

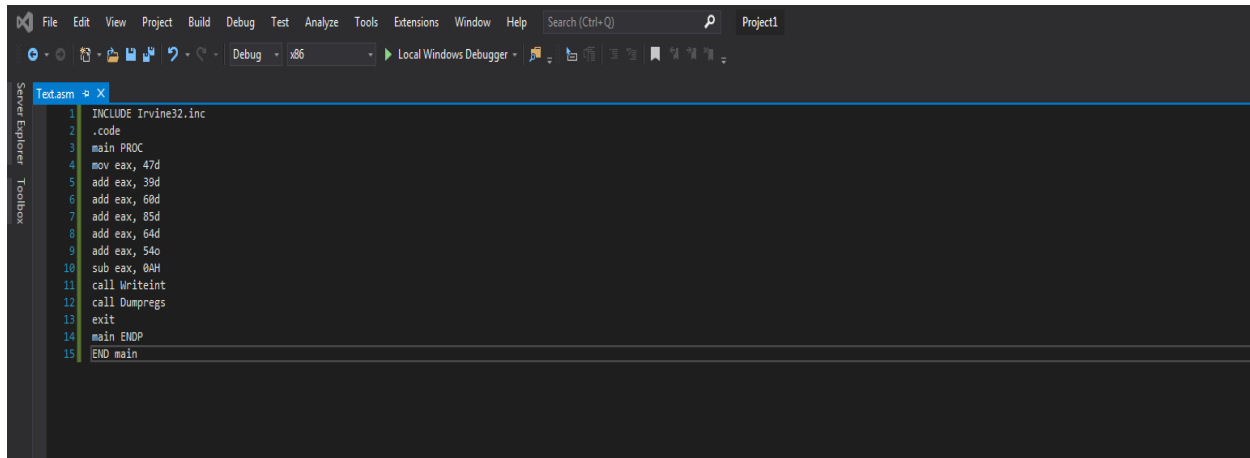
LAB TASK # 02

MOHAMMAD BASIL ALI KHAN

20K-0477

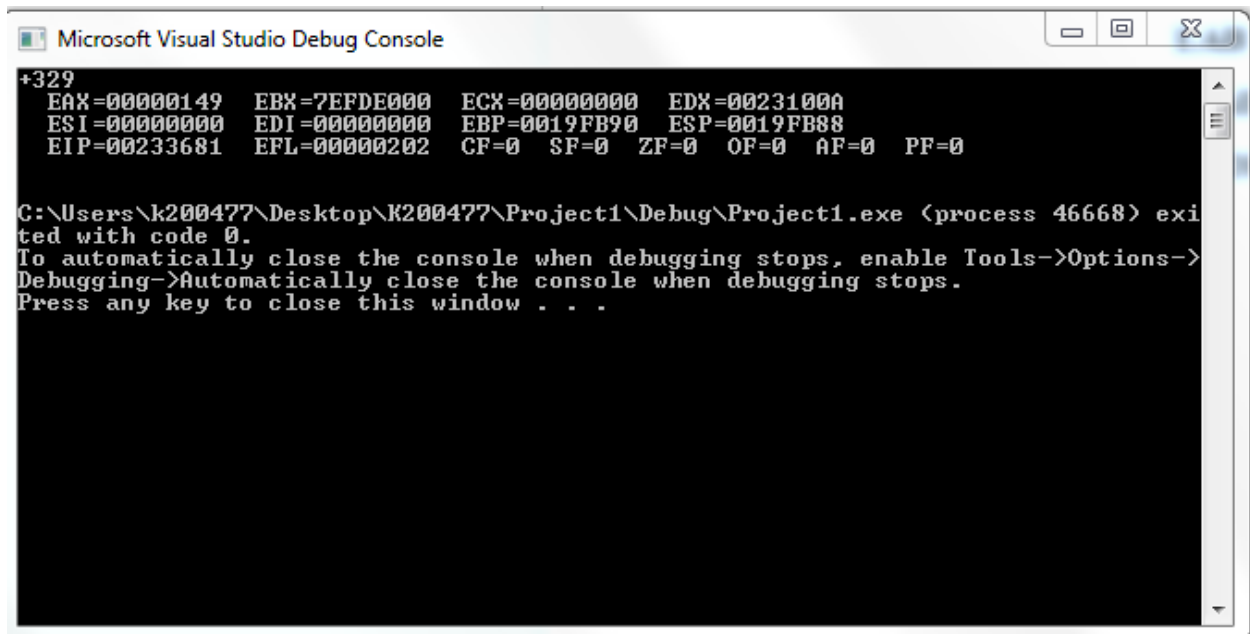
Equation # 01:

- Code



```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4 mov eax, 47d
5 add eax, 39d
6 add eax, 60d
7 add eax, 85d
8 add eax, 64d
9 add eax, 540
10 sub eax, 04H
11 call WriteInt
12 call DumpRegs
13 exit
14 main ENDP
15 END main
```

- Output

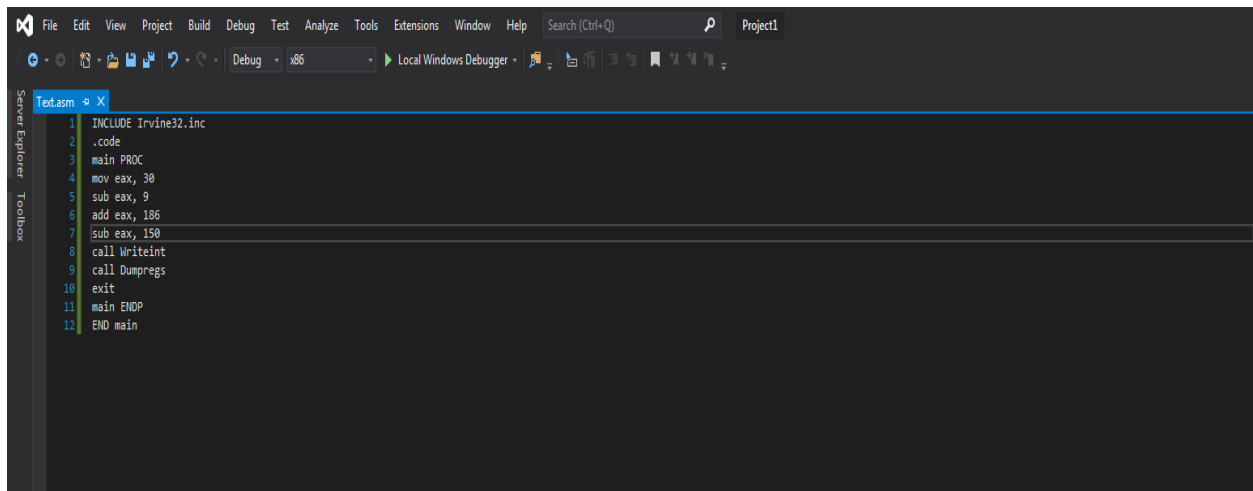


```
+329
EAX=00000149 EBX=7EFDE000 ECX=00000000 EDX=00231000
ESI=00000000 EDI=00000000 EBP=0019FB90 ESP=0019FB88
EIP=00233681 EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0

C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 46668) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

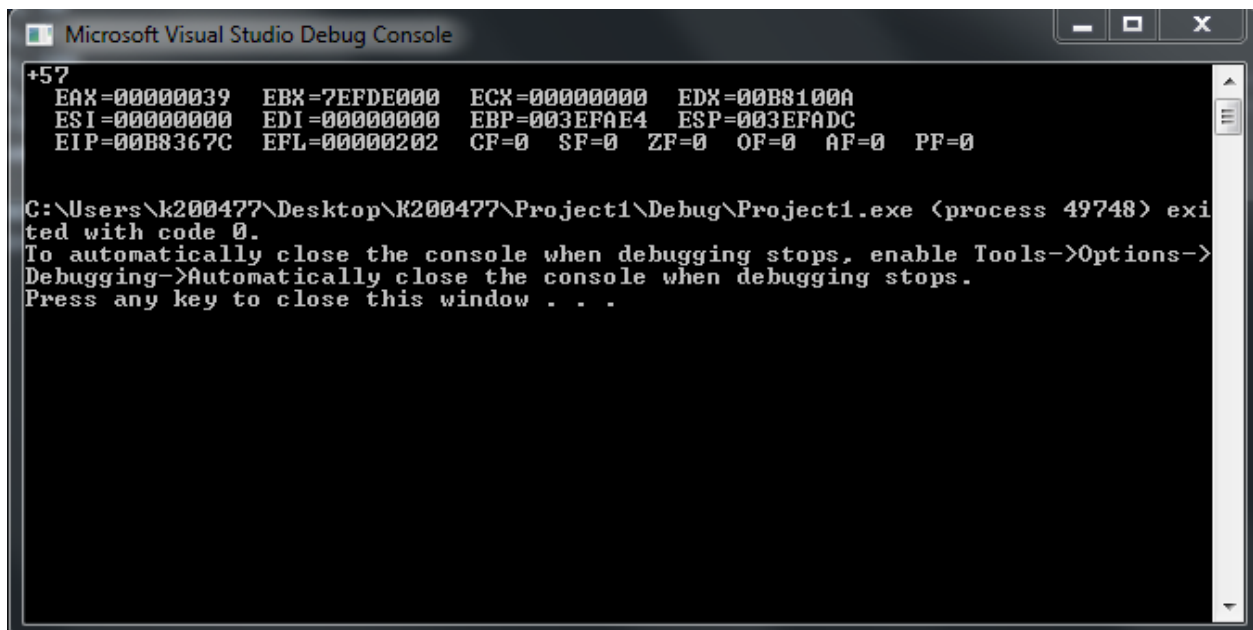
Equation # 02:

- Code



