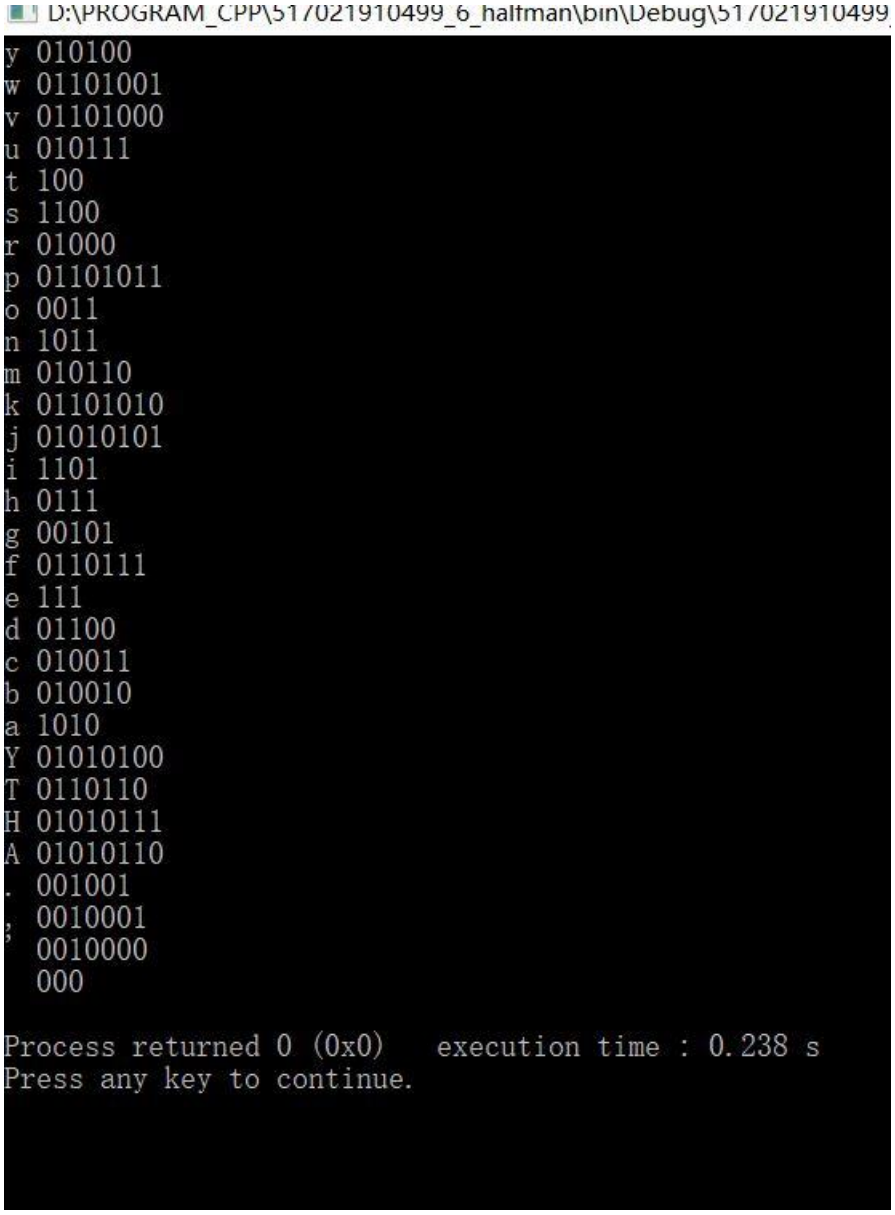
Test1.txt getcode()运行结果如下：



Test2.txt getcode()运行结果如下：



Test3.txt getcode()运行结果如下：



Test1.txt 字符出现频率及哈夫曼编码:

TEXT1	哈夫曼编码	频率			
y	101000	11	f	101001	10
x	110111001	1	e	111	64
w	110100	10	d	100000	14
v	11011111	2	c	10001	21
u	10111	19	b	1000011	5
t	0001	63	a	0101	55
s	1001	46	W	110111010	1
r	0100	58	T	11010100	3
q	110111000	1	I	110101101	1
p	01110	29	E	110101100	1
o	0110	55	A	11011110	2
n	00001	31	;	110101111	1
m	00000	33	.	110110	8
l	10110	19	-	11010101	2
k	110111011	1	,	1000010	7
i	1100	36	'	110101110	1
h	01111	26	空格	001	124
g	10101	19			

Test1.txt 中共有 35 个字符，若采用等长编码，需要六位数字，各字母频率相加为 780，

等长编码占用空间：6*780=4680 bit

哈夫曼编码占用空间为：

由程序得 哈夫曼编码占用空间：3347 bit；

节约空间 4680-3347=1333 bit

Test2.txt 字符出现频率及哈夫曼编码:

TEXT2	哈夫曼编码	频率			
y	0100000	5	f	110101	5
x	0100010	4	e	101	48
w	100110	7	d	11011	10
u	111101	5	c	01001	15
t	0010	37	b	100111	6
s	0111	30	a	0110	30
r	1110	19	S	11010000	2
p	111100	5	M	11010001(	1
o	1000	29	L	01000110:	1
n	0011	32	K	01000110(	1
m	11111	9	A	01000111:	1
l	100101	7	.	01000111(	1
k	110100011	1	,	1101001	2
i	1100	25	‘	100100	7
h	0101	31	空格	000	81
g	0100001	4			

Test2.txt 中共有 31 个字符，若采用等长编码，需要五位数字，各字母频率相加为 461，

等长编码占用空间：5*461=2305 bit

哈夫曼编码占用空间为：

由程序得 哈夫曼编码占用空间：1916 bit；

节约空间 2305-1916=389 bit

Test3.txt 字符出现频率及哈夫曼编码:

TEXT3字符	哈夫曼编码	频率	TEXT3字符	哈夫曼编码	频率
y	010100	4	g	00101	9
w	01101001	1	f	0110111	2
v	01101000	1	e	111	23
u	010111	4	d	01100	8
t	100	26	c	010011	4
s	1100	13	b	010010	5
r	01000	9	a	1010	13
p	01101011	1	Y	01010100	1
o	0011	18	T	0110110	2
n	1011	13	H	01010111	1
m	010110	4	A	01010110	1
k	01101010	1	.	001001	5
j	01010101	1	,	0010001	3
i	1101	12	‘	0010000	3
h	0111	15	空格	000	47

Test2.txt 中共有 30 个字符，若采用等长编码，需要五位数字，各字母频率相加为 250，

等长编码占用空间：5*250=1250 bit

哈夫曼编码占用空间为：

由程序得 哈夫曼编码占用空间：1044 bit；

节约空间 1250-1044=206 bit