微机原理第三次作业实验报告

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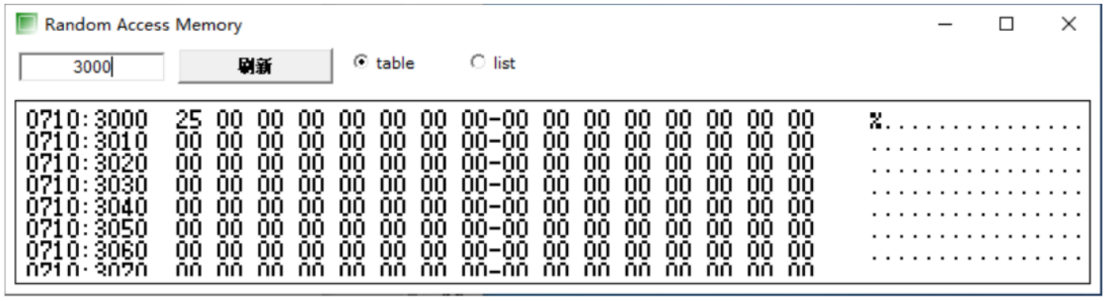
Task1:

代码：

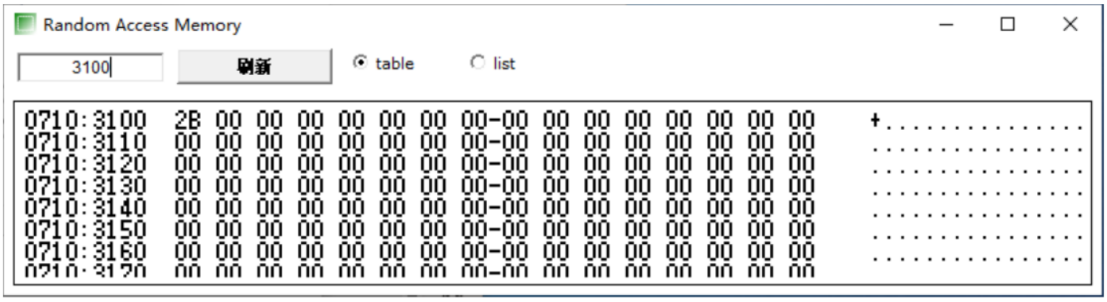
```
DATA SEGMENT
    X DB 51H,3AH,95H,8DH,90H,0A7H,0C1H,77H,24H,0B1H
    HIGH_COUNT DB 0
    LOW_COUNT DB 0
DATA ENDS

STACK SEGMENT
    DW 20H DUP(0)
STACK ENDS

CODE SEGMENT
    ASSUME DS:DATA,CS:CODE

START:
    MOV AX,DATA
    MOV DS,AX
    XOR AX,AX
    MOV CX,10
    LEA SI,X

COUNT:
    CALL COUNT_HL
    ADD AH,[HIGH_COUNT]
    ADD AL,[LOW_COUNT]

    INC SI
    LOOP COUNT
    MOV [3000H],AH
    MOV [3100H],AL

    MOV AH,4CH
    INT 21H
```

```
COUNT_HL PROC
    PUSH AX
    PUSH CX
    XOR AH,AH
    XOR BH,BH
    MOV AL,[SI]
    MOV CL,8

LOOP1:
    TEST AL,80H
    JZ LOOP3

LOOP2:
    INC AH
    JMP LOOP4

LOOP3:
    INC BH

LOOP4:
    SHL AL,1
    LOOP LOOP1

LOOP5:
    MOV [HIGH_COUNT],AH
    MOV [LOW_COUNT],BH
    POP CX
    POP AX
    RET

COUNT_HL ENDP
CODE ENDS
    END START
```

结果：



高电平的个数和



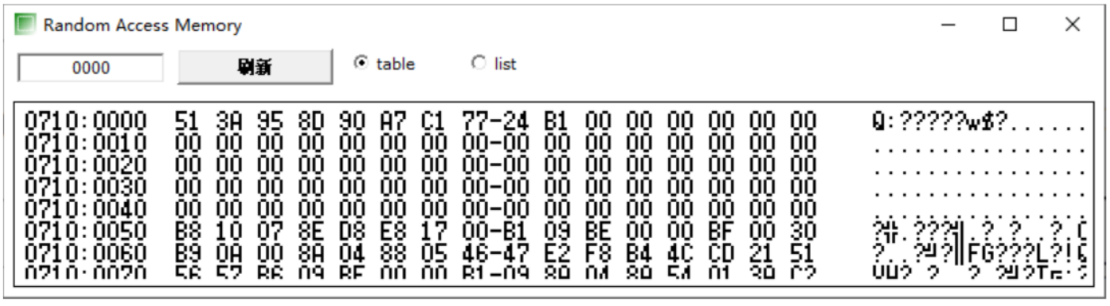
低电平的个数和

Task2:

