Computer Architecture and Organisation

Digital Assignment-1

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Reg No. :21BCE7638

Slot: A1+STA1

Question:

27	21BCE7638	Write a program for searching the existence of a certain data in a given data array using 8086. When found, multiply the searched number with the last 4 digits of your Reg no. Display this signed result in Cyan color text on the output screen at row 20, column 15, page no. 0 using interrupts.

Code:

```
org 100h

MOV CX, 20     ; Initialize array length*2 to 20
MOV BX, 0      ; Initialize array index to 0
MOV AX, 1234h   ; Initialize search value
;MOV DX, 7638   ; Last 4  digits of Reg no

SEARCH_LOOP:
  CMP BX, CX   ; Compare array index with array length
  JE END_LOOP  ; End loop if index equals length
  MOV SI, BX   ; Load array index into SI register
  MOV DI, ARRAY ; Load array address into DI register
  ADD DI, SI   ; Add index to address to get element address
  MOV DL,[DI];
```

```
  INC BX
  MOV SI, BX   ; Load array index into SI register
  MOV DI, ARRAY ; Load array address into DI register
  ADD DI, SI   ; Add index to address to get element address
  MOV DH,[DI];

  CMP AX, DX ; Compare search value with array element
  JNE NEXT     ; Jump to next element if not found
  ;DATA FOUND SO MULTIPLY BE REG NO
  MOV DX, 7638;
  IMUL DX  ; Multiply search value with last 4 digits of Reg no
  JMP END_LOOP ; End loop after multiplication

NEXT:
  INC BX       ; Increment array index
  JMP SEARCH_LOOP ; Jump to next iteration

END_LOOP:
   mov [7000h],ah
   mov [7001h],al
   push 0h;

   ;OUTPUT IN stack
```

```
mov ax,dx
jmp loop_val1;

loop_val1:

    mov bx,0010;
    xor dx,dx
    div bx
    mov cx,ax
    add dl,48
    push dx;
    mov ax,cx
    cmp ax,0;
    jne loop_val1;

mov ah,[7000h]
mov al,[7001h]

loop_val:

    mov bx,0010;
    xor dx,dx
    div bx
    mov cx,ax
```

```
    add dl,48
    push dx;
    mov ax,cx
    cmp ax,0;
    jne loop_val;



mov 700h,14

 ;printing
output:

    mov ah, 2h
    ;mov al, 34h    ;color
    mov bh, 0     ;page
    mov dh, 20    ;row
    mov dl, [700h]    ;column
    inc dl
    mov [700h],dl
    int 10h



    pop ax
```

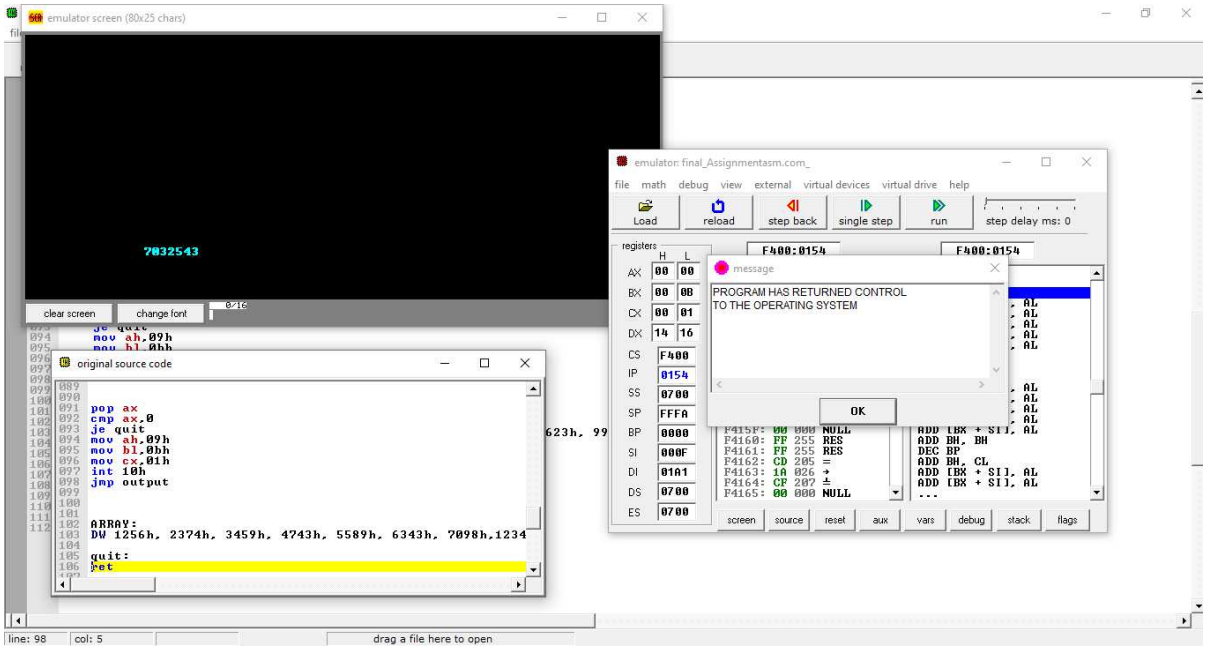
```
    cmp ax,0
    je quit
    mov ah,09h
    mov bl,0bh
    mov cx,01h
    int 10h
    jmp output



ARRAY:
   DW 1256h, 2374h, 3459h, 4743h, 5589h, 6343h, 7098h,1234h,
8623h, 9999h ; Data array


quit:
    ret
```

Output:


emulator screen (80x25 chars)
7032543
clear screen
change font
original source code
pop ax
cmp ax,0
je quit
mov ah,09h
mov bl,0bh
mov cx,01h
int 10h
jmp output
ARRAY:
DW 1256h, 2374h, 3459h, 4743h, 5589h, 6343h, 7098h,1234
quit:
ret
emulator: final_Assignmentasm.com_
file math debug view external virtual devices virtual drive help
Load
reload
step back
single step
run
step delay ms: 0
registers
AX 00 00
BX 00 00
CX 00 01
DX 14 16
CS F400
IP 0154
SS 0700
SP FFFA
BP 0000
SI 000F
DI 01A1
DS 0700
ES 0700
F400:0154
message
PROGRAM HAS RETURNED CONTROL
TO THE OPERATING SYSTEM
OK
screen
source
reset
aux
vars
debug
stack
flags
line: 98
col: 5
drag a file here to open