SHYAMA PRASAD MUKHERJI COLLEGE FOR WOMEN

# UNIVERSITY OF DELHI

## Practical File

## Microprocessors

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**Course : B.Sc. Computer Science(H)**

**Semester : V**

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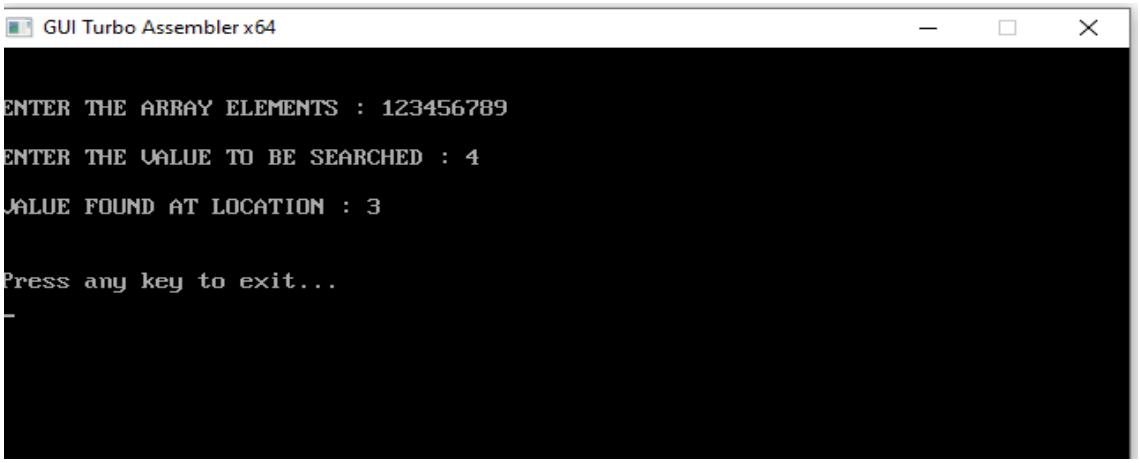
## Q1)Write a program to implement Linear Search.

```
; LINEAR SEARCH

.MODEL SMALL
.DATA
ARR DB 9 DUP(?)
MES1 DB 13,10,10, "ENTER THE ARRAY ELEMENTS : $"
MES2 DB 13,10,10, "ENTER THE VALUE TO BE SEARCHED : $"
MES3 DB 13,10,10, "VALUE FOUND AT LOCATION : $"
MES4 DB 13,10,10, "VALUE NOT PRESENT IN THE ARRAY $"

.CODE
.STARTUP
    MOV AH,9
    MOV DX, OFFSET MES1
    INT 21H
    MOV SI,0
    MOV CX,9
L1:
    MOV AH,1
    INT 21H
    SUB AL,30H
    MOV ARR[SI],AL
    INC SI
    LOOP L1

MOV AH,9
MOV DX, OFFSET MES2
INT 21H

MOV AH,1
INT 21H
SUB AL,30H

MOV SI,0
MOV CX,9

L2:
    CMP AL,ARR[SI]
    JZ EQUAL
    INC SI
    LOOP L2

    MOV DX,OFFSET MES4
    MOV AH,9
    INT 21H
    JMP STOP

EQUAL:
    MOV AH,9
```

```
    MOV DX, OFFSET MES3
    INT 21H

    MOV DX,SI
    ADD DL,30H
    MOV AH,2
    INT 21H

STOP:
    .EXIT
    END
```

