Assembly Language Lab 4

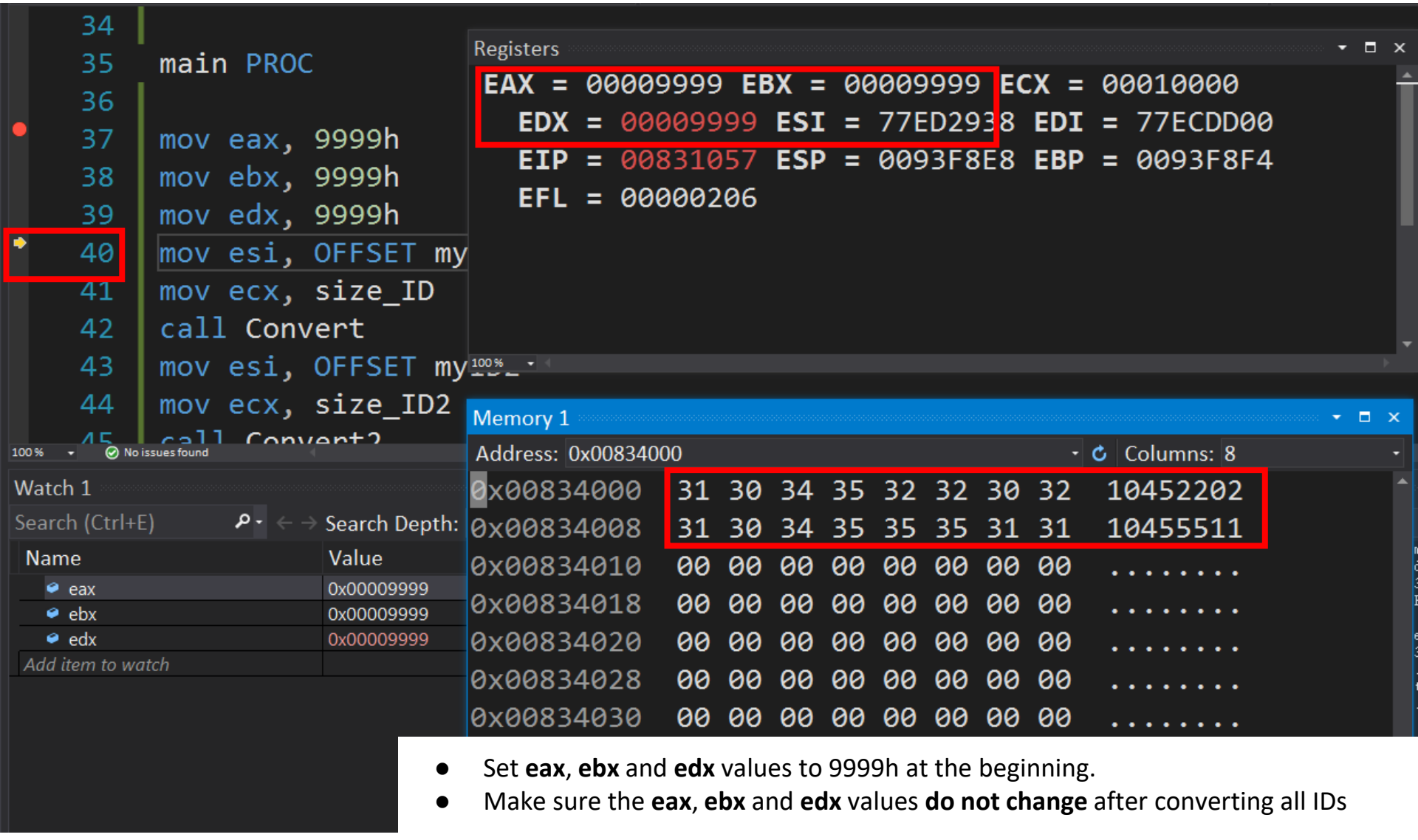
2023/10/16

Objectives

There are two PROC, Convert and Convert2
store a value in esi register then change 0 to A, 1 to B, 2 to C and so on,