```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4 mov eax, 30
5 sub eax, 9
6 add eax, 186
7 sub eax, 150
8 call Writeint
9 call Dumpregs
10 exit
11 main ENDP
12 END main
```

- Output



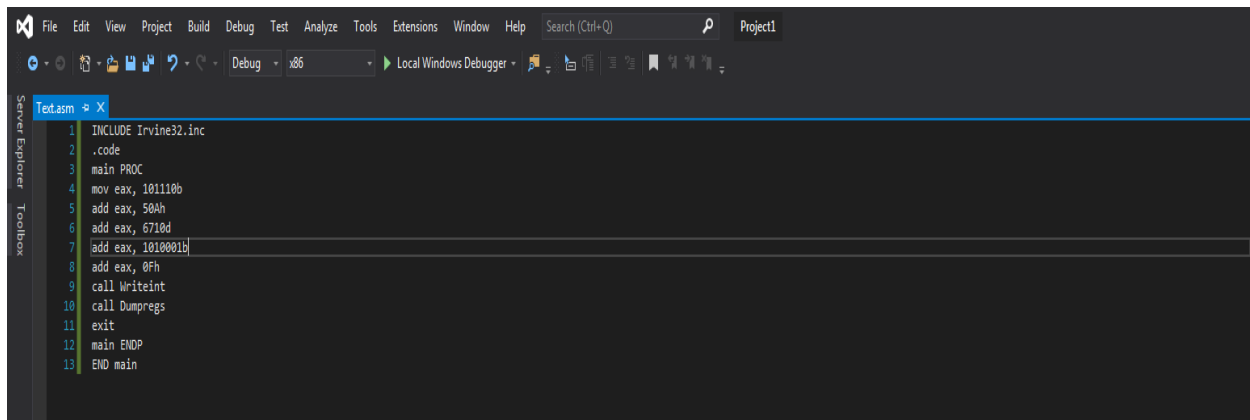
```
Microsoft Visual Studio Debug Console

+5?
EAX=00000039  EBX=7EFDE000  ECK=00000000  EDX=00B8100A
ESI=00000000  EDI=00000000  EBP=003EFAE4  ESP=003EFADC
EIP=00B8367C  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 49748) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Equation # 03:

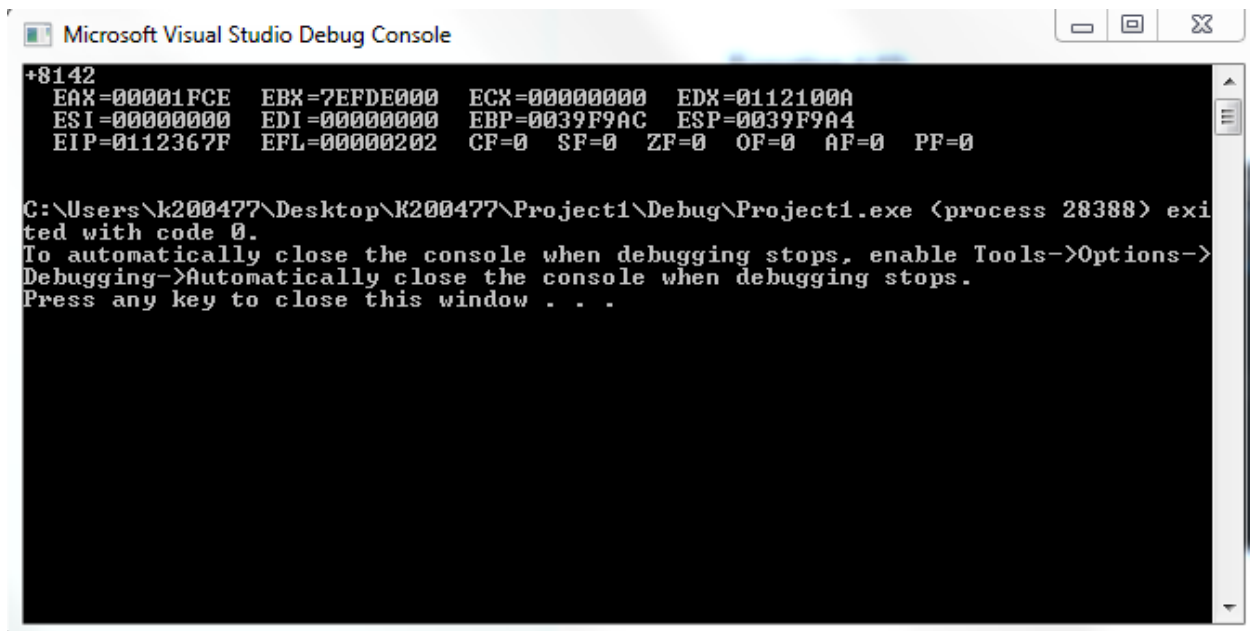
- Code



The screenshot shows the Visual Studio Code editor with a file named 'Textasm.asm' open. The code is written in assembly language and includes Irvine32.inc. The main procedure contains several instructions: moving a value to EAX, adding 50Ah, 6710d, and 1010001b to EAX, adding 0fh, calling WriteInt and DumpRegs, and finally exiting. The code is as follows:

```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4 mov eax, 101110b
5 add eax, 50Ah
6 add eax, 6710d
7 add eax, 1010001b
8 add eax, 0fh
9 call WriteInt
10 call DumpRegs
11 exit
12 main ENDP
13 END main
```