**OUTPUT –**



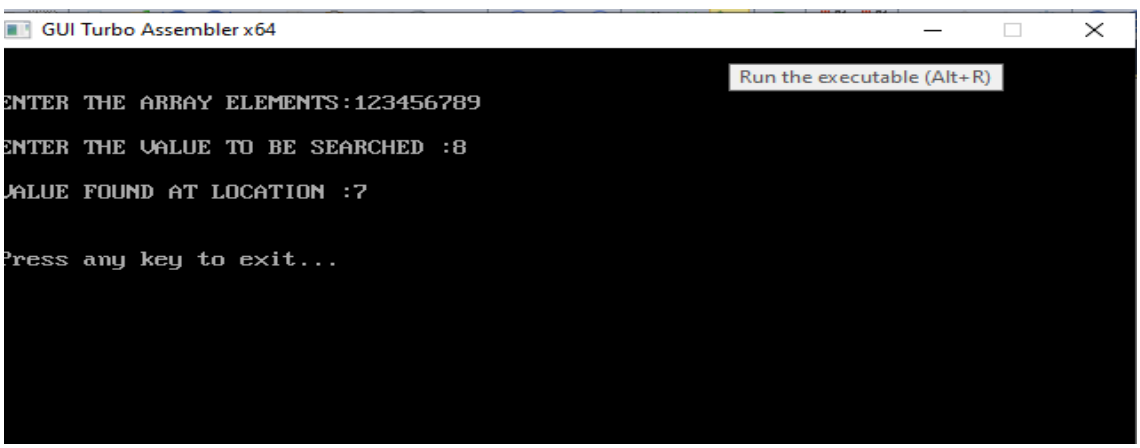

## Q2) Write a program to implement Binary Search.

```
; BINARY SEARCH

.MODEL SMALL
.DATA
ARR DB 9 DUP(?)
MES1 DB 13,10,10,"ENTER THE ARRAY ELEMENTS:$"
MES2 DB 13,10,10,"ENTER THE VALUE TO BE SEARCHED :$"
MES3 DB 13,10,10,"VALUE FOUND AT LOCATION :$"
MES4 DB 13,10,10,"VALUE NOT PRESENT IN THE ARRAY :$"

;BEG DB ?
;END DB ?
NUM DB ?

.CODE
.STARTUP

MOV AH,9
```

```
MOV DX,OFFSET MES1
INT 21H

MOV SI,0
MOV CX,9

L1:
    MOV AH,1
    INT 21H
    SUB AL,30H
    MOV ARR[SI],AL
    INC SI
    LOOP L1

MOV AH,9
MOV DX,OFFSET MES2
INT 21H

MOV AH,1
INT 21H
SUB AL,30H
MOV NUM,AL

MOV CH,2
MOV BL,0   ; START INDEX
MOV BH,8   ; END INDEX

L2:
   CMP BL,BH
   JAE NOTTHERE

   XOR AX,AX
   MOV AL,BL
   ADD AL,BH ; [ AL = AL+BH]     AND ALSO KNOW THAT
   MOV AH,0  ; AX = AL+BH
   DIV CH    ; [AL = (AL+BH)/2] AND ALSO (AX = AX/2)  SO HERE IS MID
VALUE
   MOV AH,0
   MOV SI,AX ; SI = MID INDEX
   MOV CL,ARR[SI]
   CMP NUM,CL  ; NUM IS MID
   JA GREATER
   JE EQUAL
   DEC AL
   MOV BH,AL
   JMP NEXT
   GREATER:
        INC AL
        MOV BL,AL
   NEXT: LOOP L2

NOTTHERE:
```

```
    MOV DX,OFFSET MES4
    MOV AH,9
    INT 21H
    JMP STOP

EQUAL:
    MOV DX,OFFSET MES3
    MOV AH,9
    INT 21H

    MOV DX,SI
    ADD DX,30H
    MOV AH,2
    INT 21H

STOP:

.EXIT
END
```

**OUTPUT –**



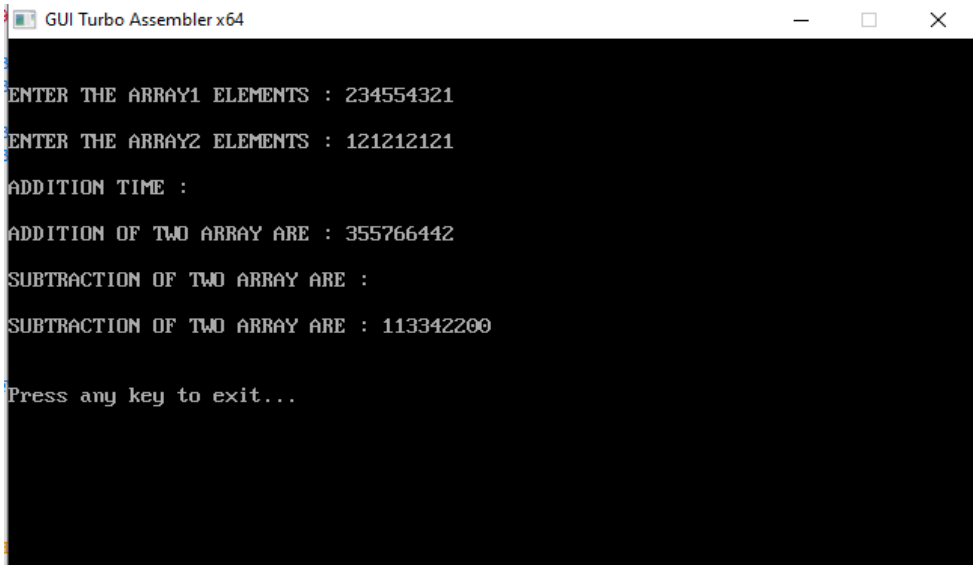

## Q3) Write a program to add two arrays.

```
; ADDITION OF TWO ARRAY

.MODEL SMALL
.DATA

ARR1 DB 9 DUP(?)
ARR2 DB 9 DUP(?)

ADDARR DB 9 DUP(?)
SUBARR DB 9 DUP(?)

AL1MES DB 13,10,10, "ENTER THE ARRAY1 ELEMENTS : $"
AL2MES DB 13,10,10, "ENTER THE ARRAY2 ELEMENTS : $"
```

```
ADDL3MES DB 13,10,10, "ADDITION TIME : $"
ADDL4MES DB 13,10,10, "ADDITION OF TWO ARRAY ARE : $"
SUBL5MES DB 13,10,10, "SUBTRACTION OF TWO ARRAY ARE : $"
SUBL6MES DB 13,10,10, "SUBTRACTION OF TWO ARRAY ARE : $"

.CODE
.STARTUP

MOV AH,9
MOV DX,OFFSET AL1MES
INT 21H

MOV SI,0
MOV CX,9

L1:     ; TAKING ELEMENT IN FIRST ARRAY
   MOV AH,1
   INT 21H
   SUB AL,30H
   MOV ARR1[SI],AL
   INC SI
   LOOP L1

MOV AH,9
MOV DX,OFFSET AL2MES
INT 21H

MOV SI,0
MOV CX,9

L2:     ; TAKING ELEMENT OF SECOND ARRAY
   MOV AH,1
   INT 21H
   SUB AL,30H
   MOV ARR2[SI],AL
   INC SI
   LOOP L2

MOV AH,9
MOV DX,OFFSET ADDL3MES
INT 21H

MOV SI,0
MOV CX,9

L3:                     ; HERE WE ARE DOING ADDITION OT TWO ARRAY
   MOV AL,ARR1[SI]
   ADD AL,ARR2[SI]
   MOV ADDARR[SI],AL
   INC SI
   LOOP L3
```

```
MOV AH,9
MOV DX,OFFSET ADDL4MES
INT 21H

MOV SI,0
MOV CX,9

L4:      ; HERE WE PRINT THE ADDING OF TWO ARRAY
   MOV DL,ADDARR[SI]
   ADD DL,30H
   MOV AH,2
   INT 21H
   INC SI
   LOOP L4

MOV AH,9
MOV DX,OFFSET SUBL5MES
INT 21H

MOV SI,0
MOV CX,9

L5:              ; HERE  ADDTION TIME OF TWO ARRAY PERFORM
   MOV AL,ARR1[SI]
   SUB AL,ARR2[SI]
   MOV SUBARR[SI],AL
   INC SI
   LOOP L5

MOV AH,9
MOV DX,OFFSET SUBL6MES
INT 21H

MOV SI,0
MOV CX,9

L6:     ; PRINT THE SUBTRACTION OF TWO ARRAY
   MOV DL,SUBARR[SI]
   ADD DL,30H
   MOV AH,2H
   INT 21H
   INC SI
   LOOP L6

.EXIT
END
```

