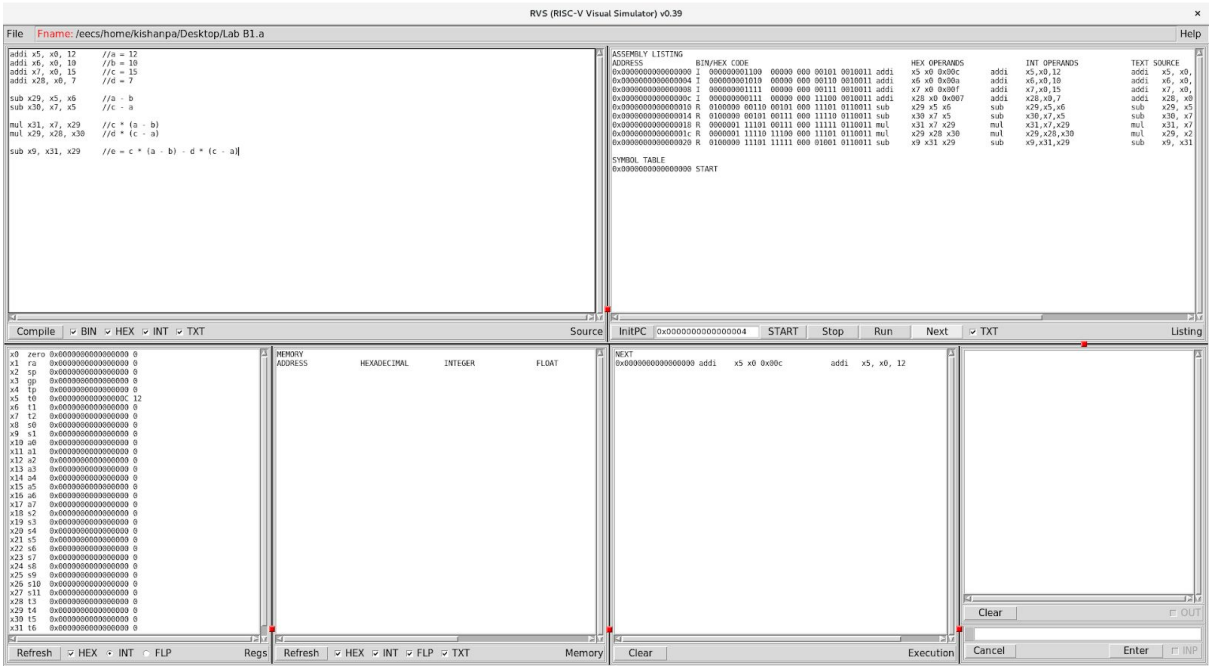
EECS 2021 Lab B

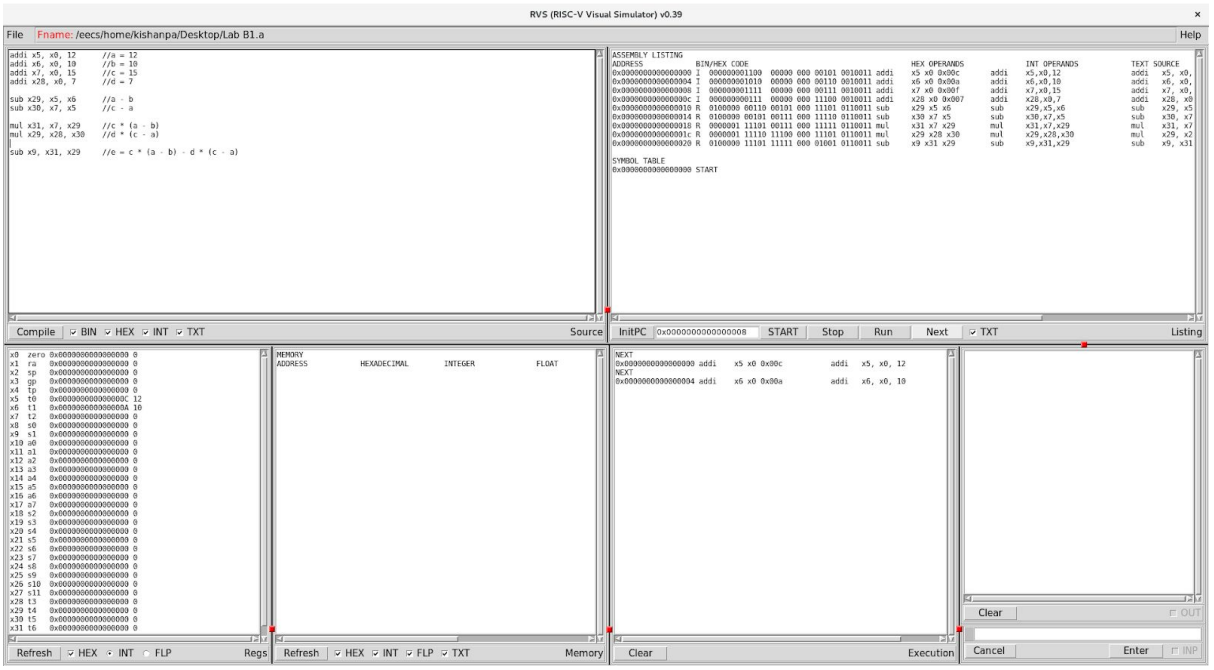
Q1:
A = 12, b =10, c = 15, d =7

E = c * (a - b) - d * (c - a)
