


COAL LAB TASKS 7

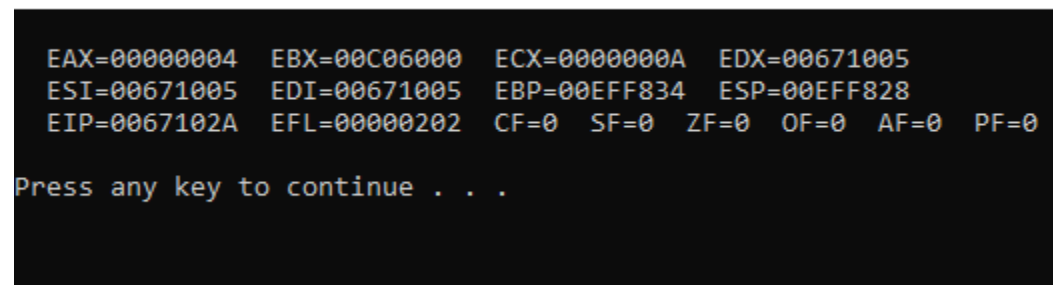
Task 1:

Code:

```
INCLUDE Irvine32.inc
.data
table DWORD 4
.code
main PROC
mov eax, table
mov ecx, 10
PUSHAD
One:
    mov ebp, esp
    mov eax, [ebp + 28]
    mul ecx
Loop One
POPAD
call DumpRegs
exit
main ENDP
END main
```

Screenshot:

 C:\WINDOWS\system32\cmd.exe



```
EAX=00000004  EBX=00C06000  ECX=0000000A  EDX=00671005
ESI=00671005  EDI=00671005  EBP=00EFF834  ESP=00EFF828
EIP=0067102A  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

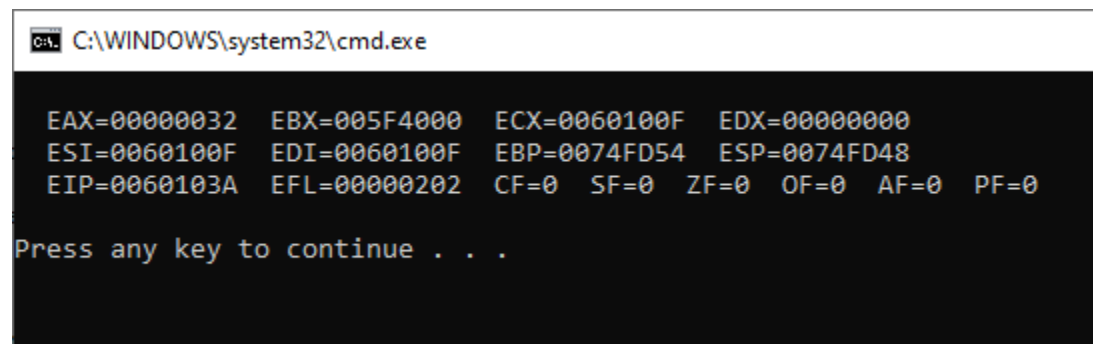
Press any key to continue . . .
```

Task 2:

Code:

```
INCLUDE Irvine32.inc
.data
val1 DWORD 10
val2 DWORD 5
addi DWORD ?
subt DWORD ?
mult DWORD ?
.code
main PROC
mov eax, 0
mov ebx, 0
call AddTwo
call DumpRegs
exit
main ENDP
AddTwo PROC
    mov eax, val1
    add eax, val2
    mov addi, eax
    call SubTwo
    ret
AddTwo ENDP
SubTwo PROC
    mov eax, val1
    sub eax, val2
    mov subt, eax
    call MulTwo
    ret
SubTwo ENDP
MulTwo PROC
    mov eax, val1
    mul val2
    mov mult, eax
    ret
MulTwo ENDP
END main
```

Screenshot:



A screenshot of a Windows command prompt window. The title bar shows the path "C:\WINDOWS\system32\cmd.exe". The window has a black background with white text. It displays the state of CPU registers after assembly execution: EAX=00000032, EBX=005F4000, ECX=0060100F, EDX=00000000, ESI=0060100F, EDI=0060100F, EBP=0074FD54, ESP=0074FD48, EIP=0060103A, EFL=00000202, CF=0, SF=0, ZF=0, OF=0, AF=0, PF=0. Below the register dump, it says "Press any key to continue . . .".

```
C:\WINDOWS\system32\cmd.exe

EAX=00000032  EBX=005F4000  ECX=0060100F  EDX=00000000
ESI=0060100F  EDI=0060100F  EBP=0074FD54  ESP=0074FD48
EIP=0060103A  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

Press any key to continue . . .
```

