LAB_2 SOLUTIONS

TASK 1 & 2

```
ORG 100H

                ;TASK 1

  MOV AH, 1

        ;input # 1
  INT 21H
  MOV BL, AL

        ;input # 2
  INT 21H
  MOV BH, AL

        ;input # 3
  INT 21H
  MOV CH, AL

        ;input # 4
  INT 21H
  MOV CL, AL

        ;declare output function number
  MOV AH, 2


        ;newline and cret
  MOV DL, 10
  INT 21H
  MOV DL, 13
  INT 21H


        ;output# 1
```

```
MOV DL, BL
INT 21H


        ;newline and cret
MOV DL, 10
INT 21H
MOV DL, 13
INT 21H

        ;output# 2
MOV DL, BH
INT 21H


        ;newline and cret
MOV DL, 10
INT 21H
MOV DL, 13
INT 21H

        ;output# 3
MOV DL, CH
INT 21H


        ;newline and cret
MOV DL, 10
INT 21H
MOV DL, 13
INT 21H

        ;output# 4
MOV DL, CL
INT 21H
```

;TASK 2

```
        MOV AH, 2

        MOV DL, 10
        INT 21H
        MOV DL, 13
        INT 21H

        MOV DL, CL
        INT 21H

        MOV DL, 32
        INT 21H

        MOV DL, CH
        INT 21H

        MOV DL, 32
        INT 21H

        MOV DL, BH
        INT 21H

        MOV DL, 32
        INT 21H

        MOV DL, BL
        INT 21H

RET
```

TASK 3:

```
ORG 100H
.MODEL SMALL
.STACK 100H

.DATA
```

```
.CODE

MAIN PROC
        MOV AH, 1

        INT 21H         ;INPUT NUMBER
        MOV BL, AL

        INT 21H
        MOV CL, AL    ;INPUT ANOTHER NUMBER

        ADD BL, CL
        SUB BL, 30H

        MOV AH, 2

        MOV DL, BL
        INT 21H

        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```

TASK 4

```
ORG 100H
.MODEL SMALL
.STACK 100H

.DATA

.CODE

MAIN PROC
```

```
        MOV AH, 1

        INT 21H         ;INPUT NUMBER
        MOV BL, AL

        INT 21H
        MOV CL, AL  ;INPUT A SMALLER NUMBER

        SUB BL, CL
        ADD BL, 30H

        MOV AH, 2

        MOV DL, BL
        INT 21H

        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```

LAB_3 SOLUTIONS

TASK 1: SIMILAR TO LAB_2 TASK 4

TASK 2 : IN THREE DIFFERENT WAYS

(a)

```
ORG 100H
.MODEL SMALL
.STACK 100H

.DATA
```

```
        MSG DB "student$"

.CODE

MAIN PROC

        ;INITIATE DS
        MOV AX, @DATA
        MOV DS, AX

        MOV AH, 2

        ;LOAD EACH ELEMENT TO REGISTERS, CONVERT
        ;AND SHOW RESULT
        MOV DL, MSG[0]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[1]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[2]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[3]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[4]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[5]
        SUB DL, 20H
        INT 21H

        MOV DL, MSG[6]
        SUB DL, 20H
        INT 21H
```

```
        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```

(B)

```
ORG 100H
.MODEL SMALL
.STACK 100H

.DATA

        MSG DB "student$"

.CODE

MAIN PROC

        ;INITIATE DS
        MOV AX, @DATA
        MOV DS, AX

        ;LOAD THE BASE OFFSET ADDRESS OF MSG TO
        ;STACK INDEX, SI

        LEA SI, MSG

        MOV AH, 2

        ;LOAD EACH ELEMENT TO REGISTERS, CONVERT
        ;AND SHOW RESULT
        MOV DL, [SI]
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+1]
```

```
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+2]
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+3]
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+4]
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+5]
        SUB DL, 20H
        INT 21H

        MOV DL, [SI+6]
        SUB DL, 20H
        INT 21H

        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```

(C)

```
ORG 100H
.MODEL SMALL
.STACK 100H

.DATA

        MSG DB "student$"
```

```
.CODE

MAIN PROC

        ;INITIATE DS
        MOV AX, @DATA
        MOV DS, AX

        ;LOAD THE BASE OFFSET ADDRESS OF MSG TO
        ;STACK INDEX, SI

        LEA SI, MSG

        SUB [SI], 20H
        SUB [SI+1], 20H
        SUB [SI+2], 20H
        SUB [SI+3], 20H
        SUB [SI+4], 20H
        SUB [SI+5], 20H
        SUB [SI+6], 20H

        ;OUTPUT THE STRING
        MOV AH, 9
        LEA DX, MSG
        INT 21H

        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```

(D)

```
ORG 100H
.MODEL SMALL
.STACK 100H
```

```
.DATA

        MSG DB "student$"

.CODE

MAIN PROC

        ;INITIATE DS
        MOV AX, @DATA
        MOV DS, AX

        ;LOAD THE BASE OFFSET ADDRESS OF MSG TO
        ;STACK INDEX, SI

        LEA SI, MSG

        SUB MSG[0], 20H
        SUB MSG[1], 20H
        SUB MSG[2], 20H
        SUB MSG[3], 20H
        SUB MSG[4], 20H
        SUB MSG[5], 20H
        SUB MSG[6], 20H

        ;OUTPUT THE STRING
        MOV AH, 9
        LEA DX, MSG
        INT 21H

        MOV AH, 4CH
        INT 21H

MAIN ENDP

END MAIN
```