MIT Practicals
Assignment 8
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Question 1: Write 8086 ALP for addition of two 8-bit numbers.

```
;Author: KRHero
;IDE: VSCode

.model small
.stack 100h

.data
num1 db 12h
num2 db 25h
res db ?

.code
start:

;Load data variables into existence
mov ax,@data
mov ds,ax

;Load values from variables
mov al,num1
mov bl,num2

;Add the values
add bl,al

;Store the result in res variables
mov res,bl

;Exit the program
mov ah,4ch
int 21
end start
```

```
AX=0712  BX=0025  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000C   NV UP EI PL NZ NA PO NC
076A:000C 02D8          ADD     BL,AL
-t

AX=0712  BX=0037  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000E   NV UP EI PL NZ NA PO NC
076A:000E 881E0200      MOV     [0002],BL                       DS:0002=E3
-t

AX=0712  BX=0037  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0012   NV UP EI PL NZ NA PO NC
076A:0012 B44C          MOV     AH,4C
```

```
 076C:07E0  1B 1E 9C
0-d 076C:0000
A076C:0000  12 25 37
```

Question 2: Write 8086 ALP for subtraction of two 8-bit numbers.

```
;Author: KRHero
;IDE: VSCode

.model small
.stack 100h

.data
num1 db 12h
num2 db 25h
res db ?

.code
start:

;Load data variables into existence
mov ax,@data
mov ds,ax

;Load values from variables
mov al,num1
mov bl,num2

;Add the values
sub bl,al

;Store the result in res variables
mov res,bl

;Exit the program
mov ah,4ch
int 21
end start
```

```
AX=076C  BX=0000  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0005   NV UP EI PL NZ NA PO NC
076A:0005 A00000        MOV     AL,[0000]                       DS:0000=12
-t

AX=0712  BX=0000  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0008   NV UP EI PL NZ NA PO NC
076A:0008 8A1E0100      MOV     BL,[0001]                       DS:0001=25
-t

AX=0712  BX=0025  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000C   NV UP EI PL NZ NA PO NC
076A:000C 2AD8          SUB     BL,AL
-t

AX=0712  BX=0013  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000E   NV UP EI PL NZ NA PO NC
076A:000E 881E0200      MOV     [0002],BL                       DS:0002=13
-t

AX=0712  BX=0013  CX=0022  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0012   NV UP EI PL NZ NA PO NC
076A:0012 B44C          MOV     AH,4C
```

```
-d 076C:0000
076C:0000  12 25 13
```

Question 3: Write 8086 ALP for addition of two 16-bit numbers.

```
;Author: KRHero
;IDE: VSCode

.model small
.stack 100h

.data
num1 dw 257h
num2 dw 352h
res dw ?

.code
start:

;Load data variables into existence
mov ax,@data
mov ds,ax

;Load values from variables
mov ax,num1
mov bx,num2

;Add the values
sub bx,ax

;Store the result in res variables
mov res,bx

;Exit the program
mov ah,4ch
int 21
end start
```

```
-t

AX=0257  BX=0352  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000C   NV UP EI PL NZ NA PO NC
076A:000C 03D8          ADD     BX,AX
-t

AX=0257  BX=05A9  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000E   NV UP EI PL NZ NA PE NC
076A:000E 891E0400      MOV     [0004],BX                       DS:0004=36E8
-t

AX=0257  BX=05A9  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0012   NV UP EI PL NZ NA PE NC
076A:0012 B44C          MOV     AH,4C
-d 076C:0000
076C:0000  57 02 52 03 A9 05 27 72-39 E8 AA 24 06 1E 89 46   W.R...'r9..$...F
076C:0010  FE 89 5E FC 50 55 8B EC-C7 46 02 00 00 5D 50 55   ..^.PU...F...]PU
076C:0020  8B EC C7 46 02 00 00 5D-FF 5E FC 83 C4 04 1F 07   ...F...].^......
076C:0030  E8 4E 24 26 C6 06 47 00-00 F8 BA 00 00 8B E5 5D   .N$&..G........]
076C:0040  4D C3 BA FF FF F9 EB F5-57 51 52 8B D1 26 8B 3E   M.......WQR..&.>
076C:0050  52 00 33 C9 26 8A 0D 03-F9 83 C7 03 26 8A 0D 83   R.3.&.......&...
076C:0060  F9 00 74 22 3B CA 74 07-03 F9 83 C7 03 EB ED 56   ..t";.t........V
076C:0070  47 F3 A6 74 08 03 F9 83-C7 02 5E EB DF 26 8B 05   G..t......^..&..
-
```

Question4: Write 8086 ALP for subtraction of two 16-bit numbers.

```
;Author: KRHero
;IDE: VSCode

.model small
.stack 100h

.data
num1 dw 257h
num2 dw 352h
res dw ?

.code
start:

;Load data variables into existence
mov ax,@data
mov ds,ax

;Load values from variables
mov ax,num1
mov bx,num2

;Add the values
sub bx,ax

;Store the result in res variables
mov res,bx

;Exit the program
mov ah,4ch
int 21
end start
```

```
-t

AX=0257  BX=0352  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000C   NV UP EI PL NZ NA PO NC
076A:000C 2BD8          SUB     BX,AX
-t

AX=0257  BX=00FB  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=000E   NV UP EI PL NZ AC PO NC
076A:000E 891E0400      MOV     [0004],BX                       DS:0004=36E8
-t

AX=0257  BX=00FB  CX=0024  DX=0000  SP=0100  BP=0000  SI=0000  DI=0000
DS=076C  ES=075A  SS=076D  CS=076A  IP=0012   NV UP EI PL NZ AC PO NC
076A:0012 B44C          MOV     AH,4C
-d 076C:0000
076C:0000  57 02 52 03 FB 00 27 72-39 E8 AA 24 06 1E 89 46   W.R...'r9..$...F
076C:0010  FE 89 5E FC 50 55 8B EC-C7 46 02 00 00 5D 50 55   ..^.PU...F...]PU
076C:0020  8B EC C7 46 02 00 00 5D-FF 5E FC 83 C4 04 1F 07   ...F...].^......
076C:0030  E8 4E 24 26 C6 06 47 00-00 F8 BA 00 00 8B E5 5D   .N$&..G........]
076C:0040  4D C3 BA FF FF F9 EB F5-57 51 52 8B D1 26 8B 3E   M.......WQR..&.>
076C:0050  52 00 33 C9 26 8A 0D 03-F9 83 C7 03 26 8A 0D 83   R.3.&.......&...
076C:0060  F9 00 74 22 3B CA 74 07-03 F9 83 C7 03 EB ED 56   ..t";.t........V
076C:0070  47 F3 A6 74 08 03 F9 83-C7 02 5E EB DF 26 8B 05   G..t......^..&..
-
```