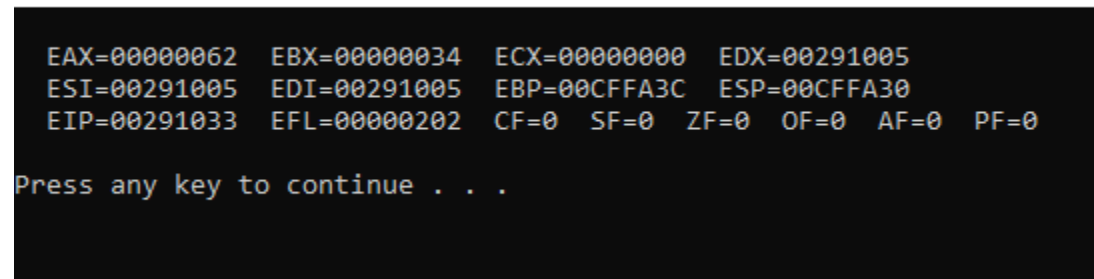
Task 3:

Code:

```
INCLUDE Irvine32.inc
.data
.code
main PROC
mov eax, 70h
mov ebx, 50h
mov ecx, 7
One:
    sub eax, 2
    PUSH ecx
    mov ecx, 4
    Two:
        DEC ebx
    Loop two
    POP ecx
Loop One
call DumpRegs
exit
main ENDP
END main
```

Screenshot:

C:\WINDOWS\system32\cmd.exe



```
EAX=00000062  EBX=00000034  ECX=00000000  EDX=00291005
ESI=00291005  EDI=00291005  EBP=00CFFA3C  ESP=00CFFA30
EIP=00291033  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

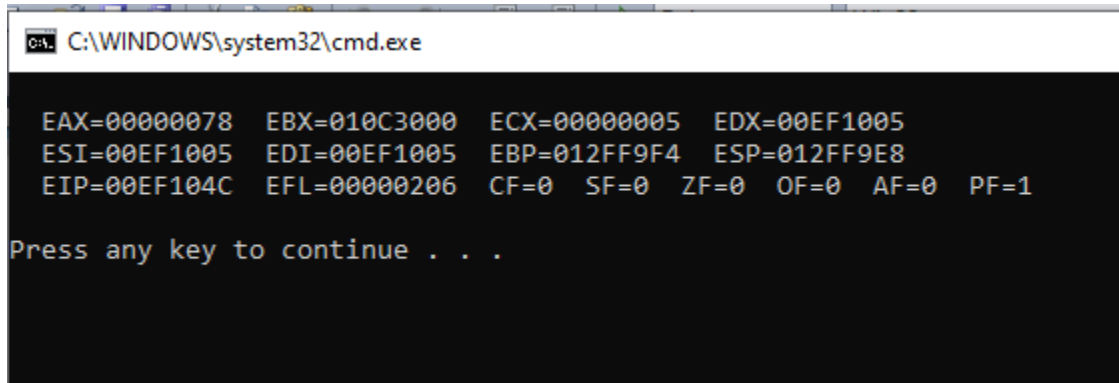
Press any key to continue . . .
```

Task 4:

Code:

```
INCLUDE Irvine32.inc
.data
fact WORD 5h
Res WORD 1h
.code
main PROC
mov eax, 0
mov ecx, 0
mov cx, fact
PUSHA
mov ebp, esp
mov esi, [ebp + 4]
mov ax, [ebp + 28]
mov cx, [ebp + 24]
F:
    mov eax, ecx
    mul Res
    mov Res, ax
Loop F
POPA
mov ax, Res
call DumpRegs
exit
main ENDP
END main
```

Screenshot:



```
C:\WINDOWS\system32\cmd.exe

EAX=00000078  EBX=010C3000  ECX=00000005  EDX=00EF1005
ESI=00EF1005  EDI=00EF1005  EBP=012FF9F4  ESP=012FF9E8
EIP=00EF104C  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1

Press any key to continue . . .
```