第 1 题：冒泡排序

BubleSort.asm

```
STACK SEGMENT PARA STACK
STACK_AREA DW 100H DUP(?)
STACK_BOTTOM EQU $ - STACK_AREA
STACK ENDS

DATA SEGMENT PARA
TABLE_LEN DW 16
TABLE DW 200, 300, 400, 10, 20, 0, 1, 8
      DW 41H, 40, 203H, 3585H, 60, 0FFFFH, 2, 3
RESULT DB 5 DUP(?), 20H, '$'
NEW_LINE DB 0DH, 0AH, '$'

PRINT_STR MACRO
    MOV AH, 09H
    INT 21H
ENDM

CODE SEGMENT PARA
     ASSUME CS:CODE, DS:DATA, SS:STACK

MAIN PROC FAR.
     MOV AX, STACK
     MOV SS, AX
     MOV SP, STACK_BOTTOM
     MOV AX, DATA
     MOV DS, AX

     CALL PRINT_TABLE
     CALL BUBLE_SORT
     CALL PRINT_TABLE

EXIT: MOV AX, 4C00H
      INT 21H.
MAIN ENDP
```

（续）

```
;打印TABLE
PRINT_TABLE   PROC
        PUSH AX
        PUSH BX
        PUSH CX
        PUSH DX
        PUSH SI
        PUSH DI

        MOV CX, TABLE_LEN
        MOV SI, OFFSET TABLE
LP_OUT: PUSH CX
        MOV CX,5
        MOV DI, OFFSET RESULT+4
        MOV BX, 10
LP_IN_DIV:
        XOR DX,DX
        DIV BX
        OR DL,30H
        MOV [DI], DL
        DEC DI
        LOOP LP_IN_DIV

        MOV DX, OFFSET RESULT
        PRINT_STR

        INC SI
        INC SI
        POP CX
        LOOP LP_OUT

        MOV DX, OFFSET RESULT
        PRINT_STR

        POP DI
        POP SI
        POP DX
        POP CX
        POP BX
        POP AX
        RET
PRINT_TALBE ENDP
```

```
;冒泡排序
BUBLE_SORT  PROC
        PUSH AX
        PUSH BX
        PUSH CX
        PUSH SI

        MOV. CX,TABLE_LEN
        DEC CX
LP_BUBLE_OUT:
        MOV. BX,1
        MOV SI, OFFSET TABLE
        PUSH CX

LP_BUBLE_IN:
        MOV AX,[SI]
        CMP AX, [SI+2]
        JBE CONTINUE
        XCHG AX, [SI+2]
        MOV [SI], AX
        MOV BX, 0
CONTINUE:
        ADD SI, 2
        LOOP LP_BUBLE_IN

        POP CX
        DEC CX
        CMP BX, 1
        JZ GO_OUT
        JMP SHORT LP_BUBLE_OUT
GO_OUT:
        NOP

        POP SI
        POP CX
        POP BX
        POP AX
        RET
BUBLE_SORT  ENDP
```

第 2 题：乘法 1

mul1.asm

```
STACK1 SEGMENT PARA STACK.
  STACK_AREA   DW  100H DUP(?)
  STACK_BOTTOM EQU $-STACK_AREA
STACK1 ENDS

DATA1 SEGMENT PARA
  NUMBER DW ?,?,0,0
  RESULT DB 0DH,0AH,5 DUP(?),20H,'$'
DATA1 ENDS

CODE1 SEGMENT PARA
  ASSUME CS:CODE1, DS:DATA1, SS:STACK1

MAIN  PROC FAR
      MOV AX,STACK1
      MOV SS,AX
      MOV SP,STACK_BOTTOM
      MOV AX,DATA1
      MOV DS,AX

      MOV SI,OFFSET NUMBER
      MOV CX,2.
      CALL GETNUM
      MOV [SI],AX
      MOV BX,AX
      MOV CX,3
      CALL GETNUM
      MOV [SI+2],AX

      MUL BX
      CALL PRINT.NUM

EXIT: MOV AX,4C00H
      INT 21H
MAIN  ENDP
```

（续）

```
; GETNUM(CX) 获取一个数，输入存在CX 结果放AX
GETNUM  PROC
    PUSH  SI
    PUSH  DX
    PUSH  BX

    MOV  SI,0
    MOV  BX,10

INPUT_1:
    MOV  AH,1
    INT  21H
    CMP  AL,0DH   ;回车
    JE   RETURN
    CMP  AL,30H   ; '0'
    JB   INPUT_1
    CMP  AL,39H   ; '9'
    JA   INPUT_1

    AND  AL,0FH   ; to real number
    XOR  AH,AH
    PUSH AX
    MOV  AX,SI
    MUL  BX
    MOV  SI,AX
    POP  AX

    ADD  SI,AX
    LOOP INPUT_1

RETURN:
    MOV  AX,SI
    POP  BX
    POP  DX
    POP  SI
    RET
GETNUM  ENDP
```

```
; PRINTNUM(AX) 打印AX（以十进制形式）
PRINTNUM  PROC
    PUSH  BX
    PUSH  CX
    PUSH  DX
    PUSH  DI

    MOV  CX,5
    MOV  DI,OFFSET RESULT+4
    MOV  BX,10

LP1:  XOR  DX,DX
    DIV  BX
    OR   DL,30H
    MOV  [DI],DL
    DEC  DI
    LOOP LP1

PRINT_RES:
    MOV  DX,OFFSET RESULT
    MOV  AH,9
    INT  21H

RETURN2:
    POP  DI
    POP  DX
    POP  CX
    POP  BX
    RET
PRINTNUM  ENDP

CODE1  ENDS

    END  MAIN
```