- Output



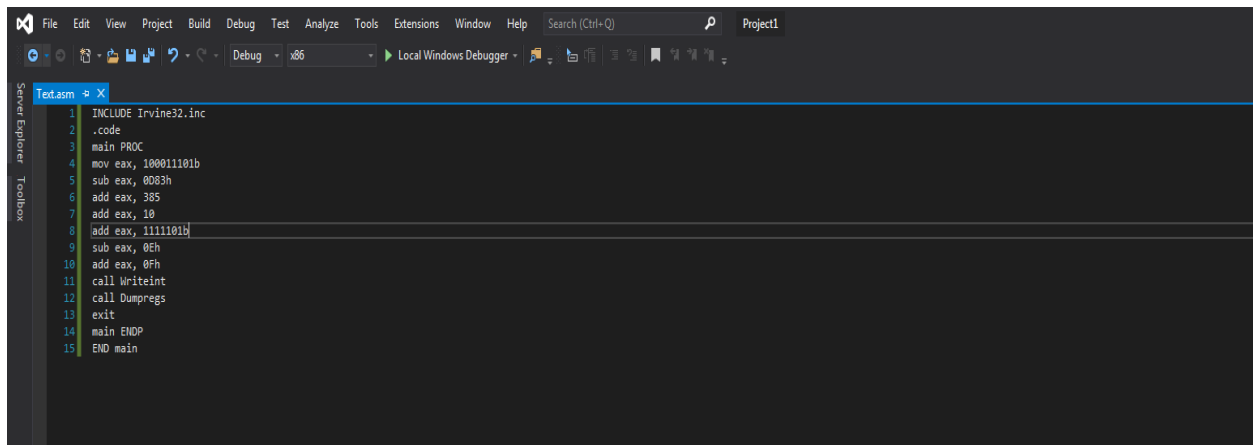
The screenshot shows the Microsoft Visual Studio Debug Console. It displays the memory addresses and values of the registers at the time of the program's exit. The output is as follows:

```
+8142
EAX=00001FCE EBX=7EFDE000 ECX=00000000 EDX=0112100A
ESI=00000000 EDI=00000000 EBP=0039F9AC ESP=0039F9A4
EIP=0112367F EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0

C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe <process 28388> exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Equation # 04:

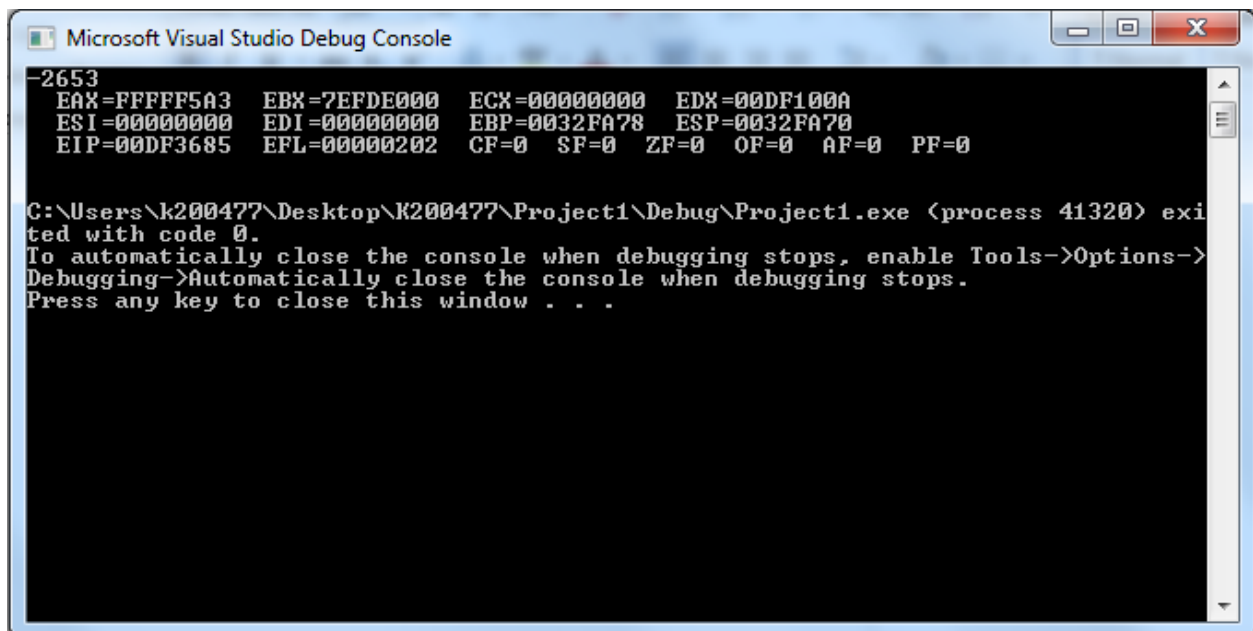
- Code



The screenshot shows the Visual Studio Code editor interface. The menu bar includes File, Edit, View, Project, Build, Debug, Test, Analyze, Tools, Extensions, Window, and Help. The status bar at the bottom indicates 'Debug' mode and 'x86' architecture. The 'Local Windows Debugger' is selected. The 'Textasm' file is open, displaying the following assembly code:

```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4     mov eax, 100011101b
5     sub eax, 0083h
6     add eax, 385
7     add eax, 10
8     add eax, 1111101b
9     sub eax, 0Fh
10    add eax, 0Fh
11    call Writeint
12    call Dumpregs
13    exit
14 main ENDP
15 END main
```

- Output



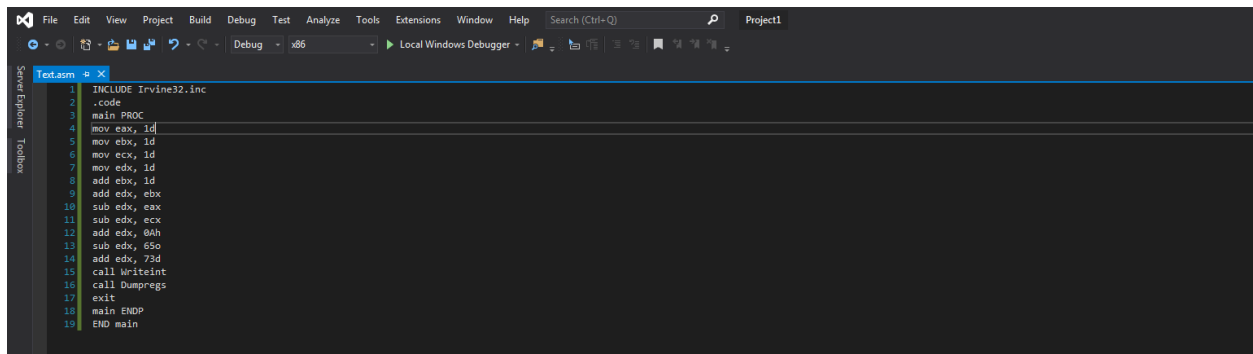
The screenshot shows the Microsoft Visual Studio Debug Console window. The title bar reads 'Microsoft Visual Studio Debug Console'. The console output is as follows:

```
-2653
EAX=FFFFFF5A3  EBX=7EFDE000  ECX=00000000  EDX=00DF100A
ESI=00000000  EDI=00000000  EBP=0032FA78  ESP=0032FA70
EIP=00DF3685  EFL=00000020  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 41320) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

Equation # 05:

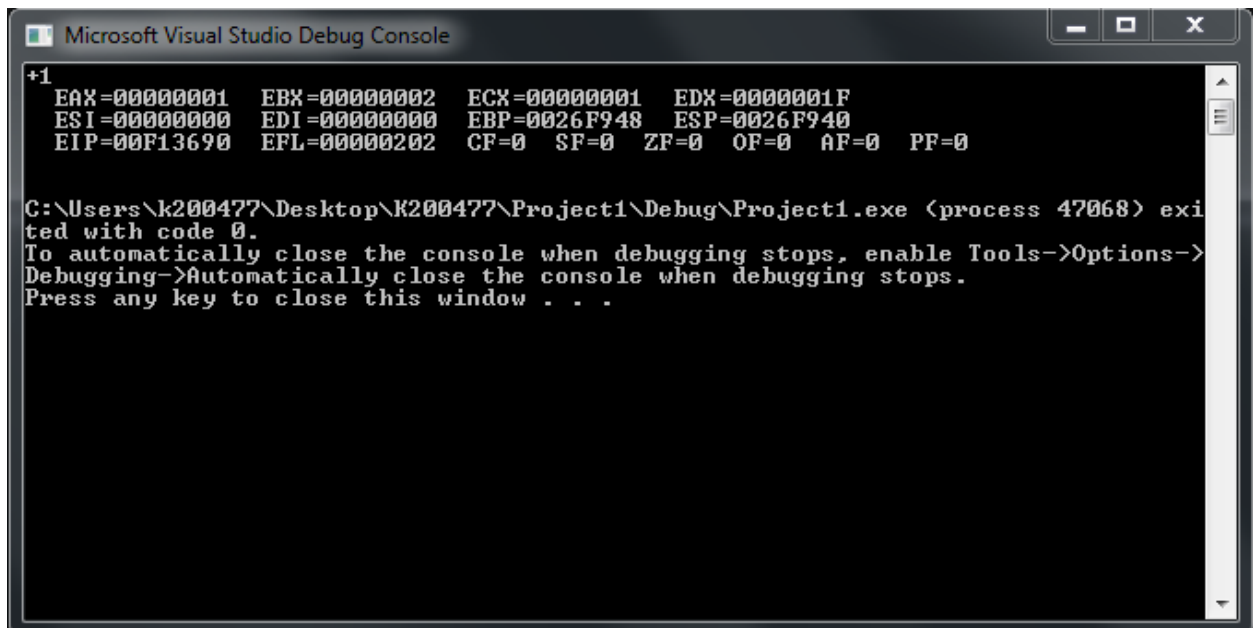
- Code



The screenshot shows the Visual Studio Code editor with a file named 'Test.asm' open. The code is written in assembly language and includes the Irvine32.inc header. The main procedure contains several instructions: moving 1d into eax, ebx, ecx, and edx; adding ebx to edx; subtracting eax from edx; subtracting ecx from edx; adding 0Ah to edx; subtracting 650 from edx; adding 73d to edx; calling Writeint; calling Dumpregs; and finally exiting the program. The code is as follows:

```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4     mov eax, 1d
5     mov ebx, 1d
6     mov ecx, 1d
7     mov edx, 1d
8     add ebx, 1d
9     add edx, ebx
10    sub edx, eax
11    sub edx, ecx
12    add edx, 0Ah
13    sub edx, 650
14    add edx, 73d
15    call Writeint
16    call Dumpregs
17    exit
18 main ENDP
19 END main
```

- Output



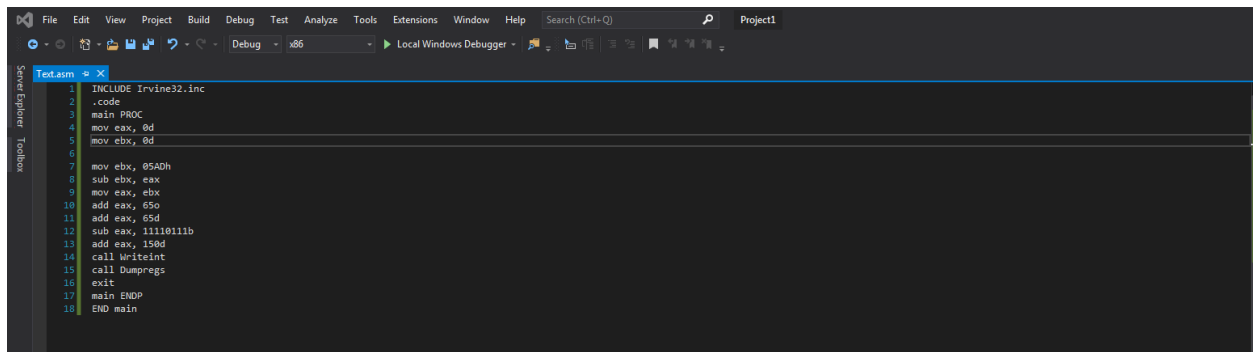
The screenshot shows the Microsoft Visual Studio Debug Console. The output displays the register values at the start of the program (address +1) and the exit message. The register values are:

Register	Value
EAX	00000001
EBX	00000002
ECX	00000001
EDX	0000001F
ESI	00000000
EDI	00000000
EBP	0026F948
ESP	0026F940
EIP	00F13690
EFL	00000202
CF	0
SF	0
ZF	0
OF	0
AF	0
PF	0

The output also shows the exit message: "C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 47068) exited with code 0. To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops. Press any key to close this window . . .".

