

<https://youtu.be/7EN9LyH4jgg>

```
; Program Template (labw12pA.asm)
; Program Description: convert the high level language segment to assembly
; Author: Timothy Bryant
; Creation Date: 3/30/2021
; Revisions:
; Date:
; Modified by:
.386
.model flat,stdcall
.stack 4096
ExitProcess PROTO, dwExitCode:DWORD
INCLUDE Irvine32.inc

.data
; declare variables here

Input1 BYTE "Enter i: ", 0      ;string for input of i

Output1 BYTE "Result of f: ", 0 ;string for output of f

;intialize variables
i DWORD ?
j DWORD 25
f DWORD 1234
g DWORD 15
h DWORD 32

.code
main PROC
;write your code here

;prompt user for input of i
mov edx, OFFSET Input1
call WriteString
call ReadDec
mov i, eax

;move i into registers to compare
mov eax, i

;check if i and j are equal
cmp eax, j
jne equation2

;equation for f = g + h
mov eax, g
add eax, h
jmp bye

;equation for f = f - i
equation2: mov eax, f
           sub eax, i

bye: mov edx, OFFSET Output1
     call WriteString
     call WriteDec
```

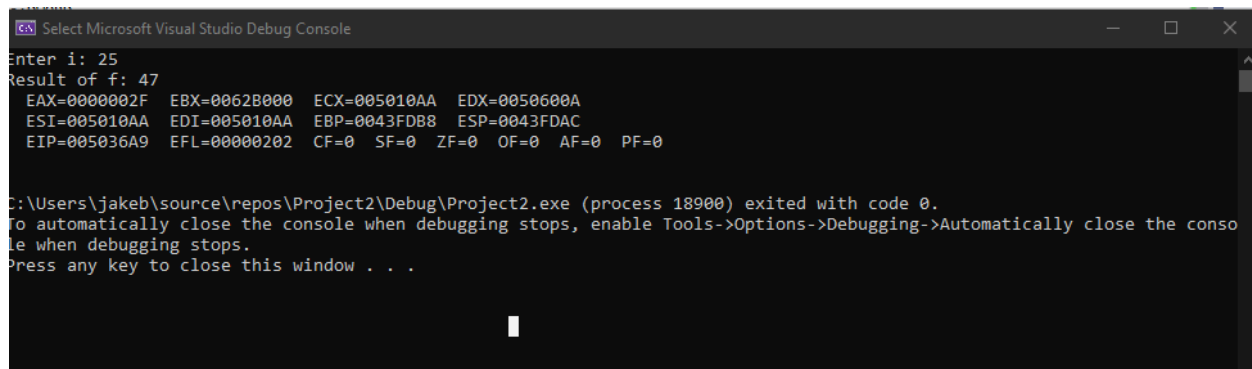
```

call DumpRegs

INVOKE ExitProcess, 0
main ENDP
; (insert additional procedures here)
END main

```

I=j



```

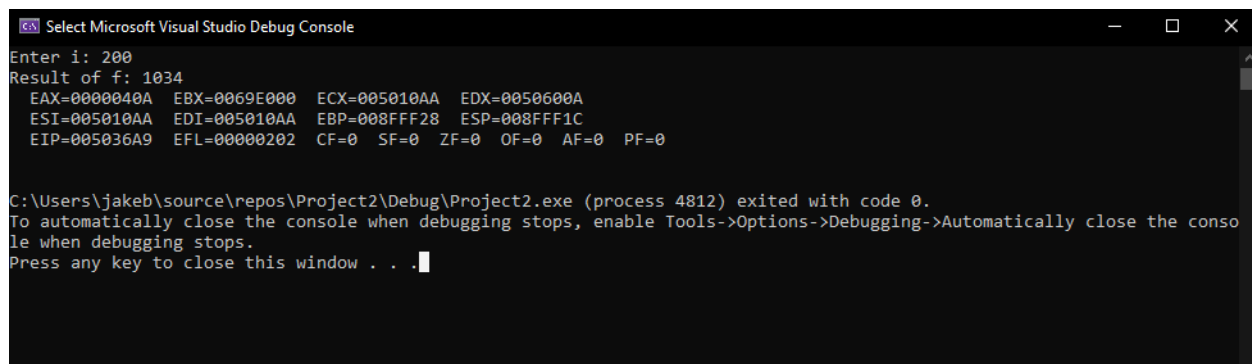
Select Microsoft Visual Studio Debug Console

Enter i: 25
Result of f: 47
EAX=0000002F EBX=0062B000 ECX=005010AA EDX=0050600A
ESI=005010AA EDI=005010AA EBP=0043FDB8 ESP=0043FDAC
EIP=005036A9 EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0

C:\Users\jakeb\source\repos\Project2\Debug\Project2.exe (process 18900) 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 . . .

```

I!=j



```

Select Microsoft Visual Studio Debug Console

Enter i: 200
Result of f: 1034
EAX=0000040A EBX=0069E000 ECX=005010AA EDX=0050600A
ESI=005010AA EDI=005010AA EBP=008FFF28 ESP=008FFF1C
EIP=005036A9 EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0

C:\Users\jakeb\source\repos\Project2\Debug\Project2.exe (process 4812) 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 . . .

```

```

; Program Template (labw12pB.asm)
; Program Description: convert the high level language segment to assembly
; Author: Timothy Bryant
; Creation Date: 3/30/2021
; Revisions:
; Date:
; Modified by:
; .386
.model flat,stdcall
.stack 4096
ExitProcess PROTO, dwExitCode:DWORD
INCLUDE Irvine32.inc

.data
; declare variables here

```

Input1 BYTE "Please enter a power of 2 value and I shall calculate xWhere  $2^{**}x$  = the value you entered: ", 0

```
;output for loop
Output1 BYTE "x is ", 0
Output2 BYTE ", where  $2^{**}$ ", 0
Output3 BYTE " = ", 0
```

```
pow DWORD 1
x DWORD 0
val1 DWORD ?
```

```
.code
main PROC
;write your code here
```

```
;prompt user for 128
mov edx, OFFSET Input1
call WriteString
call ReadDec
mov val1, eax
```

```
;move values into registers
mov eax, pow
mov ebx, x
mov ecx, 2
mov esi, val1
```

```
;loop
restart:
        mul ecx          ;pow*2
        add ebx, 1       ;x + 1
        cmp eax, esi     ;comparison of pow and val1
        jne restart
```

```
;output
mov edx, OFFSET Output1
call WriteString
mov eax, ebx          ;move value of x after loop in eax
call WriteDec
mov edx, OFFSET Output2
call WriteString
call WriteDec
mov edx, OFFSET Output3
call WriteString
mov eax, val1
call WriteDec
```

```
call DumpRegs
```

```
INVOKE ExitProcess, 0
main ENDP
; (insert additional procedures here)
END main
```

```
Select Microsoft Visual Studio Debug Console
Please enter a power of 2 value and I shall calculate xWhere 2 ** x = the value you entered: 128
x is 7, where 2 **7 = 128
EAX=00000080 EBX=00000007 ECX=00000002 EDX=003C6071
ESI=00000080 EDI=003C10AA EBP=00EFFFED8 ESP=00EFFFEC
EIP=003C36C8 EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0

C:\Users\jakeb\source\repos\Project2\Debug\Project2.exe (process 18820) 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 . . .
```