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## Practical 3

1) Write a program to perform addition of two 32-bit numbers

```
.model small  
.data  
a dd 98765432h  
b dd 789ABCDEh  
c dd ?
```

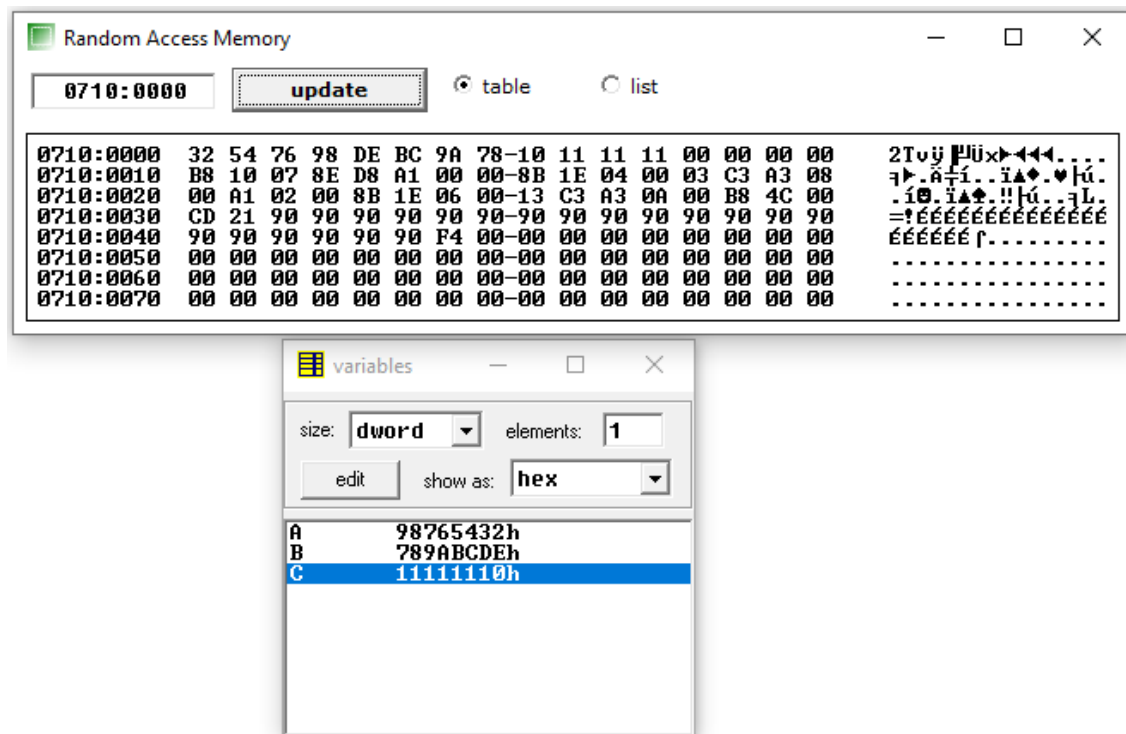
```
.code  
main proc near  
mov ax,@data  
mov ds,ax
```

```
mov ax,a  
mov bx,b  
add ax,bx  
mov c,ax
```

```
mov ax,a+2  
mov bx,b+2  
adc ax,bx  
mov c+2,ax
```

```
mov ax,04ch  
int 21h  
endp  
end
```





