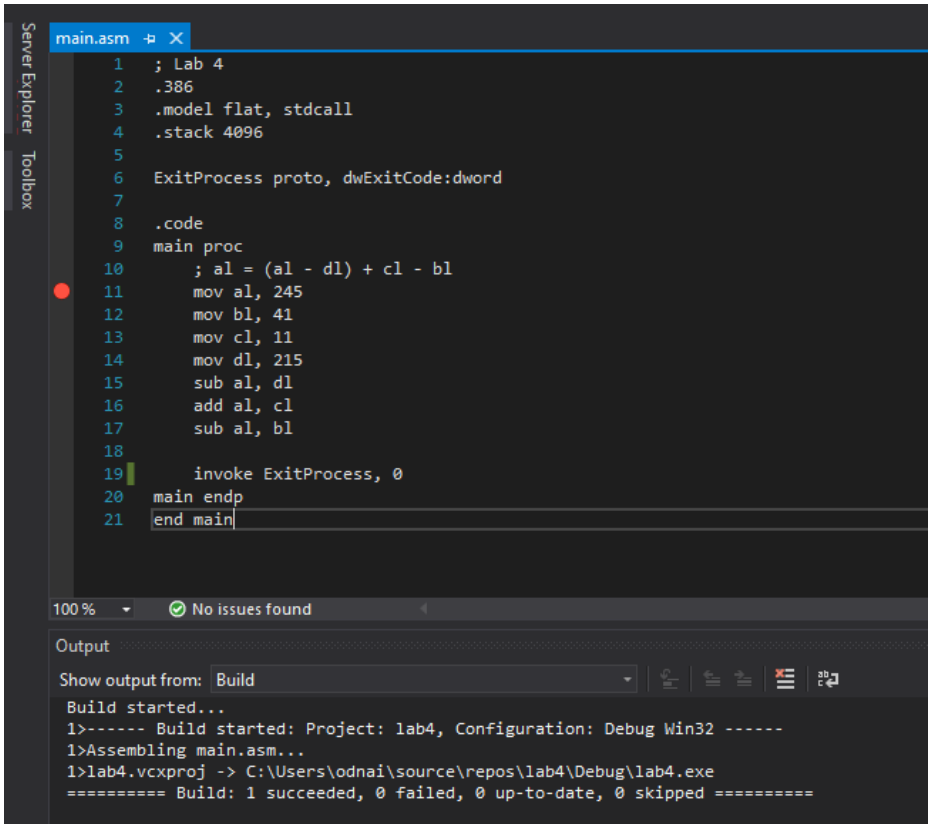
CSC 3210
Computer Organization and Programming
Lab 4
Answer Sheet

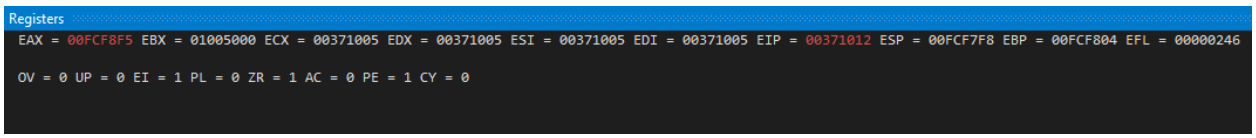
Student Name: Vivian Do
Section: CRN 90913; 11:00-12:40

Debug through each line of code.
Take a screenshot that includes code and a register window.
Record the register content.
and explain the register contents.

screenshot of code where build was successful:

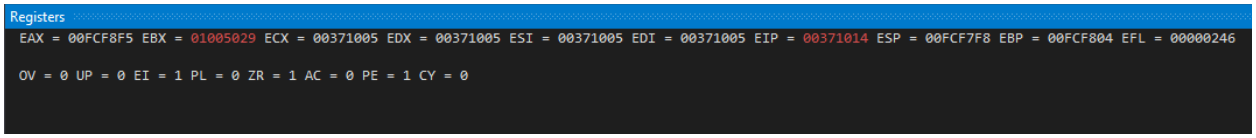


Line number: 11
Instruction: mov al, 245
Register values: EAX = 00FCF8F5
Screenshot:



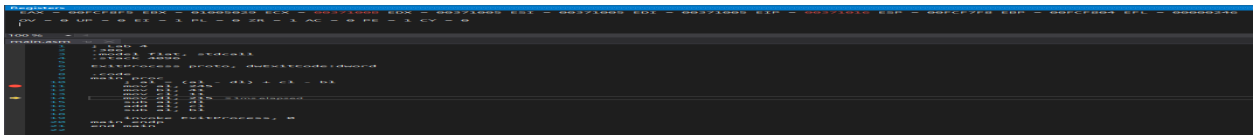
Explanation: EAX register is 32-bit long, and AL register is only 8-bit long. When you mov 245 (hex = F5) to the AL register, it only updates the first 8-bit in the EAX register. The rest is garbage value.