**OUTPUT –**



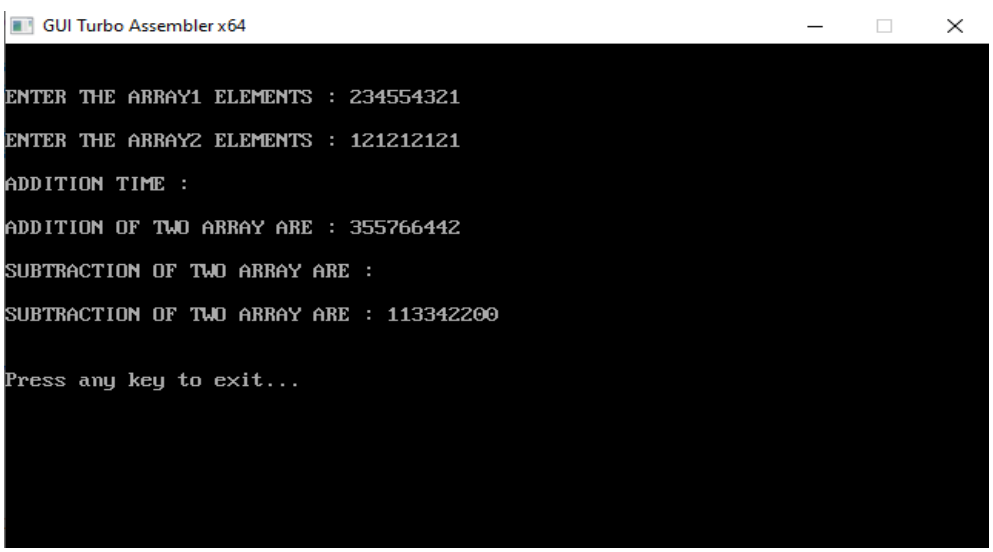

## Q4) Write a program to subtract two arrays.

```
; SUBTRACTION OF TWO ARRAY

.MODEL SMALL
.DATA

ARR1 DB 9 DUP(?)
ARR2 DB 9 DUP(?)

ADDARR DB 9 DUP(?)
SUBARR DB 9 DUP(?)

AL1MES DB 13,10,10, "ENTER THE ARRAY1 ELEMENTS : $"
AL2MES DB 13,10,10, "ENTER THE ARRAY2 ELEMENTS : $"
ADDL3MES DB 13,10,10, "ADDITION TIME : $"
ADDL4MES DB 13,10,10, "ADDITION OF TWO ARRAY ARE : $"
SUBL5MES DB 13,10,10, "SUBTRACTION OF TWO ARRAY ARE : $"
SUBL6MES DB 13,10,10, "SUBTRACTION OF TWO ARRAY ARE : $"

.CODE
.STARTUP

MOV AH,9
MOV DX,OFFSET AL1MES
INT 21H

MOV SI,0
MOV CX,9

L1:     ; TAKING ELEMENT IN FIRST ARRAY
```

```
   MOV AH,1
   INT 21H
   SUB AL,30H
   MOV ARR1[SI],AL
   INC SI
   LOOP L1

MOV AH,9
MOV DX,OFFSET AL2MES
INT 21H

MOV SI,0
MOV CX,9

L2:     ; TAKING ELEMENT OF SECOND ARRAY
   MOV AH,1
   INT 21H
   SUB AL,30H
   MOV ARR2[SI],AL
   INC SI
   LOOP L2

MOV AH,9
MOV DX,OFFSET ADDL3MES
INT 21H

MOV SI,0
MOV CX,9

L3:                     ; HERE WE ARE DOING ADDITION OT TWO ARRAY
   MOV AL,ARR1[SI]
   ADD AL,ARR2[SI]
   MOV ADDARR[SI],AL
   INC SI
   LOOP L3

MOV AH,9
MOV DX,OFFSET ADDL4MES
INT 21H

MOV SI,0
MOV CX,9

L4:      ; HERE WE PRINT THE ADDING OF TWO ARRAY
   MOV DL,ADDARR[SI]
   ADD DL,30H
   MOV AH,2
   INT 21H
   INC SI
   LOOP L4

MOV AH,9
```

```
MOV DX,OFFSET SUBL5MES
INT 21H

MOV SI,0
MOV CX,9

L5:                ; HERE  ADDTION TIME OF TWO ARRAY PERFORM
   MOV AL,ARR1[SI]
   SUB AL,ARR2[SI]
   MOV SUBARR[SI],AL
   INC SI
   LOOP L5

MOV AH,9
MOV DX,OFFSET SUBL6MES
INT 21H

MOV SI,0
MOV CX,9

L6:     ; PRINT THE SUBTRACTION OF TWO ARRAY
   MOV DL,SUBARR[SI]
   ADD DL,30H
   MOV AH,2H
   INT 21H
   INC SI
   LOOP L6

.EXIT
END
```

