CSC 3210

Computer Organization and Programming

Lab 4

Answer Sheet

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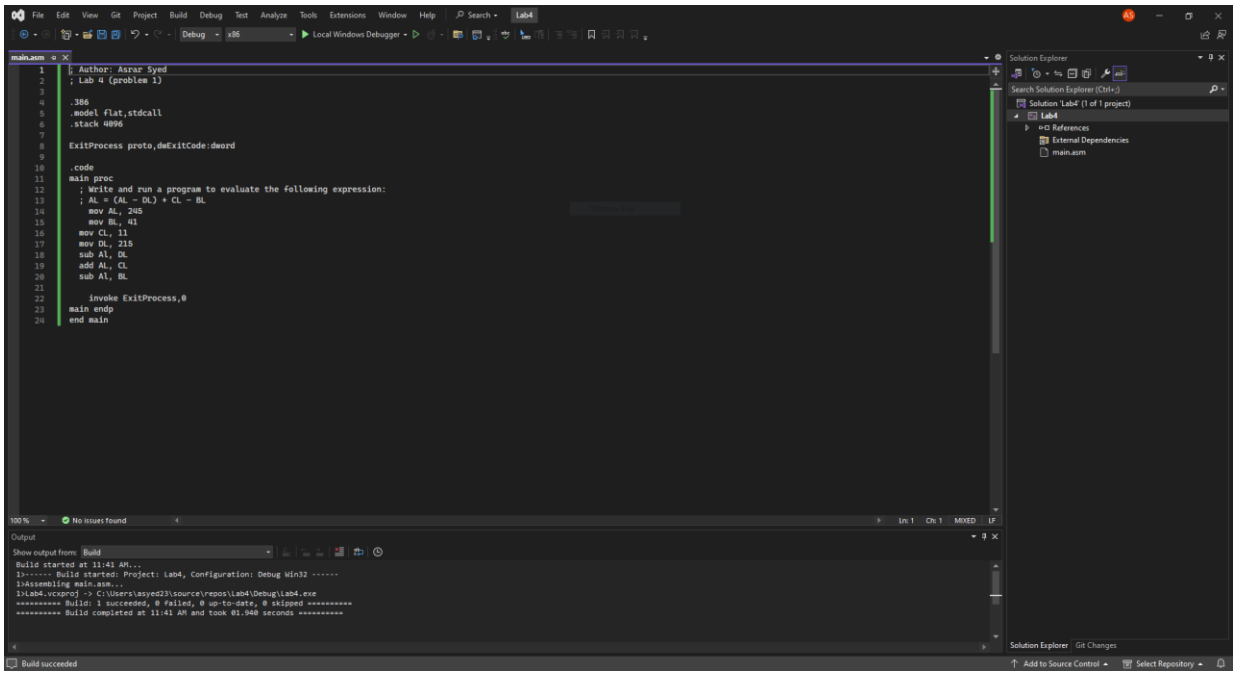
Section: **022 / CRN: 17915**

