

COAL LAB TASK (HOME)

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TASK 1:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

.data
    mark1 WORD 45
    mark2 WORD 35

.code
main proc
    mov AX, mark1
    add AX, mark2

    movzx EAX, AX
    call WriteDec

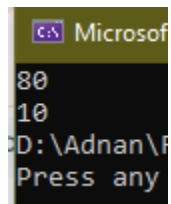
    call Crlf

    mov AX, mark1
    sub AX, mark2

    movzx EAX, AX
    call WriteDec

    exit
main ENDP
END main
```

Output:



```
C:\N Microsoft
80
10
C:\D:\Adnan\>
Press any
```

TASK 2:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

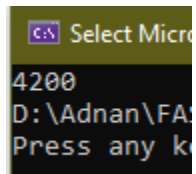
.data
    accountBalance WORD 5000

.code
main proc
    mov AX, accountBalance
    add AX, 1200
    sub AX, 2000

    movzx EAX, AX
    call WriteDec

    exit
main ENDP
END main
```

Output:



The screenshot shows a Windows command prompt window with a title bar that says "Select Micro...". The window content displays the output of the assembly program: the value 4200, the path D:\Adnan\FAS, and the prompt "Press any k".

```
Select Micro
4200
D:\Adnan\FAS
Press any k
```

TASK 3:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

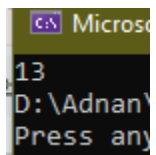
.data
    dayTemp WORD 30
    nightTemp WORD 18

.code
main proc
    mov AX, dayTemp
    sub AX, nightTemp
    INC AX

    movzx EAX, AX
    call WriteDec

    exit
main ENDP
END main
```

Output:



C:\> Microso
13
D:\Adnan\
Press any

TASK 4:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

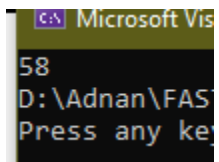
.data
    items WORD 50

.code
main proc
    mov AX, items
    sub AX, 7
    add AX, 15

    movzx EAX, AX
    call WriteDec

exit
main ENDP
END main
```

Output:



The screenshot shows a console window with a title bar that reads "Microsoft Vis". The window contains the following text: "58", "D:\Adnan\FAS", and "Press any ke".

TASK 5:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

.data
    var SBYTE -10

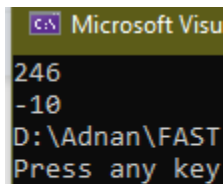
.code
main proc
    mov AL, var
    movzx AX, AL
    movzx EAX, AX
    call WriteDec

    call Crlf

    mov AL, var
    movsx EAX, AL
    call WriteInt

    exit
main ENDP
END main
```

Output:



```
Microsoft Visual Studio
246
-10
D:\Adnan\FAST
Press any key
```

TASK 6:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

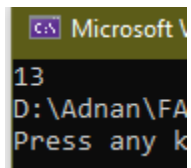
.data
    var DWORD 10

.code
main proc
    INC var
    INC var
    INC var

    mov EAX, var
    call WriteDec

    exit
main ENDP
END main
```

Output:



Microsoft Visual Studio
13
D:\Adnan\FAT
Press any key to continue

TASK 7:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

PI = 3

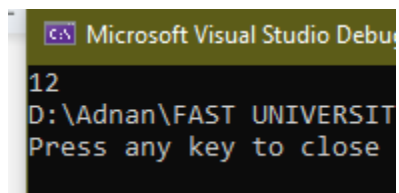
.data

.code
main proc

    mov EAX, 4
    IMUL EAX, PI
    call WriteDec

    exit
main ENDP
END main
```

Output:



The screenshot shows the Microsoft Visual Studio Debug Console. The title bar reads "Microsoft Visual Studio Debug Console". The console output displays the number "12" on the first line, followed by the directory path "D:\Adnan\FAST UNIVERSITY" on the second line, and the prompt "Press any key to close" on the third line.

TASK 8:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

.data
.code
main proc

    mov AX, 10
    mov BX, 20

    XCHG AX, BX

exit
main ENDP
END main
```

TASK 9:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

SecondsInDay = (20 * 60 * 60)

.data
.code
main proc

    mov EAX, SecondsInDay
    call WriteDec

exit
main ENDP
END main
```

TASK 10:

Code:

```
TITLE "24K-0656 Adnan"  
INCLUDE Irvine32.inc
```

```
.data
```

```
    A DWORD 0ff10h
```

```
    B DWORD 0E10Bh
```

```
.code
```

```
main proc
```

```
    mov EAX, A
```

```
    XCHG EAX, B
```

```
    mov A, EAX
```

```
    exit
```

```
main ENDP
```

```
END main
```

TASK 11:

Code:

```
TITLE "24K-0656 Adnan"
INCLUDE Irvine32.inc

.data
val1 BYTE 10h
val2 WORD 8000h
val3 DWORD 0FFFFh
val4 WORD 7FFFh
msg1 BYTE "After incrementing val2: ", 0
msg2 BYTE "After subtracting val3 from EAX: ", 0
msg3 BYTE "After subtracting val4 from val2: ", 0
msg4 BYTE "Value of BL after moving val1: ", 0

.code
main proc
    INC val2
    movzx EAX, val2
    mov EBX, OFFSET msg1
    call WriteString
    call WriteHex

    call CrLf

    sub EAX, val3
    mov EBX, OFFSET msg2
    call WriteString
    call WriteHex
    call CrLf

    mov AX, val2
    sub AX, val4
    movzx EAX, AX
    mov EBX, OFFSET msg3
    call WriteString
    call WriteDec
    call CrLf

    mov BL, val1
    mov EBX, OFFSET msg4
    call WriteString
    call WriteHex
    call CrLf

    exit
main ENDP
END main
```

✓ No issues found

Output:

```
Microsoft Visual Studio Debug Console

After incrementing val2: 00008001
After subtracting val3 from EAX: FFFF8002
After subtracting val4 from val2: 2
Value of BL after moving val1: 00000002

D:\Adnan\FAST UNIVERSITY\Semester 3\COAL Lab
Press any key to close this window . . .
```