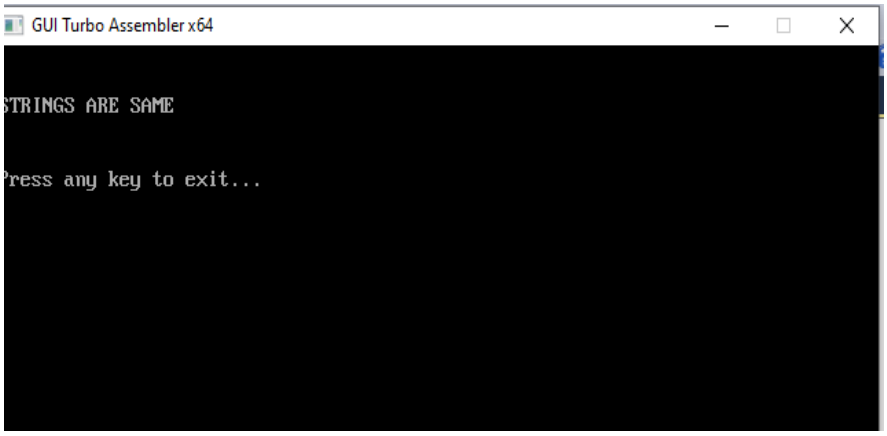
## OUTPUT –



## Q5) Write a program to Compare two Strings.

```
; COMPARE TWO STRING

.MODEL SMALL
.DATA
MES1 DB 13,10,10, "STRINGS ARE SAME $"
MES2 DB 13,10,10, "STRINGS ARE DIFFERENT $"
S1 DB 'HELLO$'
S2 DB 'HELLO$'

.CODE
.STARTUP
MOV DX,OFFSET MES2
MOV SI,0
MOV CX,5
L1:
   MOV AL,S1[SI]
   CMP AL,S2[SI]
   JNZ NE
   INC SI
   LOOP L1
   MOV DX, OFFSET MES1

NE: MOV AH,9
      INT 21H

.EXIT
END
```

**OUTPUT –**



## Q7) Write a program to convert a string into Upper Case.

```
; CONVERT LOWER TO UPPER STRING

.MODEL SMALL
.DATA

MES1 DB 13,10,10, "THE ORIGINAL STRING IS IN LOWER STRING :$"
MES2 DB 13,10,10, "THE OUTPUT IN UPPER STRING IS:$"
S1 DB 'hello$'
s2 DB 6 DUP('$')

.CODE
.STARTUP
MOV AX,DS
MOV ES,AX

MOV SI, OFFSET S1
MOV DI, OFFSET S2
MOV CX,5

MOV DX, OFFSET MES1
MOV AH,9
INT 21H

MOV DX, OFFSET S1
MOV AH,9
INT 21H

MOV DX, OFFSET MES2
MOV AH,9
INT 21H

L1:
   LODSB
   SUB AL,20H
   STOSB
   LOOP L1

   MOV AH,9
   MOV DX,OFFSET S2
   INT 21H

.EXIT
END
```

## OUTPUT –


## Q8) Write a program to convert a string into lower case.

```
; CONVERT UPPER TO LOWER STRING

.MODEL SMALL
.DATA

MES1 DB 13,10,10, "THE ORIGINAL STRING IS IN UPPER STRING :$"
MES2 DB 13,10,10, "THE OUTPUT IN LOWER STRING IS:$"
S1 DB 'HELLO$'
s2 DB 6 DUP('$')

.CODE
.STARTUP
MOV AX,DS
MOV ES,AX

MOV SI, OFFSET S1
MOV DI, OFFSET S2
MOV CX,5

MOV DX, OFFSET MES1
MOV AH,9
INT 21H

MOV DX, OFFSET S1
MOV AH,9
INT 21H

MOV DX, OFFSET MES2
MOV AH,9
INT 21H

L1:
```

```
    MOVSB
    ADD AL,20H
    STOSB
    LOOP L1
    MOV AH,9
    MOV DX,OFFSET S2
    INT 21H

.EXIT
END
```

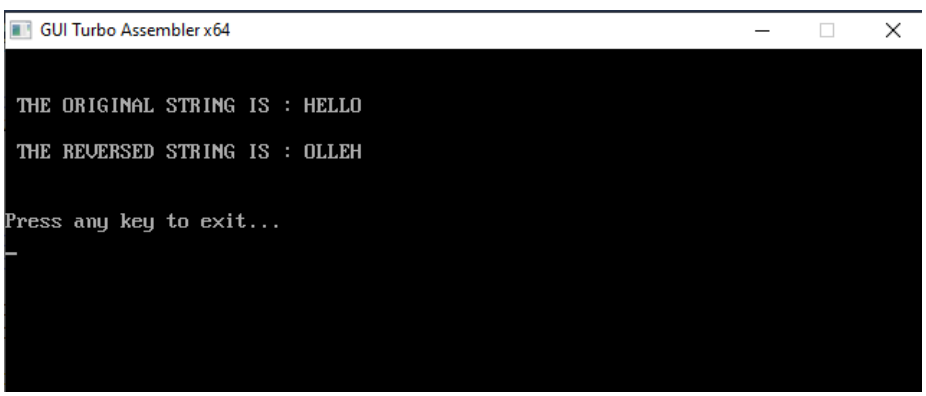
**OUTPUT –**


## Q9) Write a program to reverse a string.

```
; REVERSER STRING

.MODEL SMALL
.DATA

MES1 DB 13,10,10, " THE ORIGINAL STRING IS : $ "
MES2 DB 13,10,10, " THE REVERSED STRING IS : $ "

S1 DB 'H','E','L','L','O','$'
S2 DB 6 DUP('$')

.CODE
.STARTUP

MOV DX, OFFSET MES1
MOV AH, 9
INT 21H

MOV DX,OFFSET S1
MOV AH, 9
INT 21H

MOV DX, OFFSET MES2
```

```
MOV AH, 9
INT 21H

MOV CX,5
MOV SI,4
MOV DI,0
L1:
    MOV AL, S1[SI]
    MOV S2[DI], AL
    DEC SI

    INC DI

    LOOP L1

    MOV AH,9
    MOV DX,OFFSET S2
    INT 21H

.EXIT
END
```