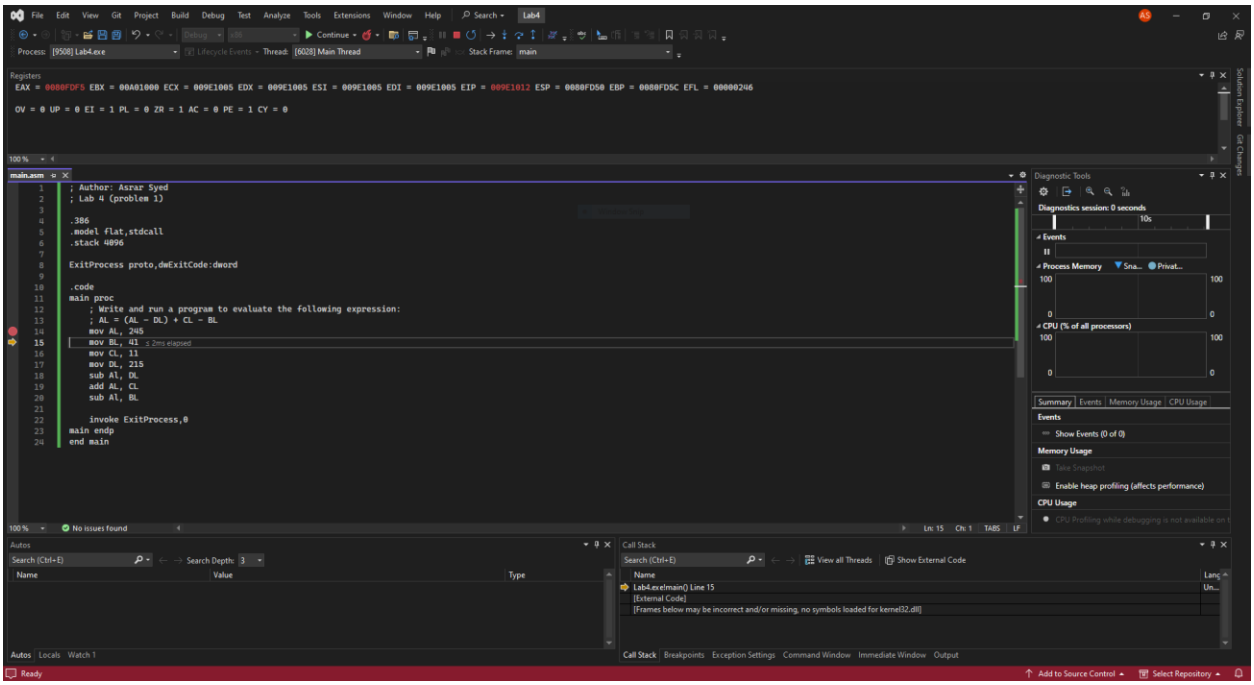
Debug through each line of code and explain the register content.

Write and run a program to evaluate the following expression:

AL = (AL – DL) + CL – BL



Build Succeeded



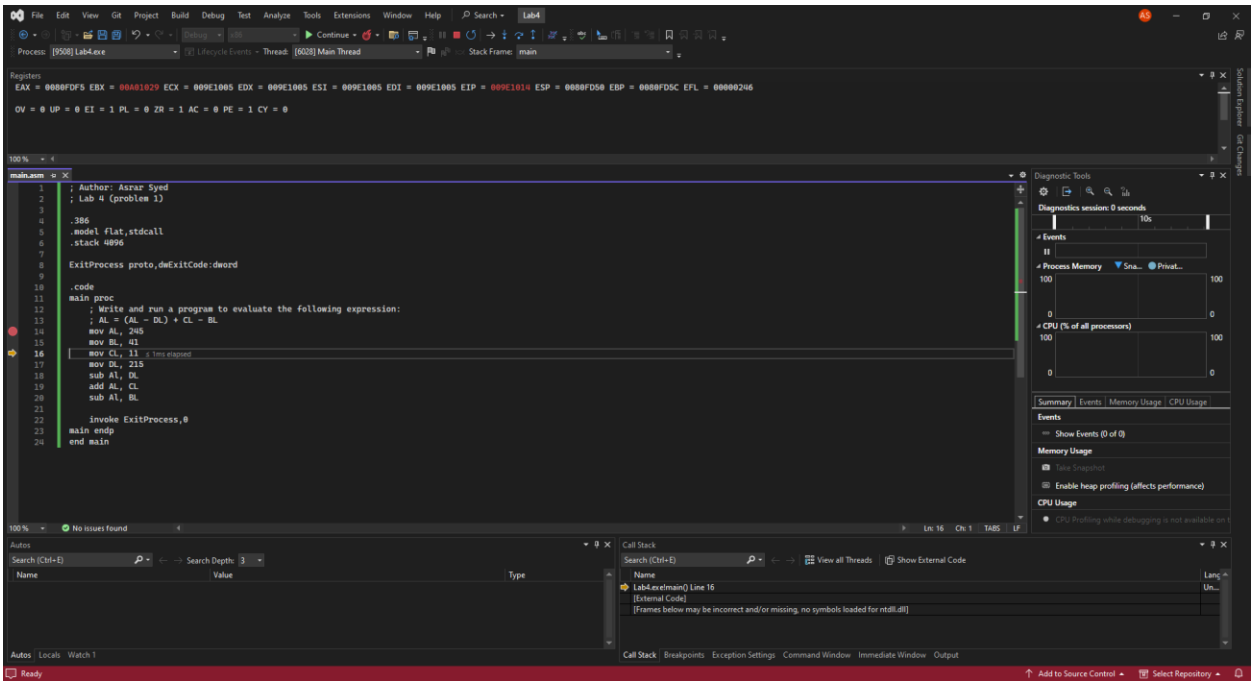
Line number: 14

Instruction: mov AL, 245

Register value: EAX = 0080FDF5 | AL = F5 (245 in decimal)