Line number: 12
Instruction: mov bl, 41
Register values: EBX = 01005029
Screenshot:



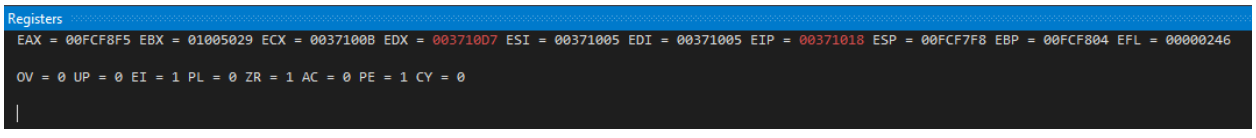
Explanation: Similar to EAX and AL, EBX register is 32-bit long, and BL register is only 8-bit long. When you mov 41 (hex = 29) to the BL register, it only updates the first 8-bit in the EBX register. The rest is garbage value.

Line number: 13
Instruction: mov cl, 11
Register values: ECX = 0037100B
Screenshot:



Explanation: Similar to both EAX, EBX and AL, BL, ECX register is 32-bit long, and CL register is only 8-bit long. When you mov 11 (hex = B) to the CL register, it only updates the first 8-bit in the ECX register. The rest is garbage value.

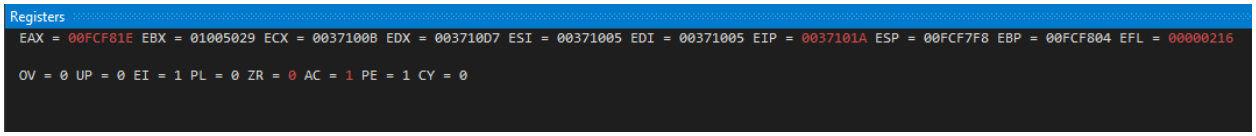
Line number: 14
Instruction: mov dl, 215
Register values: EDX = 003710D7
Screenshot:



Explanation: Similar to EAX, EBX, ECX and AL, BL, CL, EDX register is 32-bit long, and DL register is only 8-bit long. When you mov 215 (hex = D7) to the DL register, it only updates the first 8-bit in the EDX register. The rest is garbage value.

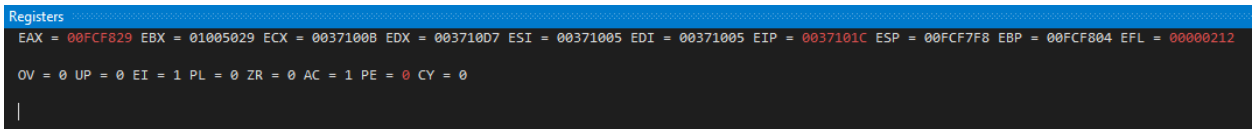
Line number: 15
Instruction: sub al, dl

Register values: EAX = 00FCF81E
Screenshot:



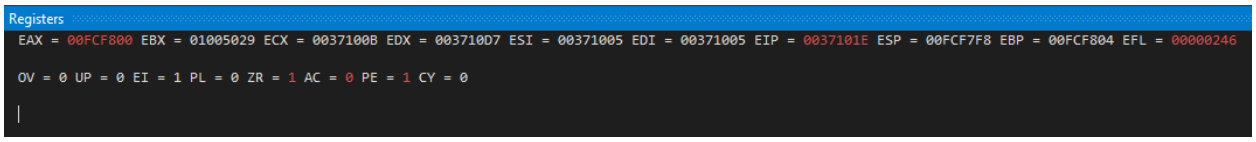
Explanation: Subtracting AL(245) from DL(215) and updating the AL register with 1E.
AL = F5(245); DL = D7(215)
245 - 215 = 30; F5 - D7 = 1E

Line number: 16
Instruction: add al, cl
Register values: EAX = 00FCF829
Screenshot:



Explanation: Adding AL(1E) with CL(0B) and updating the AL register with 29.
AL = 1E(30); CL = 0B(11)
30 + 11 = 41; 1E + 0B = 29

Line number: 17
Instruction: sub al, bl
Register values: EAX = 00FCF800
Screenshot:



Explanation: Subtracting AL(245) from DL(215) and updating the AL register with 1E.
AL = 41(29); BL = 41(BL)
41 - 41 = 0; 29 - 29 = 00

End Results:
AL = (AL - DL) + CL - BL = 00