**OUTPUT –**

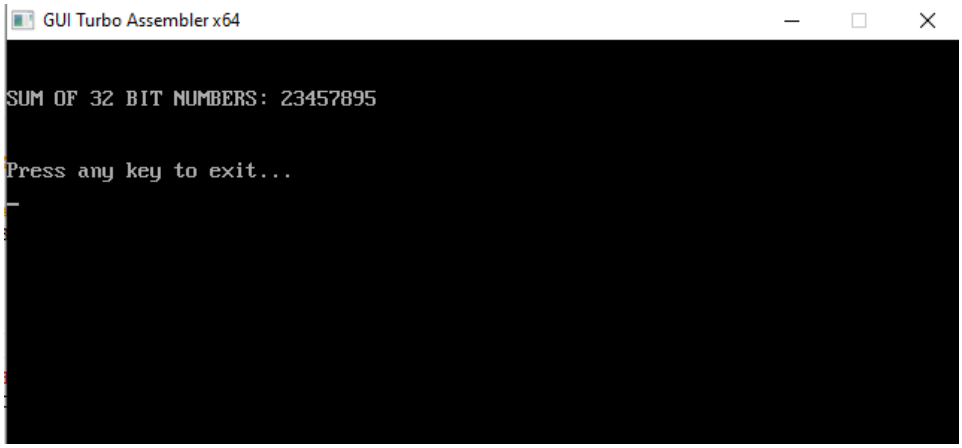



## Q10) Write a program to add two 32-bit binary numbers.

```
; PROGRAM TO FIND SUM OF 32 BIT NUMBERS

.MODEL SMALL
.DATA

NUM1 DW 1234
NUM2 DW 5673
```

```
NUM3 DW 1111
NUM4 DW 2222

RES DW ?

MES3 DB 13,10,10,"SUM OF 32 BIT NUMBERS: $"

.CODE
.STARTUP

    MOV DX,OFFSET MES3
    MOV AH,9
    INT 21H

    CLC

    MOV AX,NUM1
    ADD AX,NUM3
    CALL DISPX

    MOV AX,NUM2
    ADC AX,NUM4
    CALL DISPX

.EXIT

DISPX PROC NEAR
   MOV CX,0
   MOV BX,10

   DISPX1:
      MOV DX,0
      DIV BX
      PUSH DX
      INC CX
      OR AX,AX
      JNZ DISPX1

   DISPX2:
      POP DX
      MOV AH,2
      ADD DL,30H
      INT 21H
      LOOP DISPX2


   RET

DISPX ENDP
END
```

**OUTPUT –**

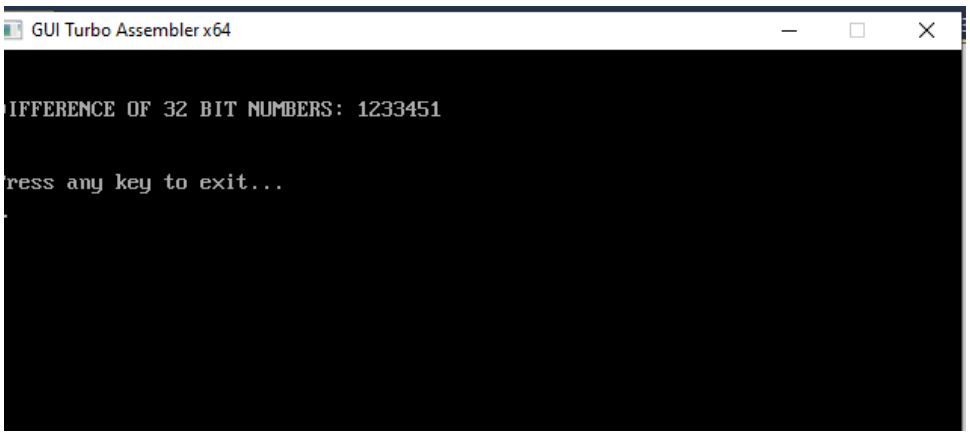



## Q11) Write a program to subtract two 32-bit binary numbers.

```
; PROGRAM TO FIND SUBTRACTION OF 32 BIT NUMBERS

.MODEL SMALL
.DATA

NUM1 DW 1234
NUM2 DW 5673
NUM3 DW 1111
NUM4 DW 2222

RES DW ?

MES3 DB 13,10,10,"DIFFERENCE OF 32 BIT NUMBERS: $"

.CODE
.STARTUP

    MOV DX,OFFSET MES3
    MOV AH,9
    INT 21H

    CLC

    MOV AX,NUM1
    SUB AX,NUM3
    CALL DISPX

    MOV AX,NUM2
    SUB AX,NUM4
    CALL DISPX
```

```
.EXIT

DISPX PROC NEAR
   MOV CX,0
   MOV BX,10

   DISPX1:
      MOV DX,0
      DIV BX
      PUSH DX
      INC CX
      OR AX,AX
      JNZ DISPX1

   DISPX2:
      POP DX
      MOV AH,2
      ADD DL,30H
      INT 21H
      LOOP DISPX2


   RET

DISPX ENDP
END
```