Flags: None changed

Explanation: Move the value 245 into the 8-bit AL register, i.e. loading the first 8-bits of the EAX register with this value.



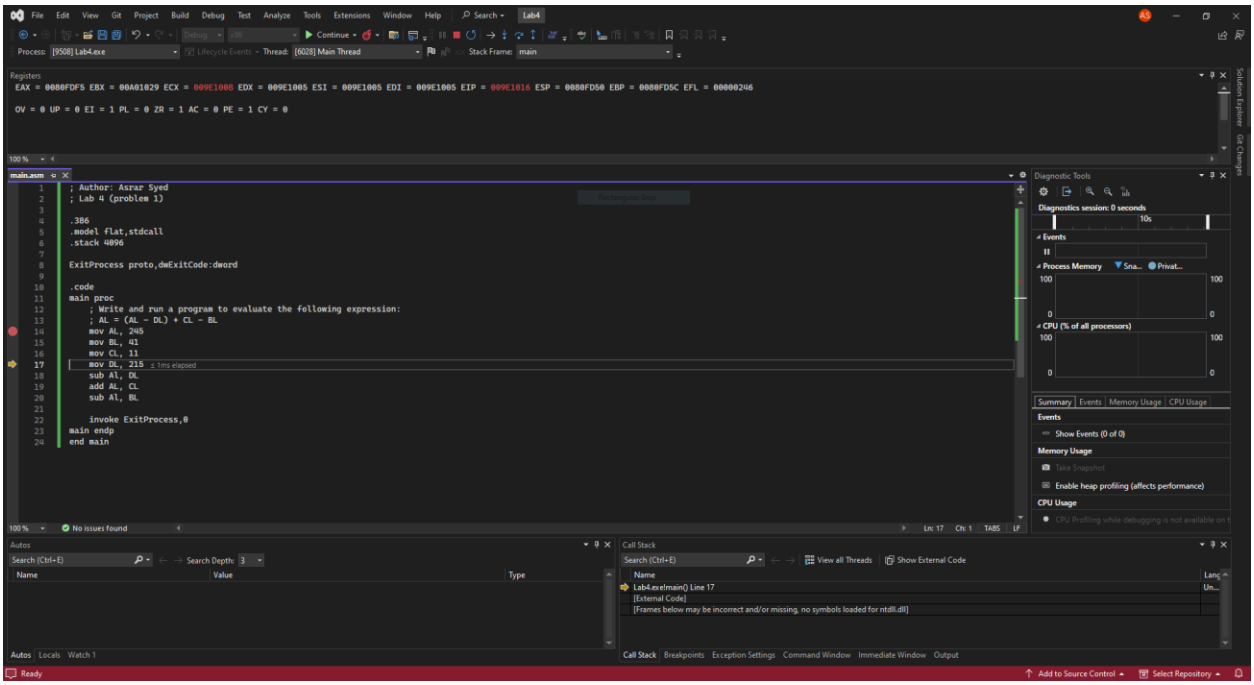
Line number: 15

Instruction: mov BL, 41

Register value: EBX = 00A01029 | BL = 29 (41 in decimal)

Flags: None changed

Explanation: Move the value 41 into the 8-bit BL register, i.e. loading the first 8-bits of the EBX register with this value.