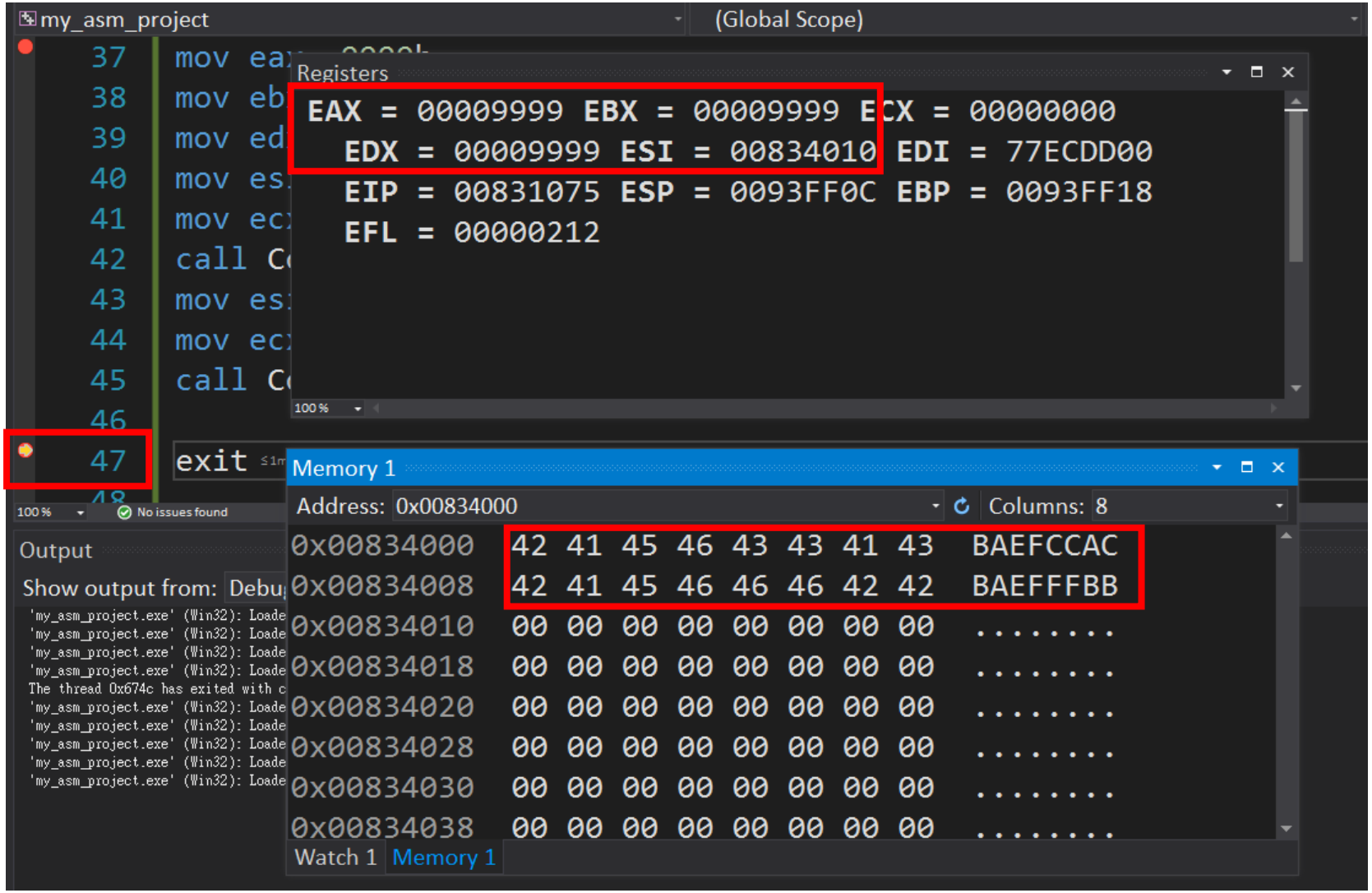
```
Convert PROC USES ___          ;Convert change myID value 0-A 1-B and so on.
   L1:
            ;Do something
   loop L1
   ret
Convert ENDP

Convert2 PROC                  ;Convert2 do the same thing as ConvertL1:
   L1:
            ;Do something
   loop L1
   ret
Convert2 ENDP
```

Initial State



- Set **eax**, **ebx** and **edx** values to 9999h at the beginning.
- Make sure the **eax**, **ebx** and **edx** values **do not change** after converting all IDs

Program Result



Hint

The use of push and pop instructions needs to be considered to avoid repeated execution of unnecessary instructions

USES operator: List the temporary registers used in the program, generate a **push** instruction in the beginning of the program, store value of the temporary register into the stack, generate a **pop** instruction reply at the end of the program

Sample Program	The code will be generated by the assembler
ArraySum PROC **USES** esi ecx mov eax , 0 L1: add eax , [esi] add esi , 4 loop L1 ret ArraySum ENDP	ArraySum PROC push esi push ecx mov eax , 0 L1: add eax , [esi] add esi , 4 loop L1 pop ecx pop esi ret ArraySum ENDP

ASCII CODE

Binary	Decimal	Hexadecimal	Character	Binary	Decimal	Hexadecimal	Character
0011 0000	48	30	0	0100 0001	65	41	A
0011 0001	49	31	1	0100 0010	66	42	B
0011 0010	50	32	2	0100 0011	67	43	C
0011 0011	51	33	3	0100 0100	68	44	D
0011 0100	52	34	4	0100 0101	69	45	E
0011 0101	53	35	5	0100 0110	70	46	F
0011 0110	54	36	6	0100 0111	71	47	G
0011 0111	55	37	7	0100 1000	72	48	H
0011 1000	56	38	8	0100 1001	73	49	I
0011 1001	57	39	9	0100 1010	74	4A	J

Report

- Due to 2023/10/17
- Before 12:00
  - If you submit late, please send a letter to the teaching assistant, points will be deducted
- Group Task
- Compress(.zip,.rar) the following file with the name of the group (e.g. lab4_01.zip)
  - Code(lab4_01.asm)
  - Report(lab4_01.doc or lab4_01.pdf)
    - Report Title
    - Group, name, student ID
    - Step by step of program execution flow, memory (register) status
    - Screenshots description, code Description
    - Reviews for the class, lesson learned, the tools we used, TA, etc