**OUTPUT –**

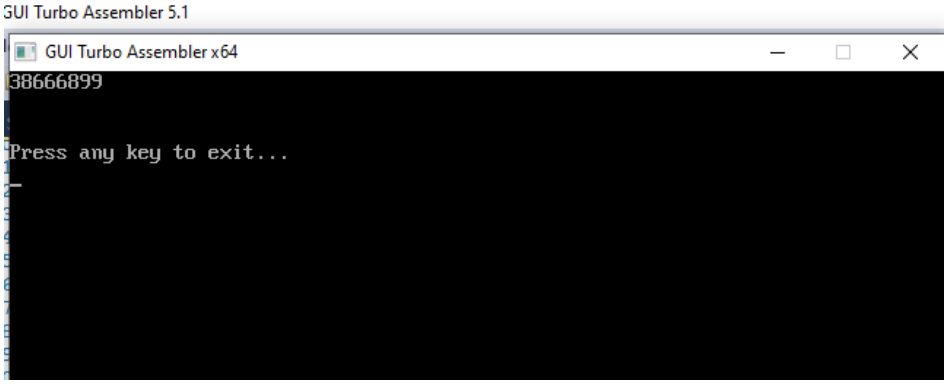



## Q12) Write a program to add two 32-bit BCD numbers.

```
; BCD ADDITION 32 BIT

.MODEL SMALL
.DATA
```

```
NUM1 DB 12,34,56,78
NUM2 DB 26,32,12,21

NUM3 DB 4 DUP(?)

.CODE
.STARTUP

MOV CX,4
MOV SI,0

L1:
   MOV AL,NUM1[SI]
   ADD AL,NUM2[SI]
   MOV NUM3[SI],AL
   INC SI
   LOOP L1

   MOV SI,0
   MOV CX,4

   L2:
      MOV AL,NUM3[SI]
      AAM
      ADD AX,3030H
      MOV BX,AX

      MOV AH,2
      MOV DL,BH
      INT 21H

      MOV AH,2
      MOV DL,BL
      INT 21H
      INC SI
      LOOP L2


.EXIT

END
```

**OUTPUT –**

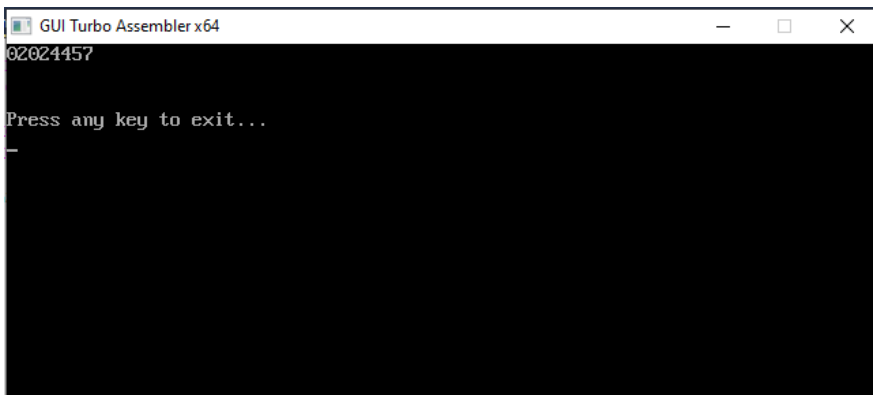



## Q13) Write a program to subtract two 32-bit BCD numbers.

```
; BCD SUBTRACTION 32 BIT

.MODEL SMALL
.DATA

NUM1 DB 28,34,56,78
NUM2 DB 26,32,12,21

NUM3 DB 4 DUP(?)

.CODE
.STARTUP

MOV CX,4
MOV SI,0

L1:
   MOV AL,NUM1[SI]
   SUB AL,NUM2[SI]
   MOV NUM3[SI],AL
   INC SI
   LOOP L1

   MOV SI,0
   MOV CX,4

   L2:
      MOV AL,NUM3[SI]
      AAM
      ADD AX,3030H
      MOV BX,AX

      MOV AH,2
```

```
        MOV DL,BH
        INT 21H

        MOV AH,2
        MOV DL,BL
        INT 21H
        INC SI
        LOOP L2


.EXIT

END
```

## OUTPUT –

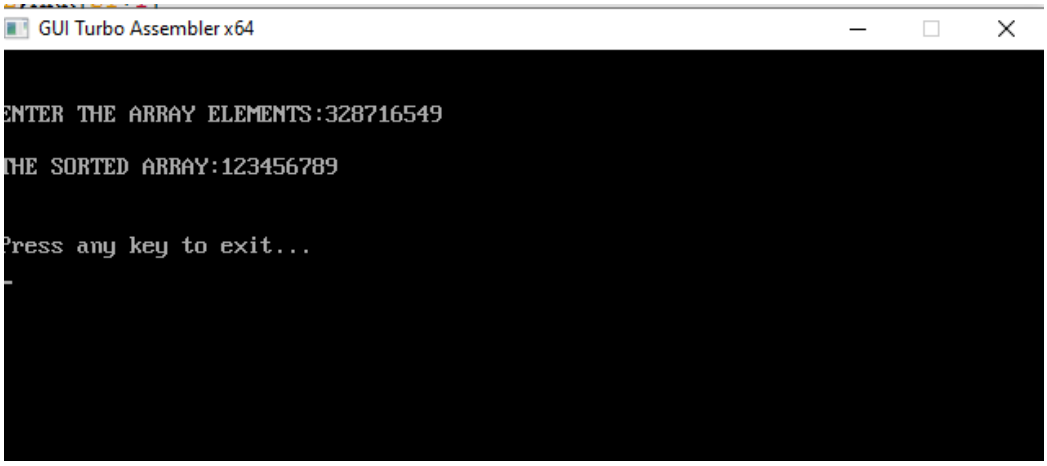



## Q14) Write a program to sort an array.

```
; SORTING

.MODEL SMALL
.DATA
ARR DB 9 DUP(?)
MES1 DB 13,10,10,"ENTER THE ARRAY ELEMENTS:$"
MES2 DB 13,10,10,"THE SORTED ARRAY:$"

.CODE
.STARTUP

MOV AH,9
MOV DX,OFFSET MES1
INT 21H
MOV SI,0
```

```
MOV CX,9
L1:
    MOV AH,1
    INT 21H
    SUB AL,30H
    MOV ARR[SI],AL
    INC SI
    LOOP L1

MOV CX,9
DEC CX

L2:
    MOV DI,CX
    MOV SI,0
    L3:
        MOV AL,ARR[SI]
        CMP AL,ARR[SI+1]
        JL CONTINUE
        XCHG AL,ARR[SI+1]
        MOV ARR[SI],AL
        CONTINUE:
            INC SI
            LOOP L3
            MOV CX,DI
            LOOP L2

MOV AH,9
MOV DX,OFFSET MES2
INT 21H

MOV SI,0
MOV CX,9
L4:
    MOV DL,ARR[SI]
    ADD DL,30H
    MOV AH,2
    INC SI
    INT 21H
    LOOP L4
.EXIT
END
```