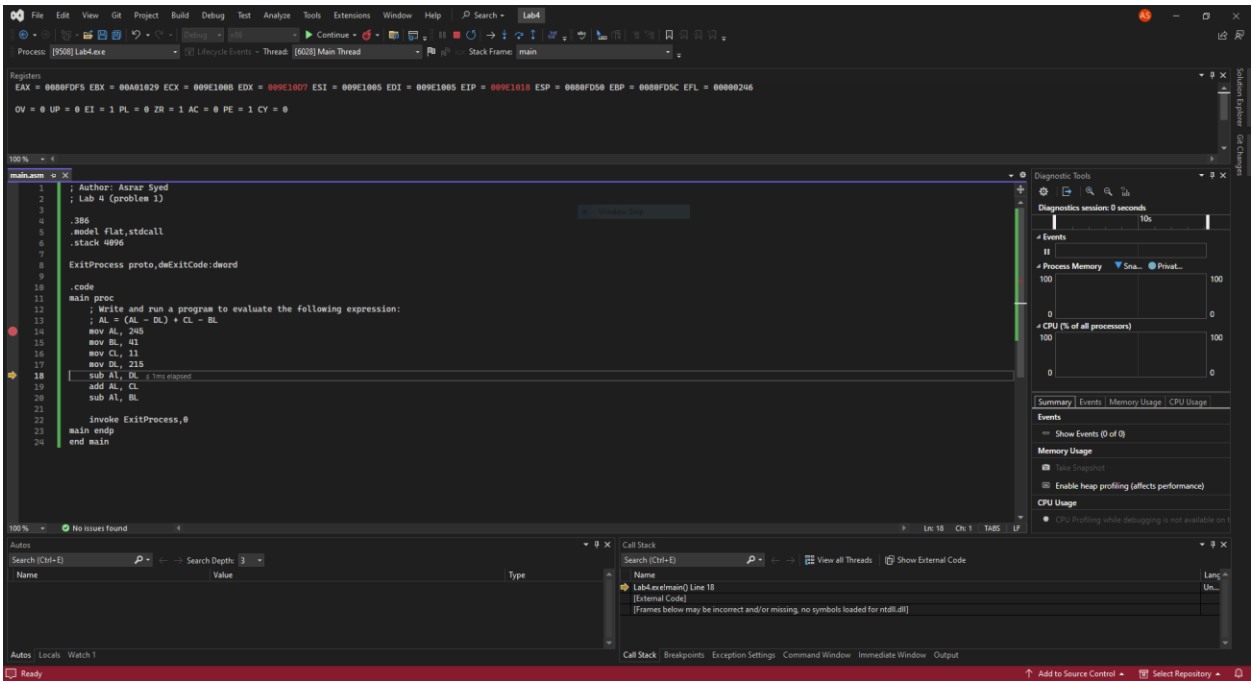
Line number: 16

Instruction: mov CL, 11

Register value: ECX = 009E100B | CL = 0B (11 in decimal)

Flags: None changed

Explanation: Move the value 11 into the 8-bit CL register, i.e. loading the first 8-bits of the ECX register with this value.