2) Write a program to perform subtraction of two 32-bit numbers

```
.model small
.data
a dd 98765432h
b dd 8ABCDEF3h
c dd ?

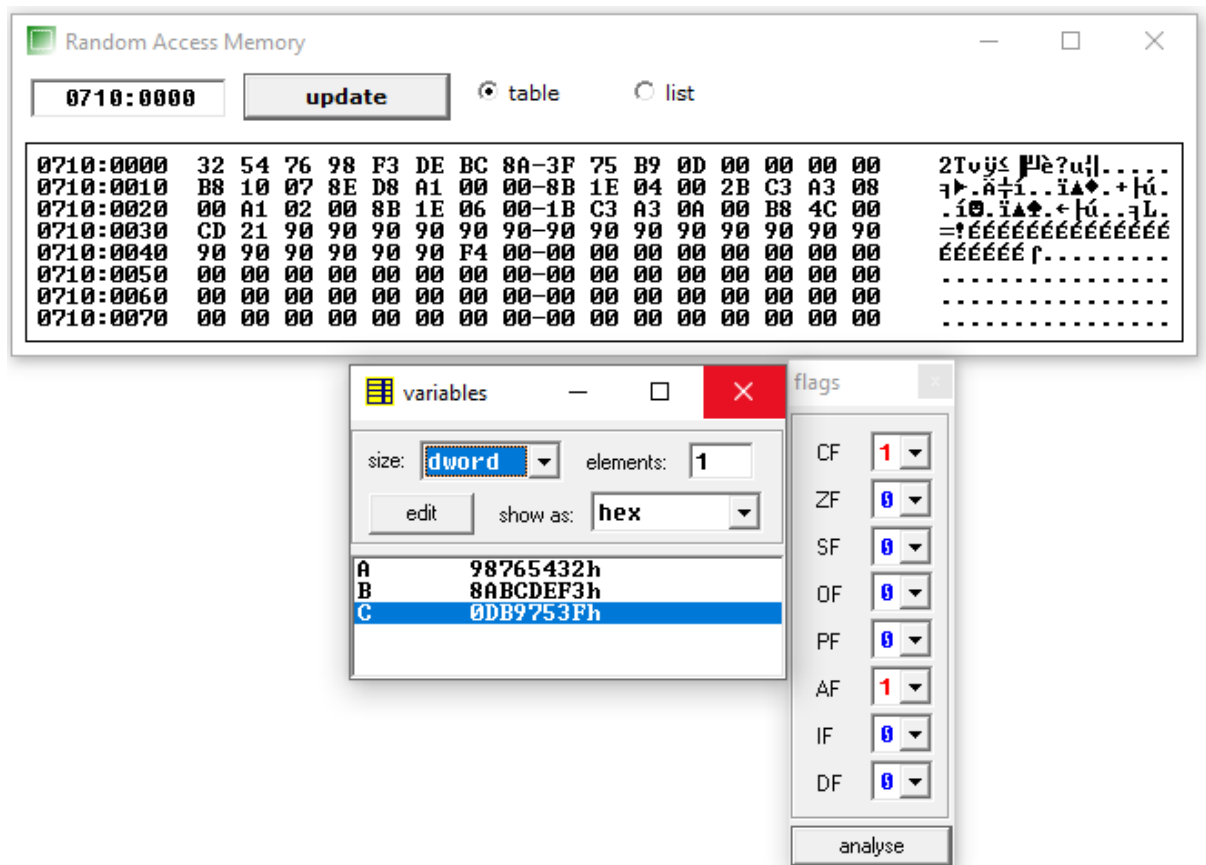
.code
main proc near
    mov ax,@data
    mov ds,ax

    mov ax,a
    mov bx,b
    sub ax,bx
    mov c,ax

    mov ax,a+2
```

```
mov bx,b+2
sbb ax,bx
mov c+2,ax

mov ax,04ch
int 21h
endp
end
```



- 3) Write a program to perform multiplication of a 32-bit number by a 16-bit number