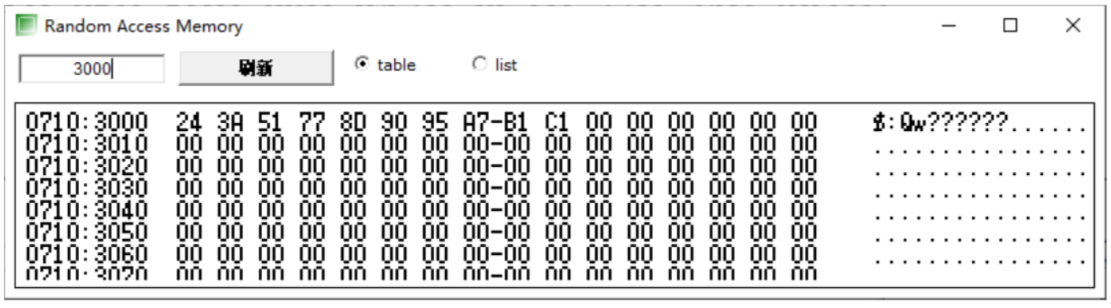
代码:

```
DATA SEGMENT
    X DB 51H, 3AH, 95H, 8DH, 90H, 0A7H, 0C1H, 77H, 24H, 0B1H
DATA ENDS

STACK SEGMENT
    DW 20H DUP(0)
STACK ENDS

CODE SEGMENT
    ASSUME DS:DATA, CS:CODE

START:
    MOV AX, DATA
    MOV DS, AX
    CALL BUBBLE_SORT
    MOV CL, 9
    MOV SI, OFFSET X
    MOV DI, 3000H
    MOV CX, 10

COPY_SORT:
    MOV AL, [SI]
    MOV [DI], AL

    INC SI
    INC DI
    LOOP COPY_SORT

    MOV AH, 4CH
    INT 21H

BUBBLE_SORT PROC
    PUSH CX
    PUSH SI
    PUSH DI

    MOV DH, 9

LOOP1:
    MOV SI, OFFSET X
    MOV CL, 9

LOOP2:
    MOV AL, [SI]
    MOV DL, [SI+1]
    CMP AL, DL
    JBE LOOP3

    MOV BL, AL
    MOV AL, DL
    MOV DL, BL
    MOV [SI], AL
    MOV [SI+1], DL

LOOP3:
    INC SI
    LOOP LOOP2

    DEC DH
    JNZ LOOP1

    POP CX
    POP SI
    POP DI
    RET

BUBBLE_SORT ENDP
CODE ENDS
    END START
```

结果:



原数据



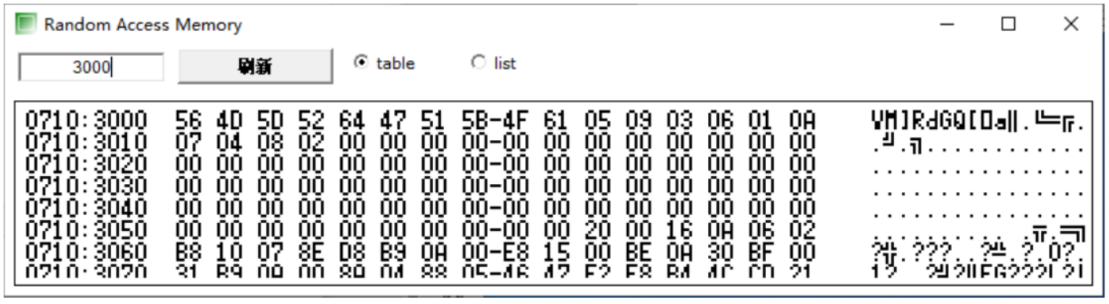
排序后数据

Task3:

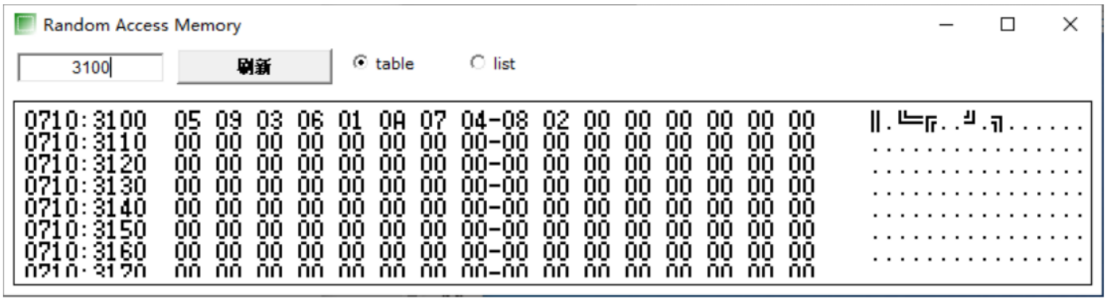
代码：

```
DATA SEGMENT
    Y DB 3000H DUP(0)
    X DB 56H, 4DH, 5DH, 52H, 64H, 47H, 51H, 5BH, 4FH, 61H
    RESULT DB 10 DUP(0)
DATA ENDS

STACK SEGMENT
    DW 20H DUP(0)
STACK ENDS

CODE SEGMENT
    ASSUME DS:DATA, CS:CODE

START:
    MOV AX, DATA
    MOV DS, AX
    MOV CX, 10
    CALL SORT_GRADE

    MOV SI, OFFSET RESULT
    MOV DI, 3100H
    MOV CX, 10

COPY_RESULT:
    MOV AL, [SI]
    MOV [DI], AL
    INC SI
    INC DI
    LOOP COPY_RESULT

    MOV AH, 4CH
    INT 21H

SORT_GRADE PROC
    PUSH CX
    MOV CX, 10
    MOV DI, 0

LOOP1:
    MOV AL, 0
    MOV AH, [3000H+DI]
    MOV SI, OFFSET X
    MOV DL, 10

LOOP2:
    CMP [SI], AH
    JB LOOP3
    INC AL

LOOP3:
    INC SI
    DEC DL
    JNZ LOOP2
    MOV [RESULT+DI], AL
    INC DI
    LOOP LOOP1
    POP CX
    RET

SORT_GRADE ENDP
CODE ENDS
    END START
```

结果：



原数据



排序后数据