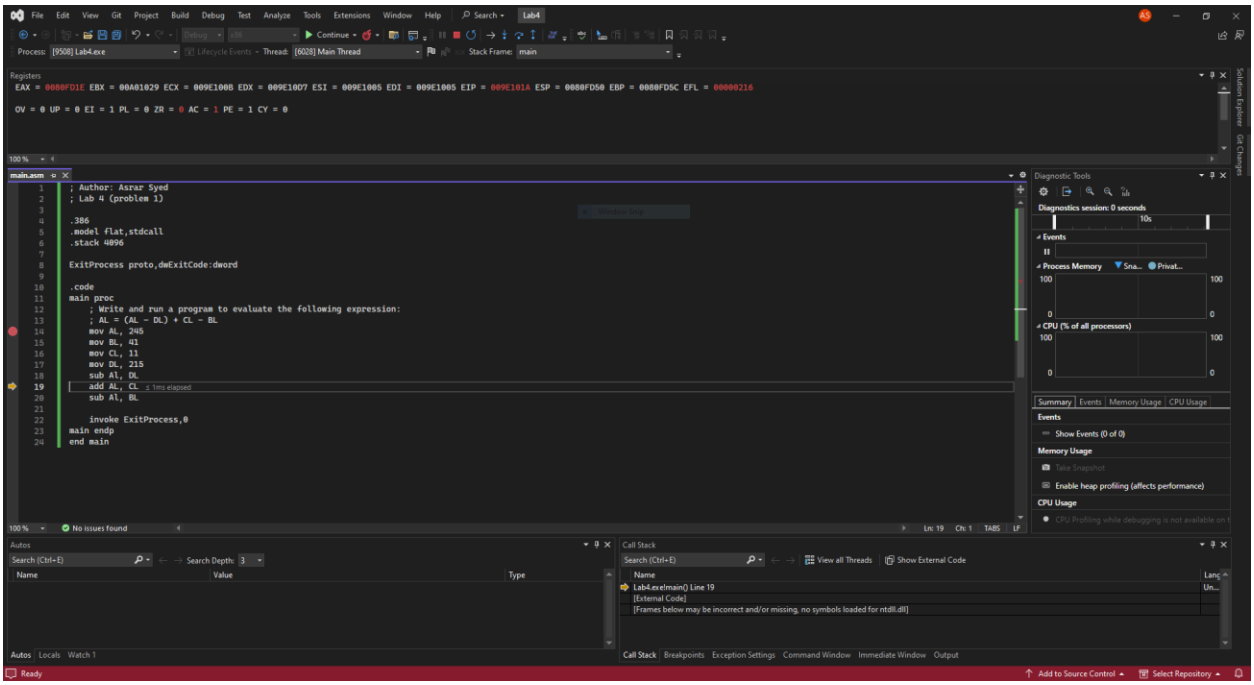
Line number: 17

Instruction: mov DL, 215

Register value: EDX = 009E10D7 | DL = D7 (215 in decimal)

Flags: None changed

Explanation: Move the value 215 into the 8-bit DL register, i.e. loading the first 8-bits of the EDX register with this value.



Line number: 18

Instruction: sub AL, DL

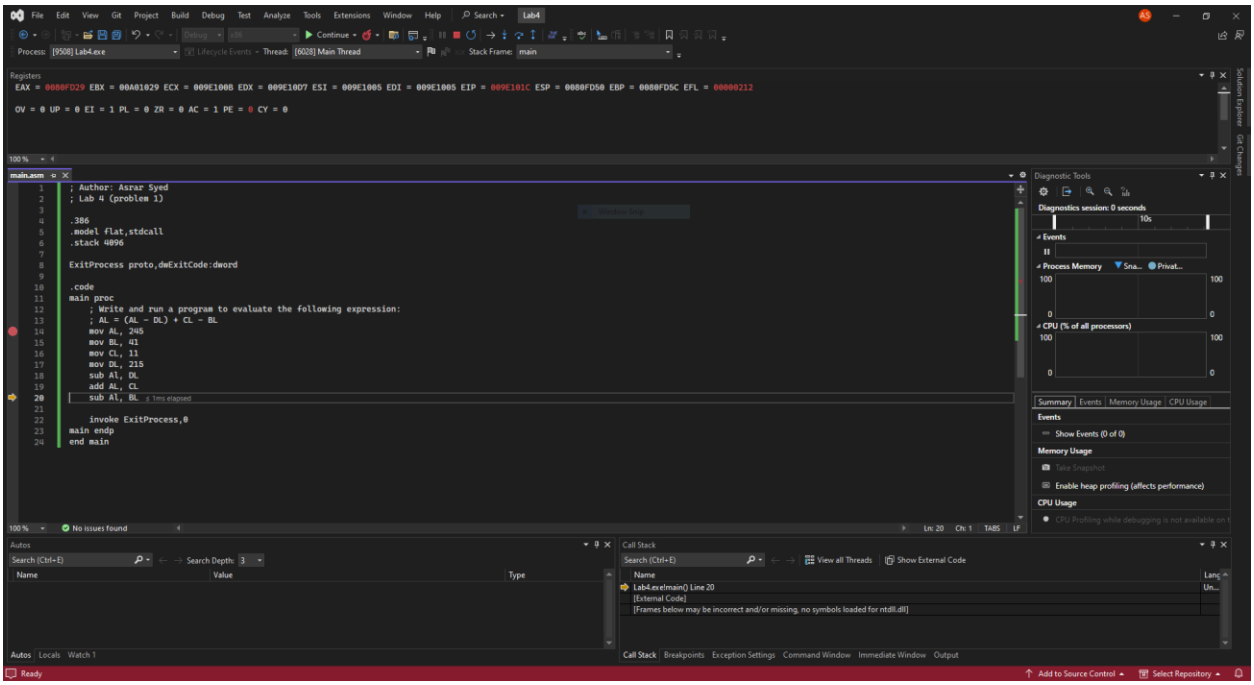
Register value: EAX = 0080FD1E | AL = 1E

Flags: ZR = 0 (Zero Flag) | AC = 1 (Auxiliary Carry Flag)

Explanation: AL = AL – DL.