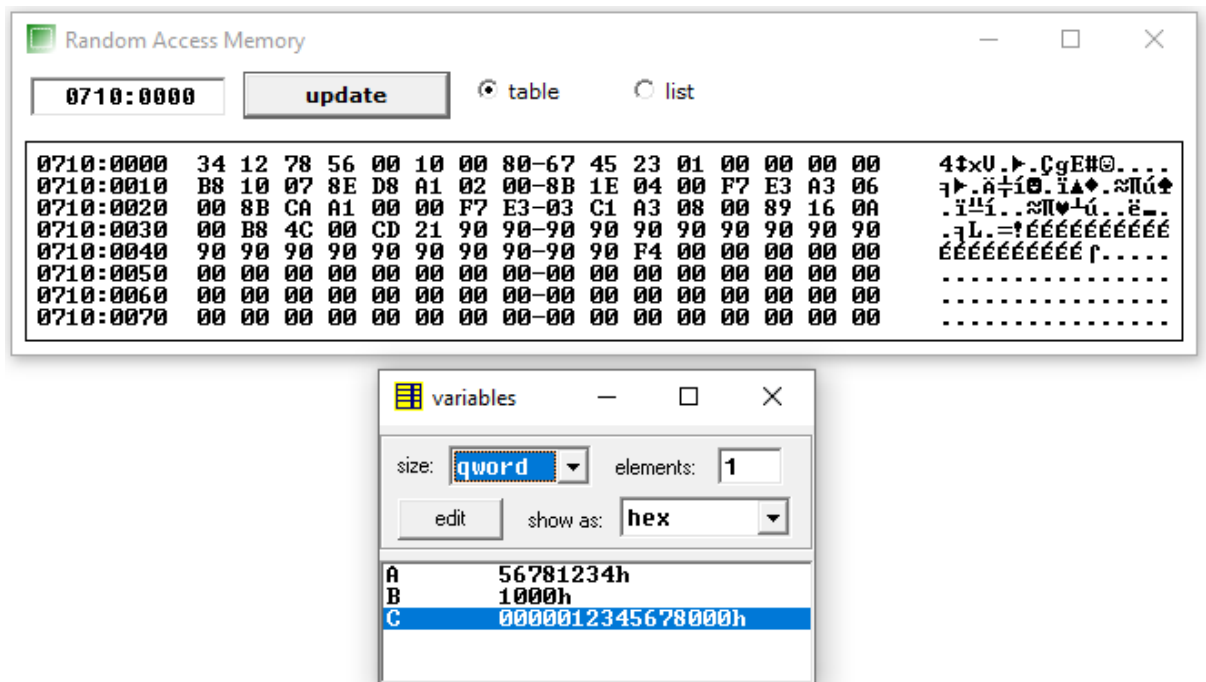
```
.model small
.data
a dw 1234h,5678h
b dw 1000h
c dw 03 dup(?)
```

```
.code
main proc near
    mov ax,@data
    mov ds,ax

    mov ax,a+2
    mov bx,b
    mul bx
    mov c,ax
    mov cx,dx

    mov ax,a
    mul bx
    add ax,cx
    mov c+2,ax
    mov c+4,dx

    mov ax,04ch
    int 21h
endp
end
```



