LAB 01

COMPUTER ORGANIZATION

AND ASSEMBLY LANG(COAL)

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STUDENT NAME   ROLL NO   SEC

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SIGNATURE & DATE

MARKS AWARDED: _____

_____

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES
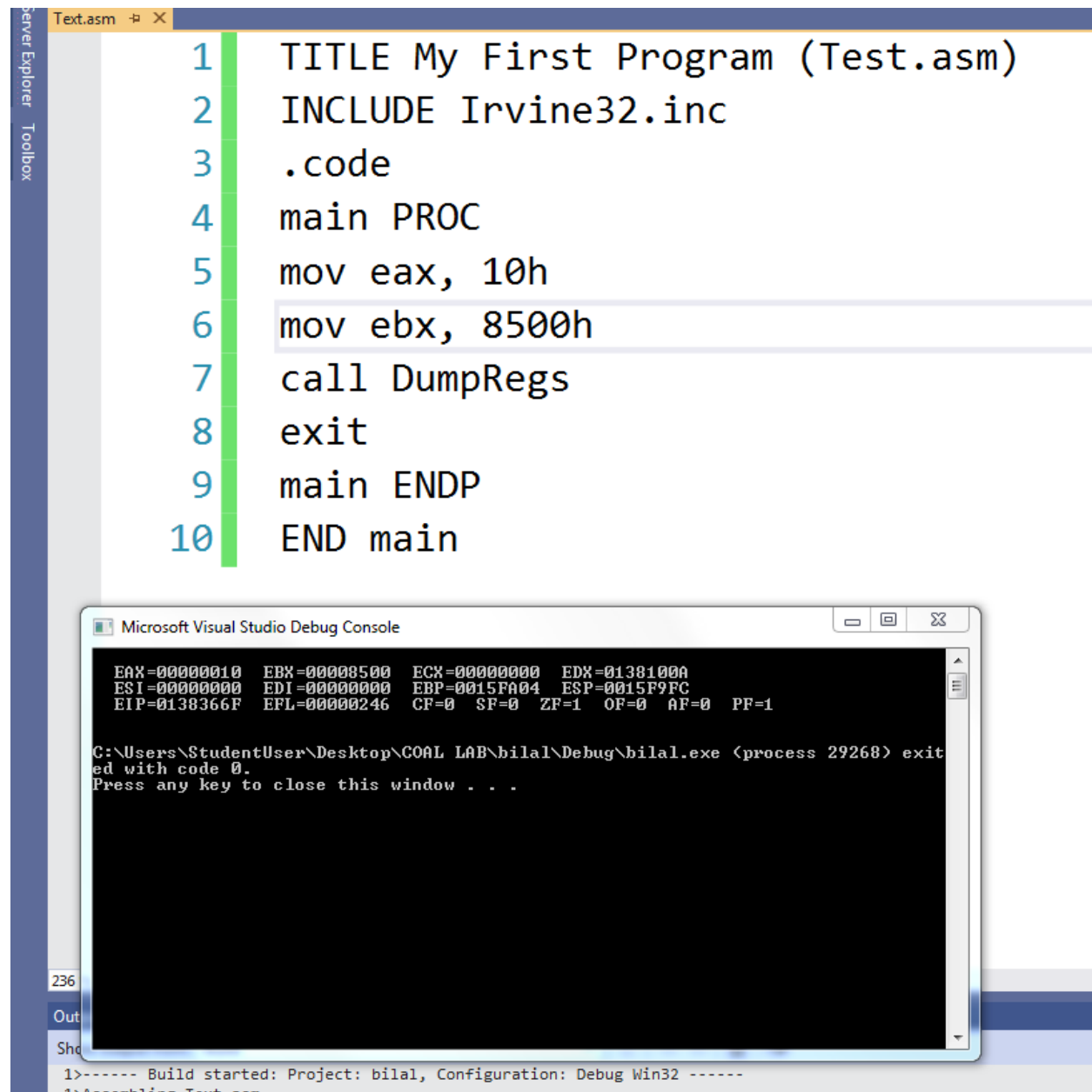
(NUCES), KARACHI

Prepared by: Engr. Muhammad Kariz Kamal

Version: 1.0

Date:

Task 3:

Run a test program in console window by changing the value of EAX in line 6 to 8500h.

```
Text.asm  ↵ X
1    TITLE My First Program (Test.asm)
2    INCLUDE Irvine32.inc
3    .code
4    main PROC
5    mov eax, 10h
6    mov ebx, 8500h
7    call DumpRegs
8    exit
9    main ENDP
10   END main
```

```
Microsoft Visual Studio Debug Console                                    ☐ ☐ ☒

  EAX=00000010  EBX=00008500  ECX=00000000  EDX=0138100A
  ESI=00000000  EDI=00000000  EBP=0015FA04  ESP=0015F9FC
  EIP=0138366F  EFL=00000246  CF=0  SF=0  ZF=1  OF=0  AF=0  PF=1

C:\Users\StudentUser\Desktop\COAL LAB\bilal\Debug\bilal.exe (process 29268) exit
ed with code 0.
Press any key to close this window . . .
```
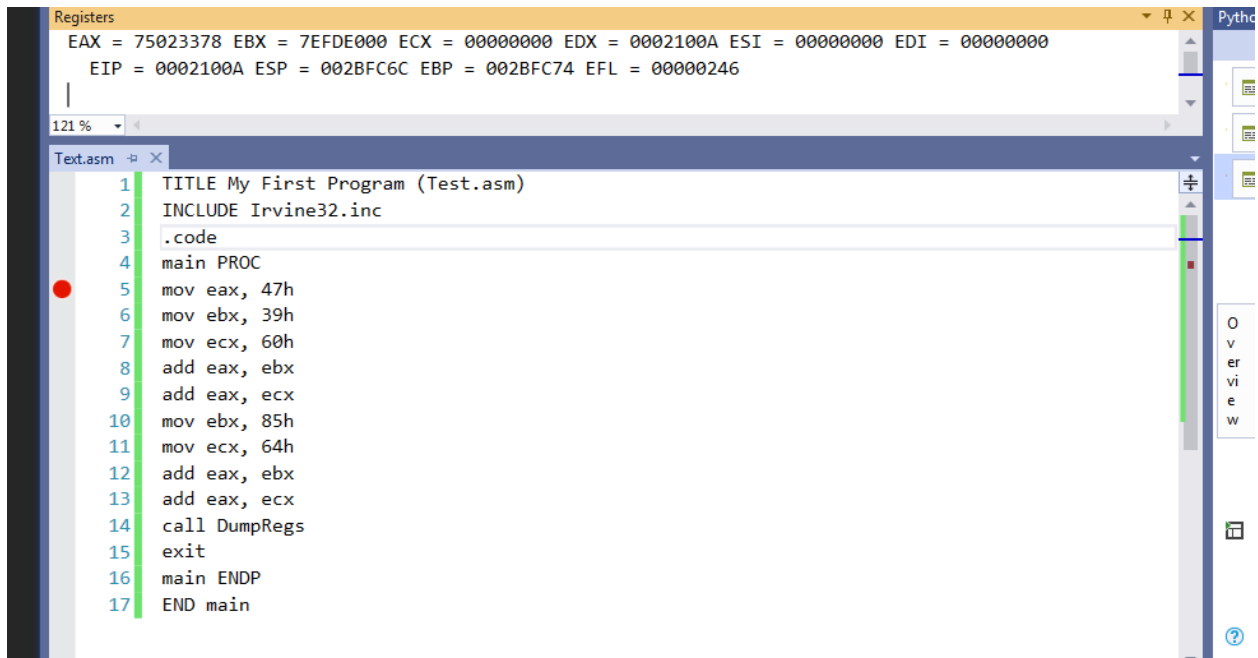
```
236
Out
Sho
1>------ Build started: Project: bilal, Configuration: Debug Win32 ------
1>Assembling Text.asm
```

Task 4:

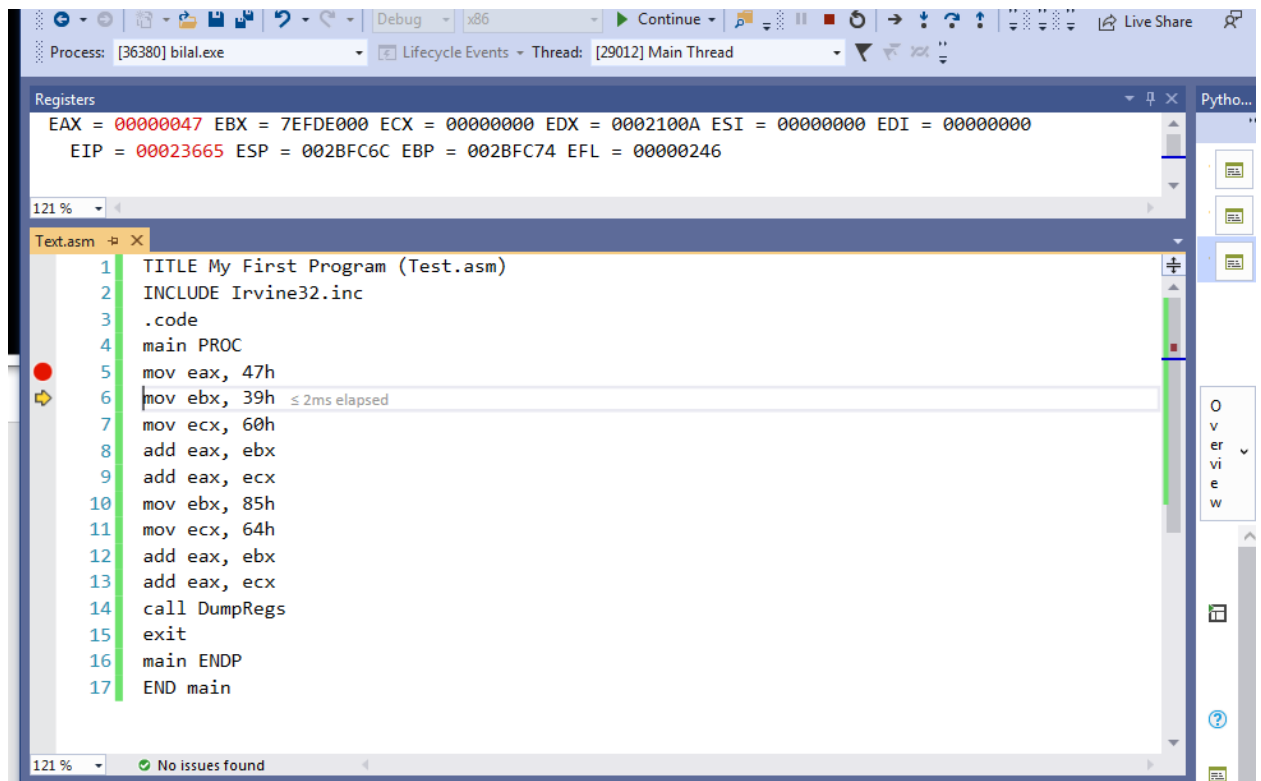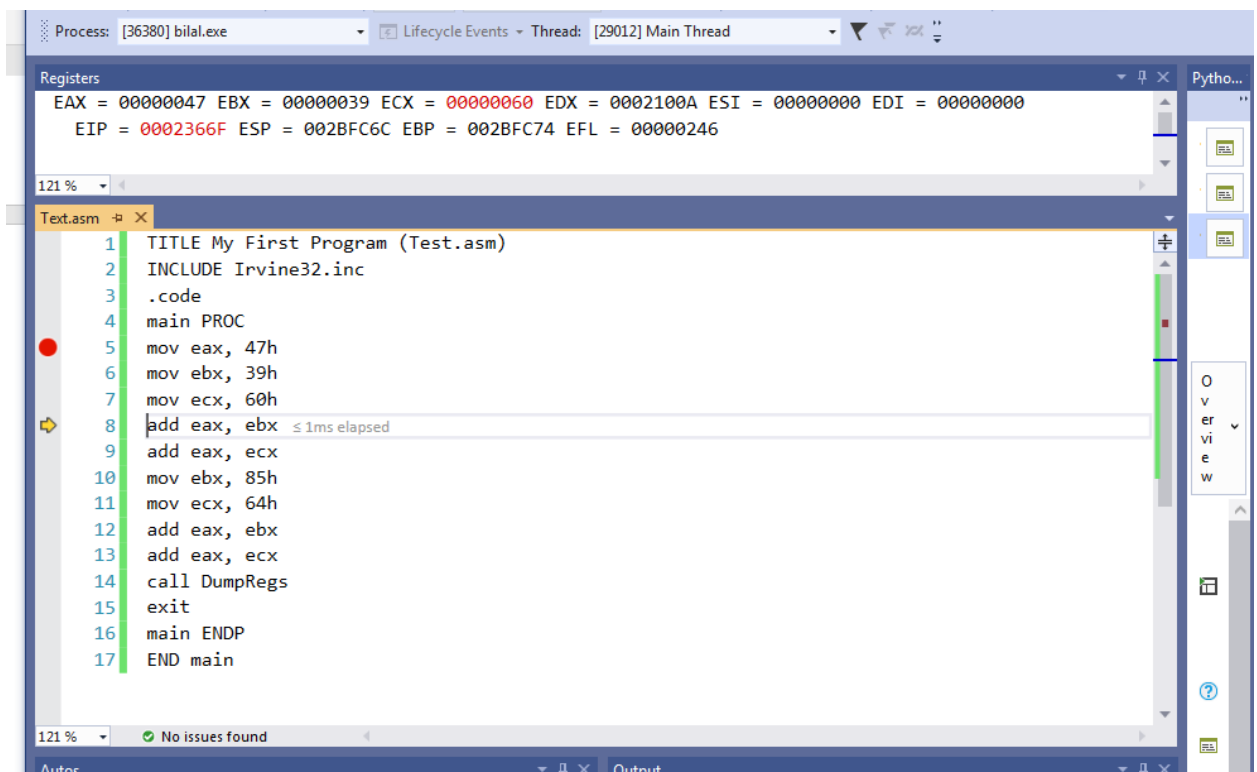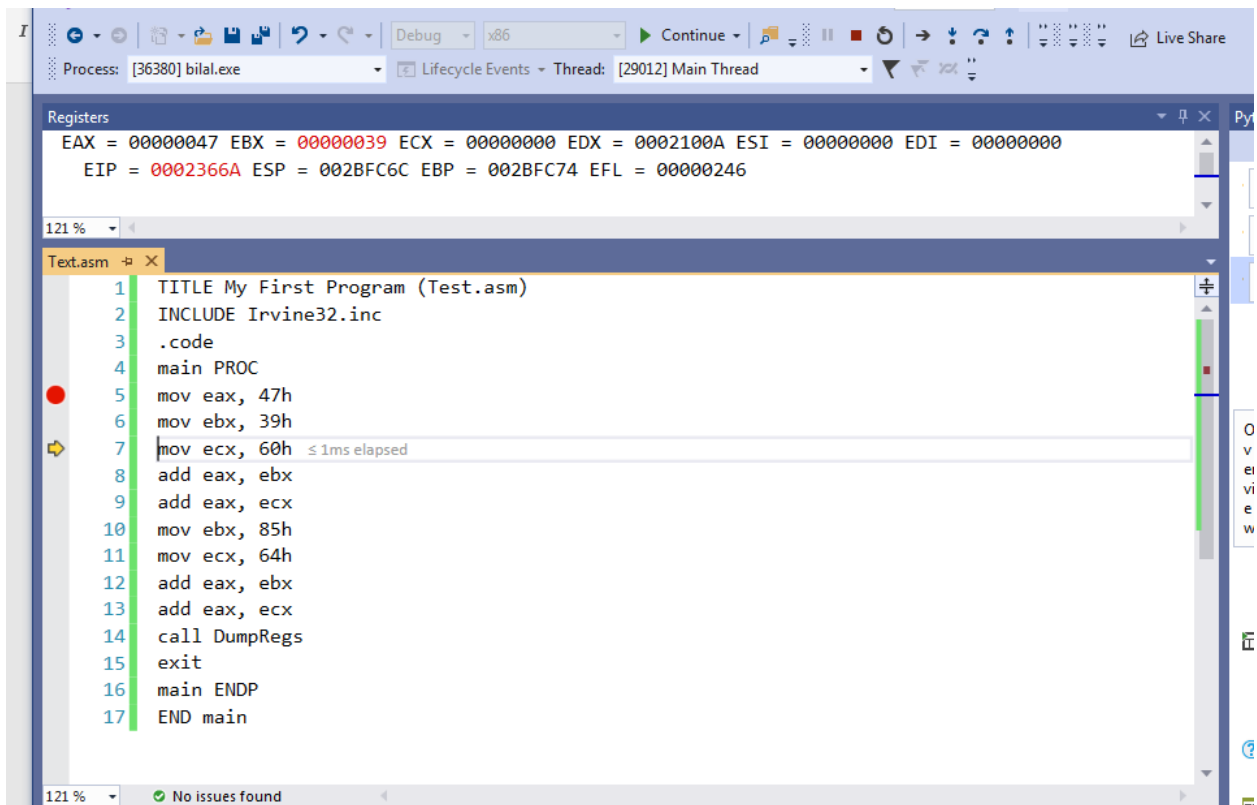Debug the below program and note down the values of all the registers after the execution of each