**OUTPUT –**

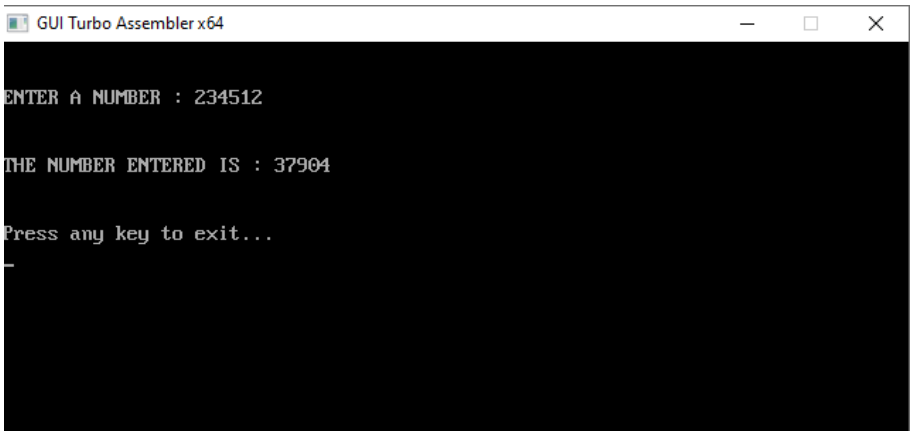



## Q15) Write a program to perform an ASCII to Binary conversion.

```
; ASCII TO BINARY

.MODEL SMALL
.DATA
TEMP DW ?
MES1 DB 13,10,10,"ENTER A NUMBER : $"
MES2 DB 13,10,10,"THE NUMBER ENTERED IS : $"

.CODE
.STARTUP
MOV DX,OFFSET MES1
MOV AH,9
INT 21H

XOR AX,AX
CALL READN
MOV TEMP, AX
MOV AH,9
MOV DX, OFFSET MES2
INT 21H
MOV AX, TEMP
CALL DISPX
.EXIT

READN PROC NEAR
    PUSH BX
    PUSH CX
    MOV CX,10
    MOV BX, 0
    READN1:
        MOV AH,1
```

```
        INT 21H
        CMP AL,30H
        JB READN2
        CMP AL, 39H
        JA READN2
        SUB AL,30H
        PUSH AX
        MOV AX,BX
        MUL CX
        MOV BX,AX
        POP AX
        MOV AH,0
        ADD BX,AX
        JMP READN1
        READN2:
            MOV AX,BX
            POP CX
            POP BX
            RET
    READN ENDP

DISPX PROC NEAR
    PUSH DX
    PUSH CX
    PUSH BX
    MOV CX,0
    MOV BX,10
    DISPX1:
        MOV DX,0
        DIV BX
        PUSH DX
        INC CX
        OR AX,AX
        JNZ DISPX1
    DISPX2:
        POP DX
        MOV AH,2
        ADD DL,30H
        INT 21H
        LOOP DISPX2
   POP BX
   POP CX
   POP DX
   RET
DISPX ENDP
END
```

**OUTPUT –**




## Q16) Write a program to perform a Binary to ASCII conversion.

```
; BINARY TO ASCII

.MODEL SMALL
.CODE
.STARTUP
MOV AX,1234
CALL DISPX
.EXIT

DISPX PROC NEAR
    PUSH DX
    PUSH CX
    PUSH BX
    MOV CX,0
    MOV BX,10
    DISPX1:
        MOV DX,0
        DIV BX
        PUSH DX
        INC CX
        OR AX,AX
        JNZ DISPX1
    DISPX2:
        POP DX
        MOV AH,2
        ADD DL,30H
        INT 21H
        LOOP DISPX2
   POP BX
   POP CX
   POP DX
   RET
DISPX ENDP
END
```