4) Write a program to perform division of 32 bit number by 16 bit number

```
.model small
```

```
.data
```

```
a dw 1234h,5678h
```

```
b dw 1000h
```

```
q dd ?
```

```
r dw ?
```

```
.code
```

```
main proc near
```

```
    mov ax,@data
```

```
    mov ds,ax
```

```
    mov ax,a
```

```
    mov bx,b
```

```
    div bx
```

```
    mov q+2,ax
```

```

mov ax,a+2

div bx

mov q,ax

mov r,dx

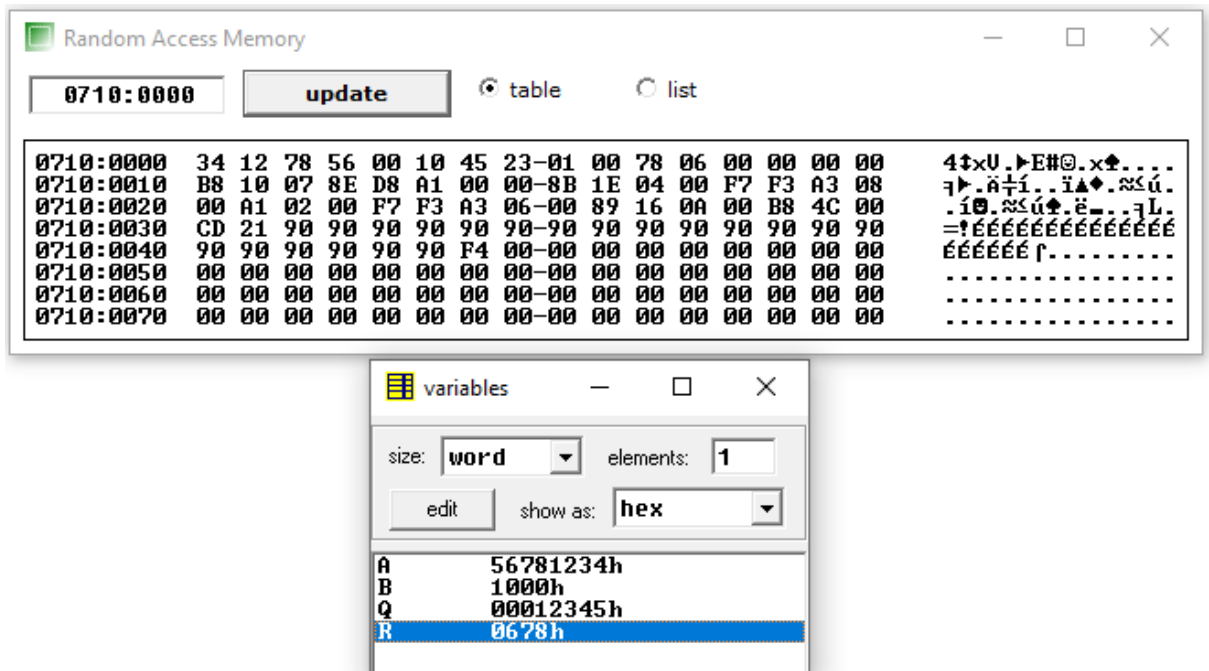

mov ax,04ch

int 21h

endp

end

```



- 5) Write a program to perform addition of two n-word arrays

```

.model small

.data
a dw 0FEDCh,0BA98h,7654h
b dw 1234h,5678h,9ABCh
c dw 03 dup(?)

.code

main proc near
    mov ax,@data