1E = F5 – D7 (30 = 245 – 215, in decimal format)

Math was done... subtracting DL with whatever was in AL and loading it into AL.



Line number: 19

Instruction: add AL, CL

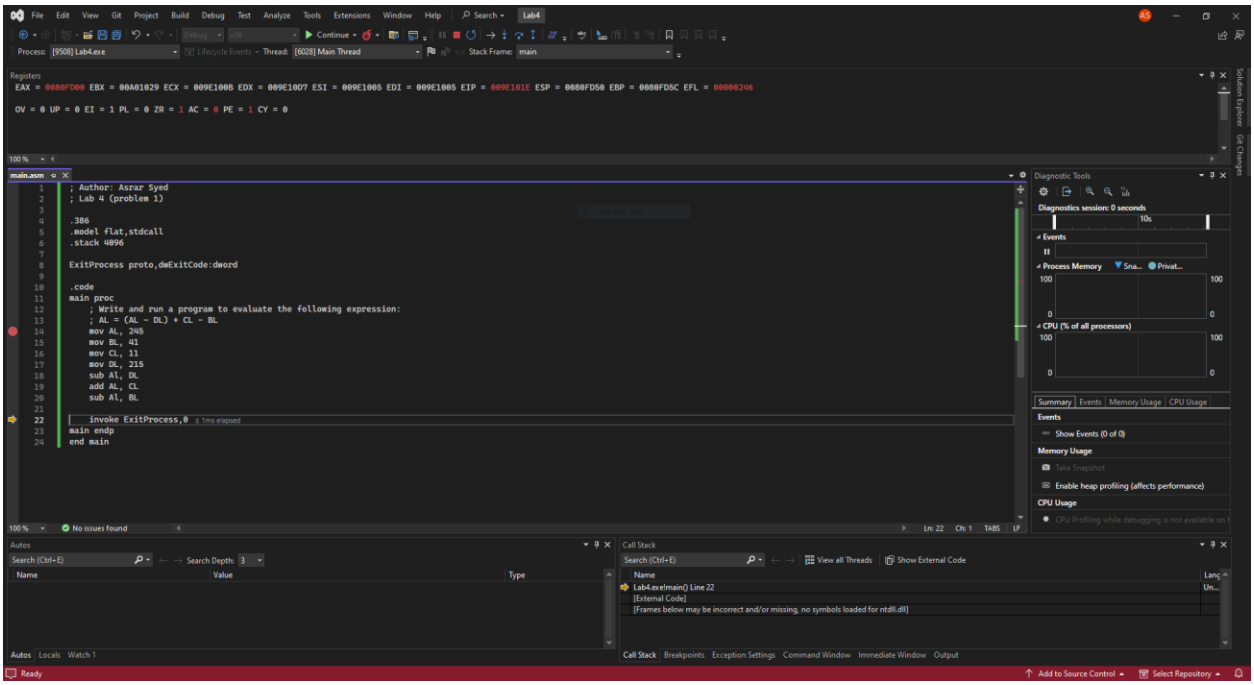
Register value: EAX = 0080FD29 | AL = 29

Flags: PE = 0 (Parity Flag - Odd)

Explanation: AL = AL + CL.

29 = 1E + 0B (41 = 30 + 11, in decimal format)

Math was done... adding CL with whatever was in AL and loading it into AL.



Line number: 20

Instruction: sub AL, BL

Register value: EAX = 0080FD00 | AL = 00

Flags: ZR = 1 (Zero Flag) | AC = 0 (Auxiliary Carry Flag) | PE = 1 (Parity Flag - Even)

Explanation: AL = AL – BL.

00 = 29 – 29 (0 = 41 – 41, in decimal format)

Math was done... subtracting BL with whatever was in AL and loading it into AL.