Equation # 06:

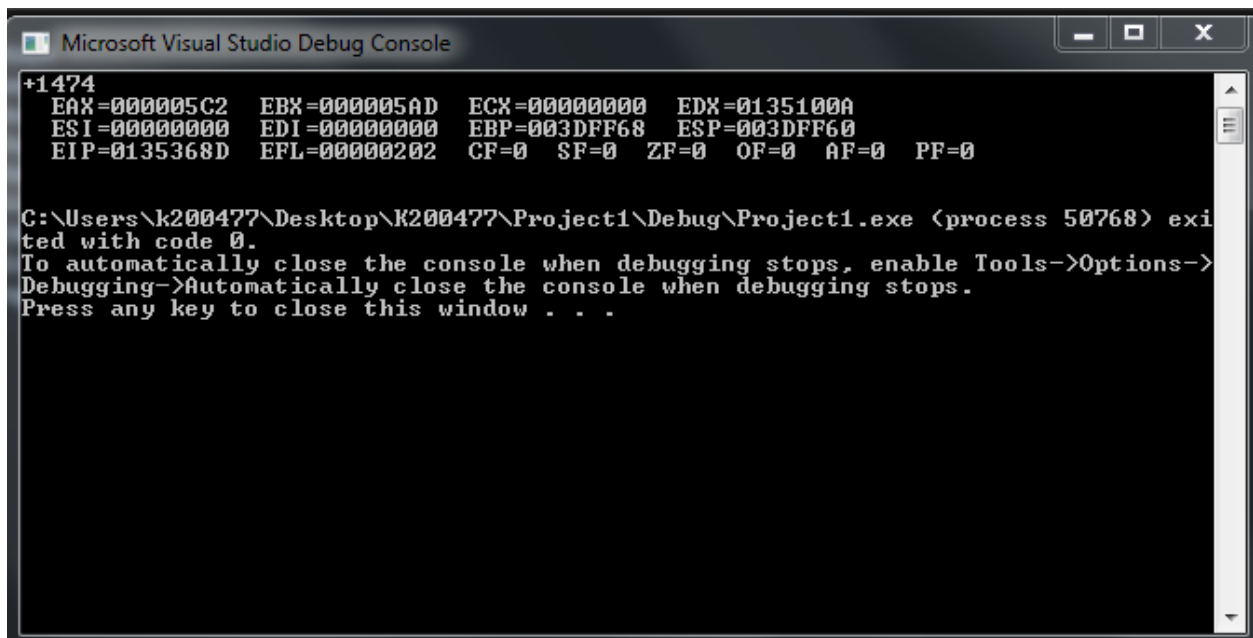
- Code



The screenshot shows the Visual Studio code editor with a file named 'Test.asm' open. The code is written in assembly language and includes Irvine32.inc. The main procedure starts with 'mov eax, 0d' and 'mov ebx, 0d', followed by several arithmetic operations on ebx and eax, including subtraction and addition of constants. It then calls 'Writeint' and 'Dumpregs' before exiting with 'exit' and 'END main'.

```
1 INCLUDE Irvine32.inc
2 .code
3 main PROC
4     mov eax, 0d
5     mov ebx, 0d
6
7     mov ebx, 05ADh
8     sub ebx, eax
9     mov eax, ebx
10    add eax, 650
11    add eax, 65d
12    sub eax, 1111011b
13    add eax, 150d
14    call Writeint
15    call Dumpregs
16    exit
17 main ENDP
18 END main
```

- Output



The screenshot shows the Microsoft Visual Studio Debug Console. At the top, it displays the address '+1474'. Below this, it lists the values of various registers: EAX=000005C2, EBX=000005AD, ECX=00000000, EDX=0135100A, ESI=00000000, EDI=00000000, EBP=003DFF68, ESP=003DFF60, EIP=0135368D, EFL=00000202, CF=0, SF=0, ZF=0, OF=0, AF=0, PF=0. The console also shows the message 'C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 50768) exited with code 0.' and instructions on how to automatically close the console when debugging stops.

```
+1474
EAX=000005C2  EBX=000005AD  ECX=00000000  EDX=0135100A
ESI=00000000  EDI=00000000  EBP=003DFF68  ESP=003DFF60
EIP=0135368D  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0

C:\Users\k200477\Desktop\K200477\Project1\Debug\Project1.exe (process 50768) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```