```

mov ds,ax

mov ax,a+4

mov bx,b+4

add ax,bx

mov c,ax

mov ax,a+2

mov bx,b+2

adc ax,bx

mov c+2,ax

mov ax,a

mov bx,b

adc ax,bx

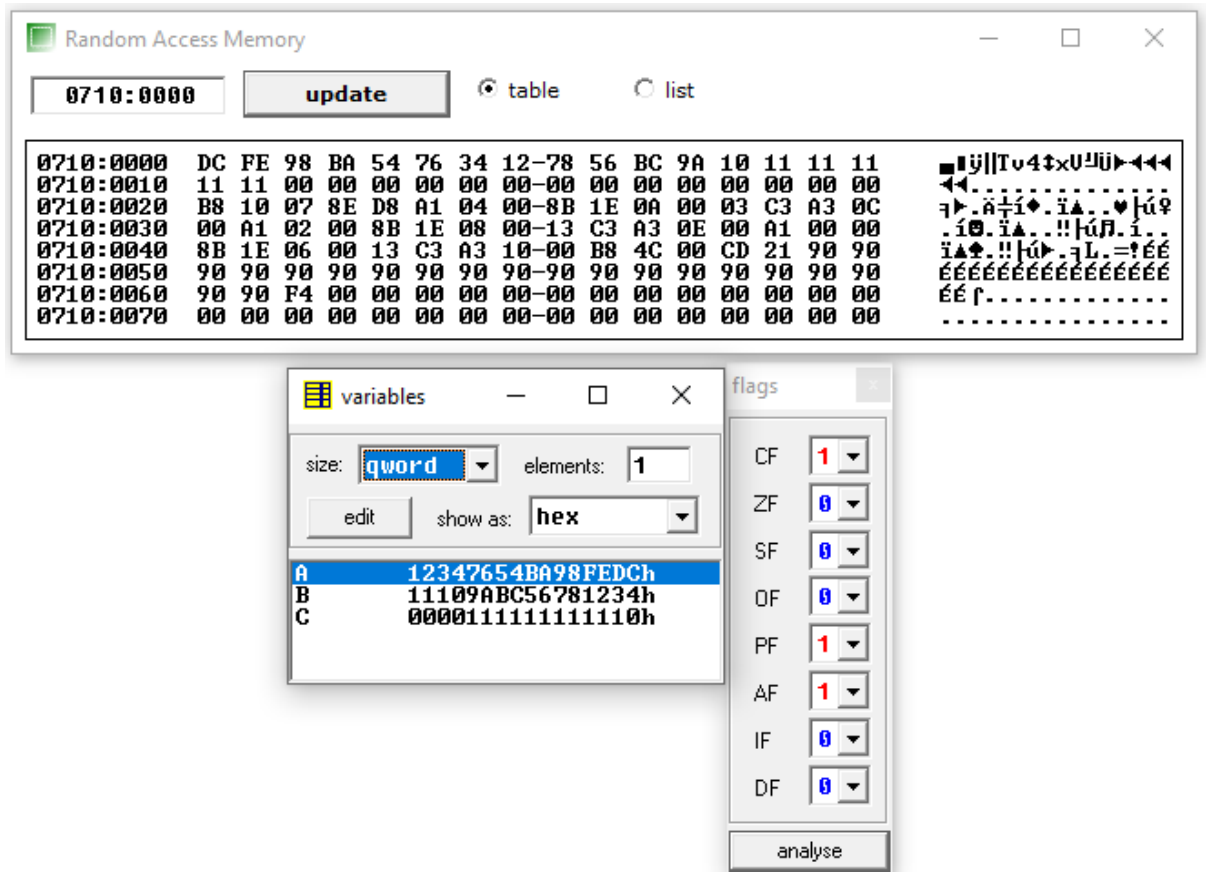
mov c+4,ax

mov ax,04ch

int 21h

endp

end



6) Write a program to perform subtraction of two n-word arrays

```
.model small
```

```
.data
```

```
a dw 0F111h,1111h,1111h
```

```
b dw 1FFFh,5678h,9ABCh
```

```
c dw 03 dup(?)
```

```
.code
```

```
main proc near
```

```
    mov ax,@data
```

```
    mov ds,ax
```

```
    mov ax,a+4
```

```
    mov bx,b+4
```

```
    sub ax,bx
```

```
    mov c,ax
```



```

mov ax,a+2
mov bx,b+2
sbb ax,bx
mov c+2,ax

mov ax,a
mov bx,b
sbb ax,bx
mov c+4,ax

mov ax,04ch
int 21h
endp
end

```

Random Access Memory

0710:0000

update

table

list

0710:0000	11	F1	11	11	11	11	FF	1F-78	56	BC	9A	55	76	98	BA	◀±◀◀◀◀.▼x0²üUvÿ
0710:0010	11	D1	00	00	00	00	00	00-00	00	00	00	00	00	00	00	◀T-.....
0710:0020	B8	10	07	8E	D8	A1	04	00-8B	1E	0A	00	2B	C3	A3	0C	◀▶.â÷i♦.i▲...+túφ
0710:0030	00	A1	02	00	8B	1E	08	00-1B	C3	A3	0E	00	A1	00	00	.i0.i▲...+túß.i..
0710:0040	8B	1E	06	00	1B	C3	A3	10-00	B8	4C	00	CD	21	90	90	i▲±.+tú▶.qL.=!éé
0710:0050	90	90	90	90	90	90	90	90-90	90	90	90	90	90	90	90	éééééééééééééééé
0710:0060	90	90	F4	00	00	00	00	00-00	00	00	00	00	00	00	00	éé é. ....
0710:0070	00	00	00	00	00	00	00	00-00	00	00	00	00	00	00	00	.....

