

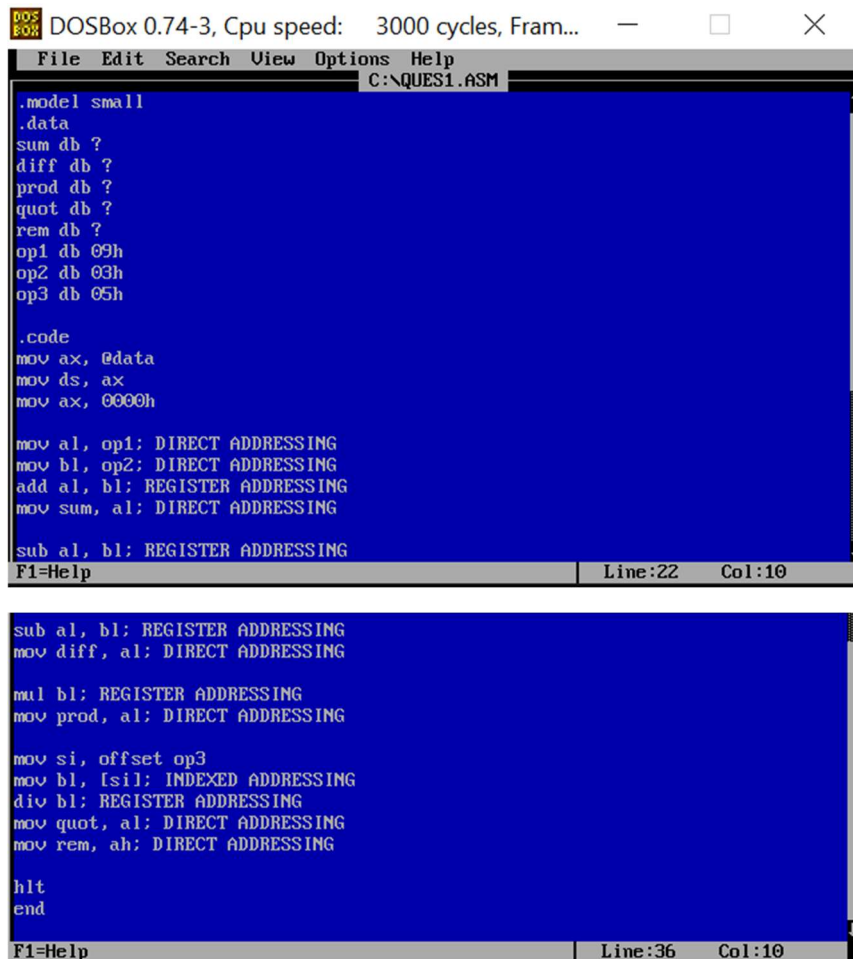
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CSE2006 – L29+L30

Lab Assignment 1

Question 1

Code:



```
DOS BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
File Edit Search View Options Help
C:\QUES1.ASM

.model small
.data
sum db ?
diff db ?
prod db ?
quot db ?
rem db ?
op1 db 09h
op2 db 03h
op3 db 05h

.code
mov ax, @data
mov ds, ax
mov ax, 0000h

mov al, op1; DIRECT ADDRESSING
mov bl, op2; DIRECT ADDRESSING
add al, bl; REGISTER ADDRESSING
mov sum, al; DIRECT ADDRESSING

sub al, bl; REGISTER ADDRESSING
F1=Help Line:22 Col:10

sub al, bl; REGISTER ADDRESSING
mov diff, al; DIRECT ADDRESSING

mul bl; REGISTER ADDRESSING
mov prod, al; DIRECT ADDRESSING

mov si, offset op3
mov bl, [si]; INDEXED ADDRESSING
div bl; REGISTER ADDRESSING
mov quot, al; DIRECT ADDRESSING
mov rem, ah; DIRECT ADDRESSING

hlt
end
F1=Help Line:36 Col:10
```

Output

```
DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
Libraries [.LIB]:
LINK : warning L4021: no stack segment

C:\>debug ques1.exe
-t
AX=076C BX=0000 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=075A ES=075A SS=0769 CS=076A IP=0003  NU UP EI PL NZ NA PO NC
076A:0003 8ED8      MOV     DS,AX
-t
AX=076C BX=0000 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0005  NU UP EI PL NZ NA PO NC
076A:0005 B80000    MOV     AX,0000
-t
AX=0000 BX=0000 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0008  NU UP EI PL NZ NA PO NC
076A:0008 A01300    MOV     AL,[0013]      DS:0013=09
-t
AX=0009 BX=0000 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=000B  NU UP EI PL NZ NA PO NC
076A:000B 8A1E1400  MOV     BL,[0014]      DS:0014=03
```

```
DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
AX=0009 BX=0000 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=000B  NU UP EI PL NZ NA PO NC
076A:000B 8A1E1400  MOV     BL,[0014]      DS:0014=03
-t
AX=0009 BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=000F  NU UP EI PL NZ NA PO NC
076A:000F 02C3      ADD     AL,BL
-t
AX=000C BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0011  NU UP EI PL NZ NA PE NC
076A:0011 A20E00    MOV     [000E],AL      DS:000E=00
-t
AX=000C BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0014  NU UP EI PL NZ NA PE NC
076A:0014 2AC3      SUB     AL,BL
-t
AX=0009 BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0016  NU UP EI PL NZ NA PE NC
076A:0016 A20F00    MOV     [000F],AL      DS:000F=00
```

```
DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
AX=0009 BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0019  NU UP EI PL NZ NA PE NC
076A:0019 F6E3      MUL     BL
-t
AX=001B BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=001B  NU UP EI PL NZ NA PE NC
076A:001B A21000    MOV     [0010],AL      DS:0010=00
-t
AX=001B BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=001E  NU UP EI PL NZ NA PE NC
076A:001E BE1500    MOV     SI,0015
-t
AX=001B BX=0003 CX=0036 DX=0000 SP=0000 BP=0000 SI=0015 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0021  NU UP EI PL NZ NA PE NC
076A:0021 8A1C      MOV     BL,[SI]        DS:0015=05
-t
AX=001B BX=0005 CX=0036 DX=0000 SP=0000 BP=0000 SI=0015 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0023  NU UP EI PL NZ NA PE NC
076A:0023 F6F3      DIV     BL
```

```

AX=0205 BX=0005 CX=0036 DX=0000 SP=0000 BP=0000 SI=0015 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0025  NU UP EI PL NZ NA PE NC
076A:0025 A21100      MOV     I00111,AL      DS:0011=00
-t
AX=0205 BX=0005 CX=0036 DX=0000 SP=0000 BP=0000 SI=0015 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0028  NU UP EI PL NZ NA PE NC
076A:0028 88261200      MOV     I00121,AH      DS:0012=00
-t
AX=0205 BX=0005 CX=0036 DX=0000 SP=0000 BP=0000 SI=0015 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=002C  NU UP EI PL NZ NA PE NC
076A:002C F4          HLT
-d e 12
076C:0000                0C 09          ..
076C:0010 1B 05 02      ...