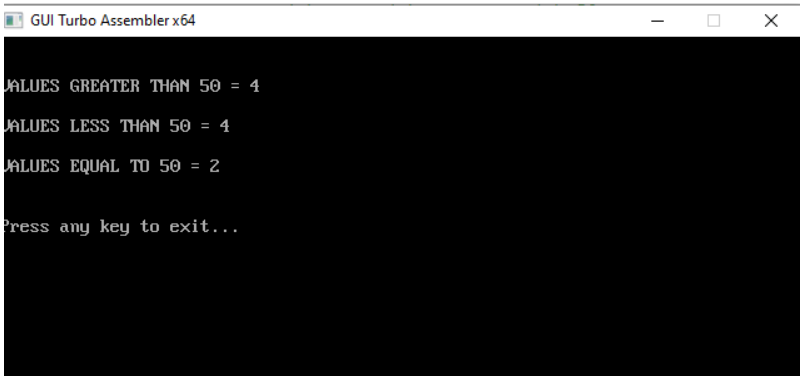
**OUTPUT –**


## Q17) Write a program to count the number of times a character appears in a given string.

```
;count the number of times a character appears in a given string
DATA SEGMENT
    MSG1 DB 10,13,'ENTER ANY STRING :- $'
    MSG2 DB 10,13,'ENTER ANY CHARACTER :- $'
    MSG3 DB 10,13,' $'
    MSG4 DB 10,13,'NO, CHARACTER FOUND IN THE GIVEN STRING $'
    MSG5 DB ` CHARACTER(S) FOUND IN THE GIVEN STRING $'
    CHAR DB ?
    COUNT DB 0
    P1 LABEL BYTE
    M1 DB 0FFH
    L1 DB ?
    P11 DB 0FFH DUP (`$')
DATA ENDS
DISPLAY MACRO MSG
    MOV AH,9
    LEA DX,MSG
    INT 21H
ENDM
CODE SEGMENT
    ASSUME CS:CODE,DS:DATA
START:
        MOV AX,DATA
        MOV DS,AX

        DISPLAY MSG1

        LEA DX,P1
        MOV AH,0AH
        INT 21H

        DISPLAY MSG2

        MOV AH,1
        INT 21H
```

```
        MOV CHAR,AL

        DISPLAY MSG3

        LEA SI,P11

        MOV CL,L1
        MOV CH,0

CHECK:
        MOV AL,[SI]
        CMP CHAR,AL
        JNE SKIP
        INC COUNT
SKIP:
        INC SI
        LOOP CHECK

        CMP COUNT,0
        JE NOTFOUND

        DISPLAY MSG3

        MOV DL,COUNT
        ADD DL,30H
        MOV AH,2
        INT 21H

        DISPLAY MSG5
        JMP EXIT
NOTFOUND:
        DISPLAY MSG4

EXIT:   MOV AH,4CH
        INT 21H
CODE ENDS
END START
```

## OUTPUT –

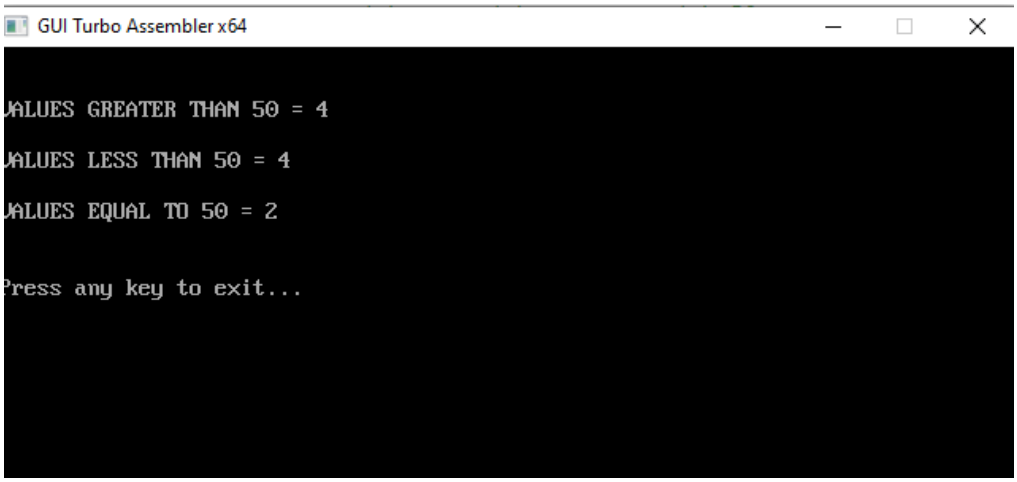


**Q18) Write a program to count the number of elements in an array that are greater than a given value.**

```
; COUNT NUMBER OF VALUES GREATER(>), LESS(<) AND EQUAL(=) 50.

.MODEL SMALL
.DATA
ARR DB 78,23,45,76,90,50,23,45,89,50
UP DB 0
DN DB 0
EQ DB 0

MES1 DB 13,10,10, "VALUES GREATER THAN 50 = $"
MES2 DB 13,10,10, "VALUES LESS THAN 50 = $"
MES3 DB 13,10,10, "VALUES EQUAL TO 50 = $"

.CODE
.STARTUP
MOV SI,0
MOV CX,10
L1:
   CMP ARR[SI],50
   JAE ABOVE
   INC DN
   JMP NEXT
   ABOVE:

         JNZ NE
         INC EQ
         JMP NEXT
   NE: INC UP
  NEXT:
         INC SI
         LOOP L1
MOV DX, OFFSET MES1
MOV AH,9
INT 21H

MOV DL, UP
ADD DL,30H
MOV AH,2
INT 21H

MOV DX, OFFSET MES2
MOV AH,9
INT 21H

MOV DL, DN
ADD DL,30H
```

```
MOV AH,2
INT 21H

MOV DX, OFFSET MES3
MOV AH, 9
INT 21H

MOV DL, EQ
ADD DL,30H
MOV AH,2
INT 21H

.EXIT
END
```

**OUTPUT –**




## Q19) Write a program to print the length of a string.

```
;length of a string

DATA SEGMENT
STR DB 'GANGADHAR$'
MSG1 DB 10,13,'THE STRING IN THE MEMORY IS : $'
MSG2 DB 10,13,'LENGTH OF THE STRING IS :- $'
LEN DB 0H
DATA ENDS

DISPLAY MACRO MSG
MOV AH,9
LEA DX,MSG
INT 21H
ENDM

CODE SEGMENT
ASSUME CS:CODE,DS:DATA
START:
MOV AX,DATA
```

```
MOV DS,AX

DISPLAY MSG1

DISPLAY STR

LEA SI,STR
NEXT:
CMP [SI],'$'
JE DONE
INC LEN
INC SI
JMP NEXT
DONE:
DISPLAY MSG2

MOV AL,LEN
ADD AL,30H

MOV DL,AL
MOV AH,2
INT 21H

MOV AH,4CH
INT 21H
CODE ENDS
END START
```

**OUTPUT –**