variables

size: qword

elements: 1

edit

show as: hex

A	1FFF11111111F111h
B	76559ABC56781FFFh
C	0000D111BA987655h

flags

CF	0
ZF	0
SF	1
OF	0
PF	1
AF	1
IF	0
DF	0

analyse

- 7) Write a program to perform multiplication of n-byte array with array with an 8-bit number.

```
.model small
.data
a db 12h,34h,56h,78h,9Ah,0BCh
b db 22h
c dw 04 dup(?)

.code
main proc near
    mov ax,@data
    mov ds,ax

    mov al,a+5
    mov ah,a+4
    mov bl,b
    mul bl
    mov c,ax
    mov cx,dx

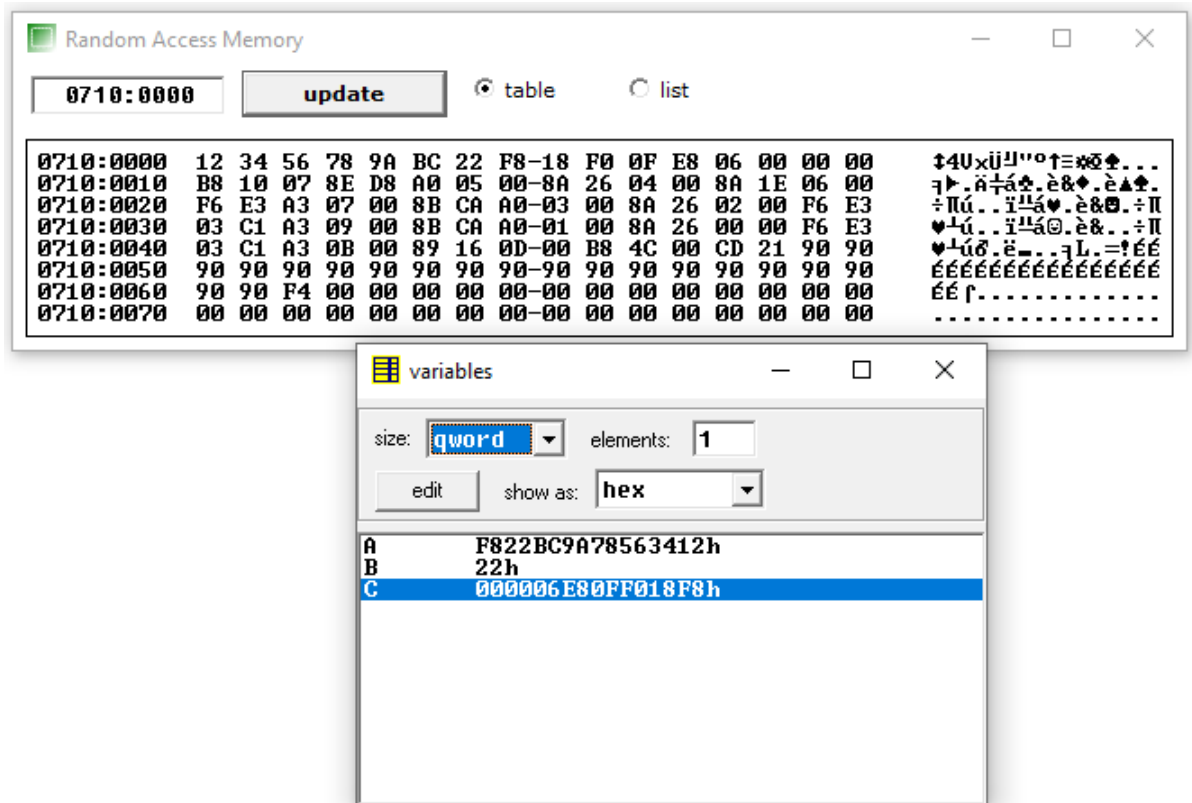
    mov al,a+3
    mov ah,a+2
    mul bl
    add ax,cx
    mov c+2,ax
    mov cx,dx

    mov al,a+1
    mov ah,a
    mul bl
    add ax,cx
    mov c+4,ax
    mov c+6,dx
```

```

mov ax,04ch
int 21h
endp
end

```



8) Write a program to perform multiplication of an n-word array with 16-bit number

```

.model small
.data
a dw 1234h,5678h,9ABCh
b dw 2000h
c dw 04 dup(?)