```

Question 2

Code:

```

DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
File Edit Search View Options Help
C:\QUES2.ASM

.model small
.data
sum dw ?
diff dw ?
prod dw ?
quot dw ?
rem dw ?
op1 dw 0009h
op2 dw 0003h
op3 dw 0005h

.code
mov ax, @data
mov ds, ax

mov ax, op1; DIRECT ADDRESSING
mov bx, op2; DIRECT ADDRESSING
add ax, bx; REGISTER ADDRESSING
mov sum, ax; DIRECT ADDRESSING

sub ax, bx; REGISTER ADDRESSING
mov diff, ax; DIRECT ADDRESSING

mul bx; REGISTER ADDRESSING
mov prod, ax; DIRECT ADDRESSING

mov si, offset op3
mov bx, [si]; INDEXED ADDRESSING
div bx; REGISTER ADDRESSING
mov quot, ax; DIRECT ADDRESSING
mov rem, dx; DIRECT ADDRESSING

hlt
end

F1=Help Line:35 Col:12

```

Output:

```
DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
Libraries [LIB]:
LINK : warning L4021: no stack segment

C:\>debug ques2.exe
-t

AX=076C BX=0000 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=075A ES=075A SS=0769 CS=076A IP=0003  NU UP EI PL NZ NA PO NC
076A:0003 8ED8      MOV     DS,AX
-t

AX=076C BX=0000 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0005  NU UP EI PL NZ NA PO NC
076A:0005 A11400    MOV     AX,[0014]      DS:0014=0009
-t

AX=0009 BX=0000 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0008  NU UP EI PL NZ NA PO NC
076A:0008 8B1E1600  MOV     BX,[0016]      DS:0016=0003
-t

AX=0009 BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=000C  NU UP EI PL NZ NA PO NC
076A:000C 03C3      ADD     AX,BX
-

DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
AX=000C BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=000E  NU UP EI PL NZ NA PE NC
076A:000E A30A00    MOV     [000A],AX      DS:000A=0000
-t

AX=000C BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0011  NU UP EI PL NZ NA PE NC
076A:0011 2BC3      SUB     AX,BX
-t

AX=0009 BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0013  NU UP EI PL NZ NA PE NC
076A:0013 A30C00    MOV     [000C],AX      DS:000C=0000
-t

AX=0009 BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0016  NU UP EI PL NZ NA PE NC
076A:0016 F7E3      MUL     BX
-t

AX=001B BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0018  NU UP EI PL NZ NA PE NC
076A:0018 A30E00    MOV     [000E],AX      DS:000E=0000
-

DOS
BOX DOSBox 0.74-3, Cpu speed: 3000 cycles, Fram...
AX=001B BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0000 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=001B  NU UP EI PL NZ NA PE NC
076A:001B BE1800    MOV     SI,0018
-t

AX=001B BX=0003 CX=003A DX=0000 SP=0000 BP=0000 SI=0018 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=001E  NU UP EI PL NZ NA PE NC
076A:001E 8B1C      MOV     BX,[SI]      DS:0018=0005
-t

AX=001B BX=0005 CX=003A DX=0000 SP=0000 BP=0000 SI=0018 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0020  NU UP EI PL NZ NA PE NC
076A:0020 F7F3      DIV     BX
-t

AX=0005 BX=0005 CX=003A DX=0002 SP=0000 BP=0000 SI=0018 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0022  NU UP EI PL NZ NA PE NC
076A:0022 A31000    MOV     [0010],AX      DS:0010=0000
-t

AX=0005 BX=0005 CX=003A DX=0002 SP=0000 BP=0000 SI=0018 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0025  NU UP EI PL NZ NA PE NC
076A:0025 89161200  MOV     [0012],DX      DS:0012=0000
-
```

```
AX=0005 BX=0005 CX=003A DX=0002 SP=0000 BP=0000 SI=0018 DI=0000
DS=076C ES=075A SS=0769 CS=076A IP=0029  NU UP EI PL NZ NA PE NC
076A:0029 F4          HLT
-d a 12
076C:0000                                0C 00 09 00 1B 00      .....
076C:0010 05 00 02                                ...
-
```