line.


```
Registers                                                                                    ▼ ⏸ ✕   Pytho
  EAX = 75023378 EBX = 7EFDE000 ECX = 00000000 EDX = 0002100A ESI = 00000000 EDI = 00000000
    EIP = 0002100A ESP = 002BFC6C EBP = 002BFC74 EFL = 00000246

121%
```

```
Text.asm
     1    TITLE My First Program (Test.asm)
     2    INCLUDE Irvine32.inc
     3    .code
     4    main PROC
●    5    mov eax, 47h
     6    mov ebx, 39h
     7    mov ecx, 60h
     8    add eax, ebx
     9    add eax, ecx
    10    mov ebx, 85h
    11    mov ecx, 64h
    12    add eax, ebx
    13    add eax, ecx
    14    call DumpRegs
    15    exit
    16    main ENDP
    17    END main
```



```
Process: [36380] bilal.exe          Lifecycle Events ▾ Thread: [29012] Main Thread
```

```
Registers                                                                                    ▼ ⏸ ✕   Pytho...
  EAX = 00000047 EBX = 7EFDE000 ECX = 00000000 EDX = 0002100A ESI = 00000000 EDI = 00000000
    EIP = 00023665 ESP = 002BFC6C EBP = 002BFC74 EFL = 00000246

121%
```

```
Text.asm
     1    TITLE My First Program (Test.asm)
     2    INCLUDE Irvine32.inc
     3    .code
     4    main PROC
●    5    mov eax, 47h
⇨    6    mov ebx, 39h   ≤ 2ms elapsed
     7    mov ecx, 60h
     8    add eax, ebx
     9    add eax, ecx
    10    mov ebx, 85h
    11    mov ecx, 64h
    12    add eax, ebx
    13    add eax, ecx
    14    call DumpRegs
    15    exit
    16    main ENDP
    17    END main
```

```
121%        ⊘ No issues found
```