```

```

.code
main proc near
    mov ax,@data

```

mov ds,ax

mov ax,a+4

mov bx,b

mul bx

mov c,ax

mov cx,dx

mov ax,a+2

mul bx

add ax,cx

mov c+2,ax

mov cx,dx

mov ax,a

mul bx

add ax,cx

mov c+4,ax

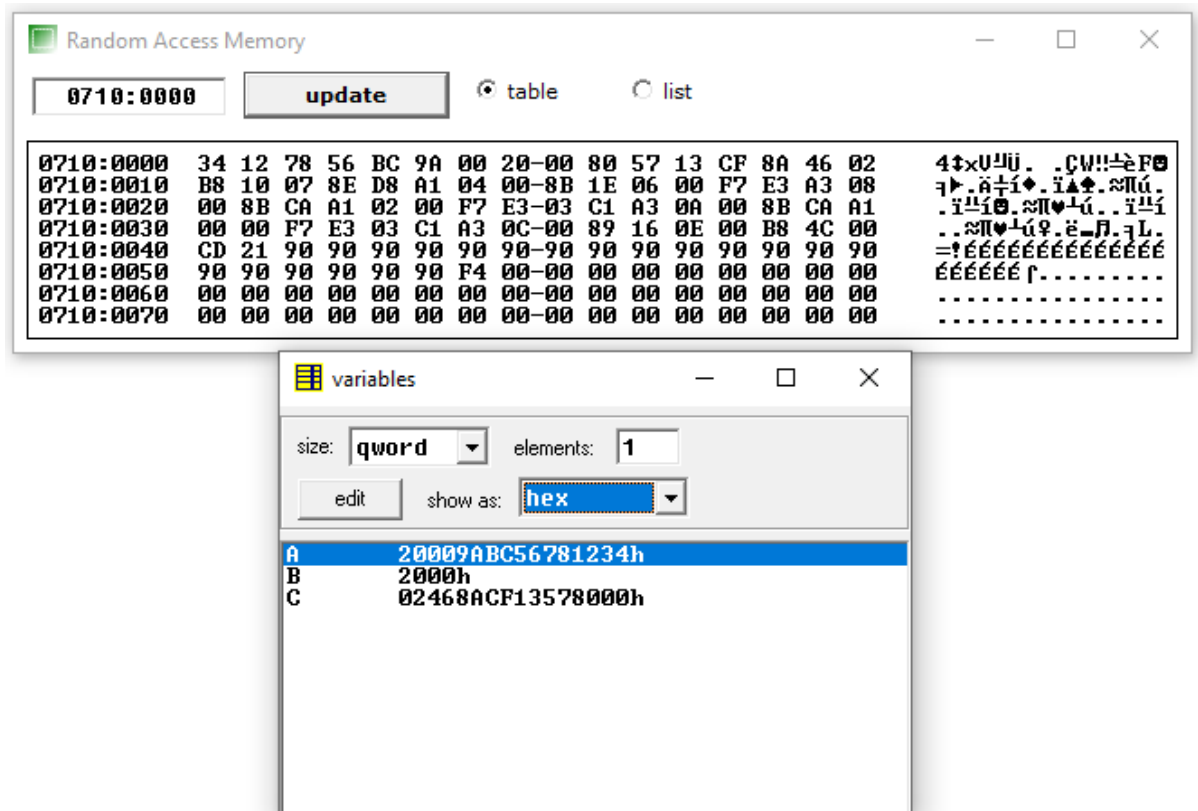
mov c+6,dx

mov ax,04ch

int 21h

endp

end



9) Write a program for division of an n-byte array with an 8-bit number

```
.model small
```

```
.data
```

```
a db 12h,34h,56h,78h
```

```
b db 10h
```

```
q db 03 dup(?)
```

```
d db ?
```

```
.code
```

```
main proc near
```

```
    mov ax,@data
```

```
    mov ds,ax
```

```
    mov ah,a
```

```
    mov al,a+1
```

```
    mov bl,b
```

