**COMP LAB 2**

**190911112**

**ADIT LUHADIA**

**IT A**

1. Multiply two16 bit unsigned numbers by repetitive addition

DATA SEGMENT

MULTIPLICAND DW 1012H

MULTIPLIER DW 22H

RESULT DD ?

DATA ENDS

CODE SEGMENT

ASSUME CS: CODE, DS: DATA

START:

MOV AX, DATA

MOV DS, AX

MOV AX, 0

MOV DX, 0

MOV CX, MULTIPLIER

REPEAT\_ADD:;TO REPEATEDLY ADD THE NUMBER

ADD AX, MULTIPLICAND

ADC DX, 0

LOOP REPEAT\_ADD

LEA SI, RESULT

MOV [SI], AX

MOV [SI+2], DX

MOV AH, 4CH

INT 21H

CODE ENDS

END START

Graphical user interface

Description automatically generated with medium confidence

2. Convert four digit BCD number to HEX.

DATA SEGMENT

BCD DW 7865H

TEMP DW 4 DUP(?)

HEX DW ?

DATA ENDS

CODE SEGMENT

ASSUME CS: CODE, DS: DATA

START:

MOV AX, DATA

MOV DS, AX

MOV BX, BCD

MOV SI, 0

MOV CL, 04

GET\_EACH\_DIGIT: ;GETTING EACH INDIVIDUAL DIGIT AND STORING IN TEMP

MOV AX, BX

AND AX, 0FH

MOV TEMP[SI], AX

INC SI

INC SI

SHR BX, CL

CMP BX, 0

JNZ GET\_EACH\_DIGIT

LEA SI, TEMP

MOV BX, [SI]

MOV DI, 03H

MOV CX, 0AH

;MULTIPLYING EACH INDIVIDUAL DIGIT BY 1, 0AH, 0AH^2 AND 0AH^3

MULTIPLY\_AND\_ADD\_DIGITS:

INC SI

INC SI

MOV AX, [SI]

MUL CX

ADD BX, AX

MOV AX, 0AH

MUL CX

MOV CX, AX

DEC DI

JNZ MULTIPLY\_AND\_ADD\_DIGITS

MOV HEX, BX

MOV AH, 4CH

INT 21H

CODE ENDS

END START

Graphical user interface

Description automatically generated

3. Convert two digit number from HEX to BCD.

DATA SEGMENT

HEX DB 0B8H

TEMP DB 3 DUP(0)

BCD DW ?

DATA ENDS

CODE SEGMENT

ASSUME CS:CODE, DS: DATA

START:

MOV AX, DATA

MOV DS, AX

MOV AL, HEX

MOV CL, 0AH

LEA SI, TEMP

REPEAT\_DIV:;REPEATEDLY DEVIDE THE NUMBER BY 0AH

MOV AH, 0

DIV CL

MOV[SI], AH

INC SI

CMP AL, 0

JNZ REPEAT\_DIV

LEA SI, TEMP

MOV CL, 04

MOV AL, [SI+1]

ROR AL, CL

ADD AL, [SI]

MOV AH, [SI+2]

MOV BCD, AX

MOV AH, 4CH

INT 21H

CODE ENDS

END START

Graphical user interface

Description automatically generated

4. Convert four digit number from HEX to BCD.

DATA SEGMENT

HEX DW 0FFFFH

TEMP DB 5 DUP(0)

BCD DB 3 DUP(1)

DATA ENDS

CODE SEGMENT

ASSUME CS:CODE, DS: DATA

START:

MOV AX, DATA

MOV DS, AX

MOV AX, HEX

MOV CX, 000AH

LEA SI, TEMP

REPEAT\_DIV:;REPETEDLY DIVIDE NUMBER BY 000AH

MOV DX, 0

DIV CX

MOV[SI], DL

INC SI

CMP AX, 0

JNZ REPEAT\_DIV

MOV BL, 02

LEA DI, BCD

MOV CL, 04

LEA SI, TEMP

PACK:

MOV AL, [SI+1]

ROR AL, CL

ADD AL, [SI]

INC SI

INC SI

MOV [DI], AL

INC DI

DEC BL

JNZ PACK

MOV AH, [SI]

MOV [DI], AH

MOV AH, 4CH

INT 21H

CODE ENDS

END START

Graphical user interface

Description automatically generated