Registers

EAX = 00000047 EBX = 00000039 ECX = 00000000 EDX = 0002100A ESI = 00000000 EDI = 00000000
EIP = 0002366A ESP = 002BFC6C EBP = 002BFC74 EFL = 00000246

121 %

Text.asm

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h   ≤ 1ms elapsed
 8    add eax, ebx
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx
14    call DumpRegs
15    exit
16    main ENDP
17    END main
```

121 %   ✓ No issues found

Registers

EAX = 00000047 EBX = 00000039 ECX = 00000060 EDX = 0002100A ESI = 00000000 EDI = 00000000
EIP = 0002366F ESP = 002BFC6C EBP = 002BFC74 EFL = 00000246

121 %

Text.asm

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx   ≤ 1ms elapsed
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx
14    call DumpRegs
15    exit
16    main ENDP
17    END main
```

121 %   ✓ No issues found

Autos   Output

Process: [36380] bilal.exe   Lifecycle Events   Thread: [29012] Main Thread

Debug   x86   ▶ Continue   Live Share

```
EAX = 00000080 EBX = 00000039 ECX = 00000060 EDX = 0002100A ESI = 00000000 EDI = 00000000
   EIP = 00023671 ESP = 002BFC6C EBP = 002BFC74 EFL = 00000212
```

121 %

Text.asm

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx
 9    add eax, ecx    ≤ 1ms elapsed
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx
14    call DumpRegs
15    exit
16    main ENDP
17    END main
```

121 %   ✓ No issues found

Screenshot 1

Registers