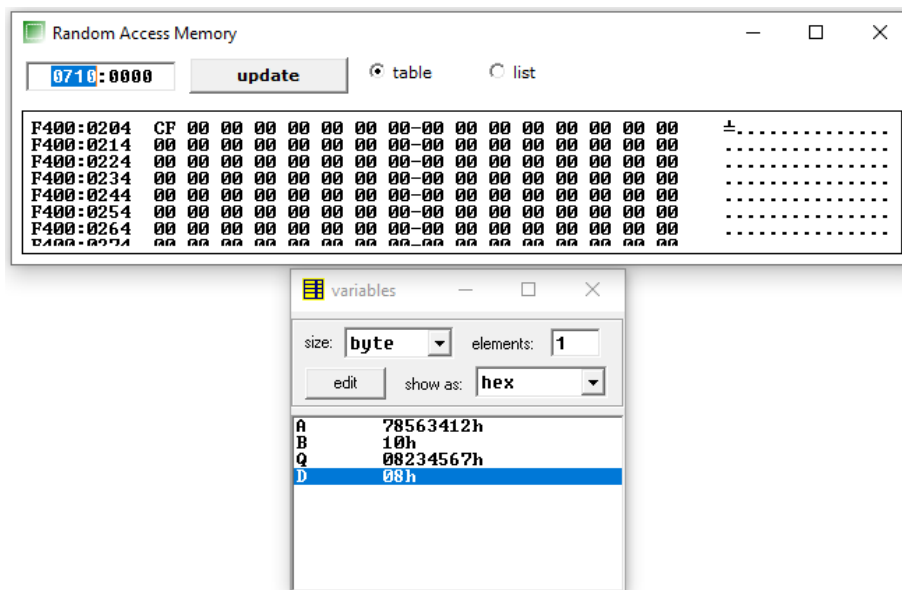
```

div bx
mov q+3,ah
mov q+2,al

mov ah,a+2
mov al,a+3
div bx
mov q+1,ah
mov q,al
mov d,dl

mov ax,04ch
int 21h
endp
end

```



10) Write a program for division of an n-word array with a 16-bit number.

```

.model small
.data
a dw 1234h,5678h,9ABCh

```

```
b dw 1111h
q dw 03 dup(?)
d dw ?
```

```
.code
```

```
main proc near
    mov ax,@data
    mov ds,ax
```

```
    mov ax,a
    mov bx,b
    div bx
    mov q+4,ax
```

```
    mov ax,a+2
    div bx
    mov q+2,ax
```

```
    mov ax,a+4
    div bx
    mov q,ax
    mov d,dx
```

```
    mov ax,04ch
    int 21h
endp
end
```

Random Access Memory																	
0710:0000				update				table				list					
0710:0000	34	12	78	56	BC	9A	11	11-23	22	12	11	01	00	69	03	4x0Uj44#''4@.i'	
0710:0010	B8	10	07	8E	D8	A1	00	00-8B	1E	06	00	F7	F3	A3	0C	7>.A+i..iA+.ssu'	
0710:0020	00	A1	02	00	F7	F3	A3	0A-00	A1	04	00	F7	F3	A3	08	.i0.ssu..i+.ssu'	
0710:0030	00	89	16	0E	00	B8	4C	00-CD	21	90	90	90	90	90	90	.ë-ß.7L.=!ééééé	
0710:0040	90	90	90	90	90	90	90	90-90	90	90	90	90	90	F4	00	ééééééééééééééé	
0710:0050	00	00	00	00	00	00	00	00-00	00	00	00	00	00	00	00	.....	
0710:0060	00	00	00	00	00	00	00	00-00	00	00	00	00	00	00	00	.....	
0710:0070	00	00	00	00	00	00	00	00-00	00	00	00	00	00	00	00	.....	

variables			
size:	word	elements:	1
edit	show as:	hex	
A	11119ABC56781234h		
B	1111h		
Q	0369000111122223h		
D	0369h		