```
EAX = 000000E0  EBX = 00000039  ECX = 00000060  EDX = 0002100A  ESI = 00000000  EDI = 00000000
EIP = 00023673  ESP = 002BFC6C  EBP = 002BFC74  EFL = 00000202
```

121 %

Text.asm

```
 1   TITLE My First Program (Test.asm)
 2   INCLUDE Irvine32.inc
 3   .code
 4   main PROC
 5   mov eax, 47h
 6   mov ebx, 39h
 7   mov ecx, 60h
 8   add eax, ebx
 9   add eax, ecx
10   mov ebx, 85h    ≤ 1ms elapsed
11   mov ecx, 64h
12   add eax, ebx
13   add eax, ecx
14   call DumpRegs
15   exit
16   main ENDP
17   END main
```

121 %   ✓ No issues found

Screenshot 2

Process: [36380] bilal.exe   Lifecycle Events ▾ Thread: [29012] Main Thread

Registers

```
EAX = 000000E0  EBX = 00000085  ECX = 00000060  EDX = 0002100A  ESI = 00000000  EDI = 00000000
EIP = 00023678  ESP = 002BFC6C  EBP = 002BFC74  EFL = 00000202
```

121 %

Text.asm

```
 1   TITLE My First Program (Test.asm)
 2   INCLUDE Irvine32.inc
 3   .code
 4   main PROC
 5   mov eax, 47h
 6   mov ebx, 39h
 7   mov ecx, 60h
 8   add eax, ebx
 9   add eax, ecx
10   mov ebx, 85h
11   mov ecx, 64h    ≤ 1ms elapsed
12   add eax, ebx
13   add eax, ecx
14   call DumpRegs
15   exit
16   main ENDP
17   END main
```

121 %   ✓ No issues found

Autos   Output

Screenshot 1

Debug | x86 | ▶ Continue ▾ | 🔗 Live Share

Process: [36380] bilal.exe | 🔲 Lifecycle Events ▾ Thread: [29012] Main Thread

Registers ▾ ⊟ ✕ | Pytho...

```
EAX = 000000E0 EBX = 00000085 ECX = 00000064 EDX = 0002100A ESI = 00000000 EDI = 00000000
  EIP = 0002367D ESP = 002BFC6C EBP = 002BFC74 EFL = 00000202
```

121 %

Text.asm 🔲 ✕

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx    ≤ 1ms elapsed
13    add eax, ecx
14    call DumpRegs
15    exit
16    main ENDP
17    END main
```
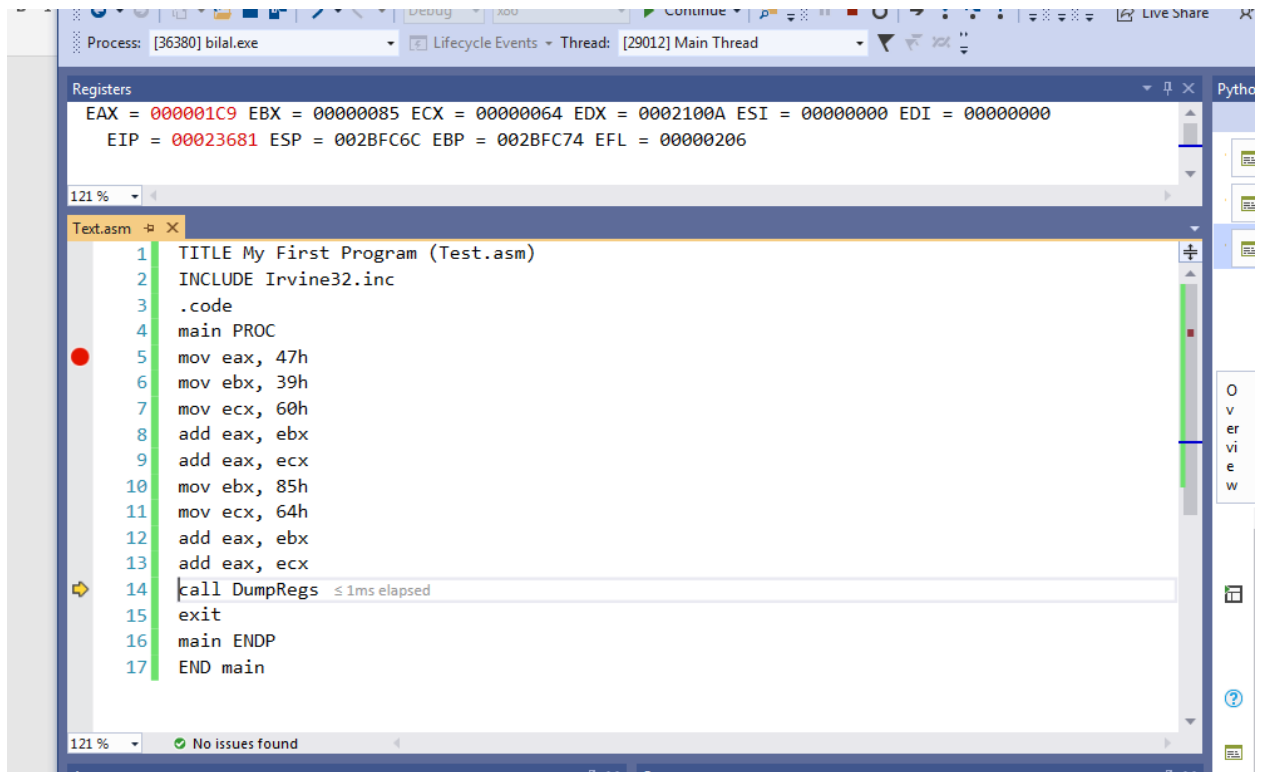
121 % | ✔ No issues found

Screenshot 2

Debug | x86 | ▶ Continue ▾ | 🔗 Live Share

Process: [36380] bilal.exe | 🔲 Lifecycle Events ▾ Thread: [29012] Main Thread

Registers ▾ ⊟ ✕ | Pytho...

```
EAX = 00000165 EBX = 00000085 ECX = 00000064 EDX = 0002100A ESI = 00000000 EDI = 00000000
  EIP = 0002367F ESP = 002BFC6C EBP = 002BFC74 EFL = 00000206
```

121 %

Text.asm 🔲 ✕

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx    ≤ 1ms elapsed
14    call DumpRegs
15    exit
16    main ENDP
17    END main
```

Registers

EAX = 000001C9 EBX = 00000085 ECX = 00000064 EDX = 0002100A ESI = 00000000 EDI = 00000000
EIP = 00023681 ESP = 002BFC6C EBP = 002BFC74 EFL = 00000206

121 %

Text.asm

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx
14    call DumpRegs   ≤ 1ms elapsed
15    exit
16    main ENDP
17    END main
```

121 %   ⊘ No issues found

EAX = 000001C9 EBX = 00000085 ECX = 00000064 EDX = 0002100A ESI = 00000000 EDI = 00000000

EIP = 00023686 ESP = 002BFC6C EBP = 002BFC74 EFL = 00000206

121 %

Text.asm

```
 1    TITLE My First Program (Test.asm)
 2    INCLUDE Irvine32.inc
 3    .code
 4    main PROC
 5    mov eax, 47h
 6    mov ebx, 39h
 7    mov ecx, 60h
 8    add eax, ebx
 9    add eax, ecx
10    mov ebx, 85h
11    mov ecx, 64h
12    add eax, ebx
13    add eax, ecx
14    call DumpRegs
15    exit   ≤ 4ms elapsed
16    main ENDP
17    END main
```

C:\Users\StudentUser\Desktop\COAL LAB\bilal\Debug\bilal.exe

```
EAX=000001C9   EBX=00000085   ECX=00000064   EDX=0002100A
ESI=00000000   EDI=00000000   EBP=002BFC74   ESP=002BFC6C
EIP=00023686   EFL=00000206   CF=0   SF=0   ZF=0   OF=0   AF=0   PF=1
```

C:\Windows\SysWOW64\rpcrt4.dll'
C:\Windows\SysWOW64\sspicli.dll
C:\Windows\SysWOW64\cryptbase.d
C:\Windows\SysWOW64\imm32.dll'.
C:\Windows\SysWOW64\msctf.dll'.