E = 15 * (12 - 10) - 8 (15 - 12)
E = 15(2) - 7(3)
E = 30 - 21
E = 9

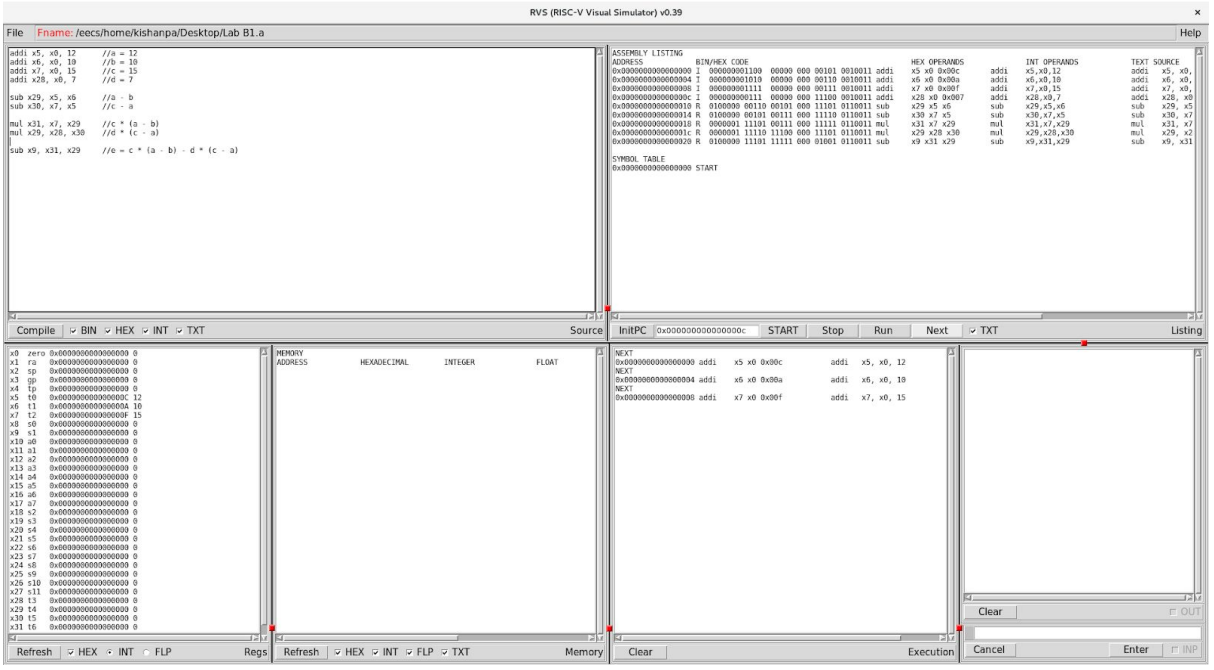
Step 1: Store 12 into x5 which is a temporary register



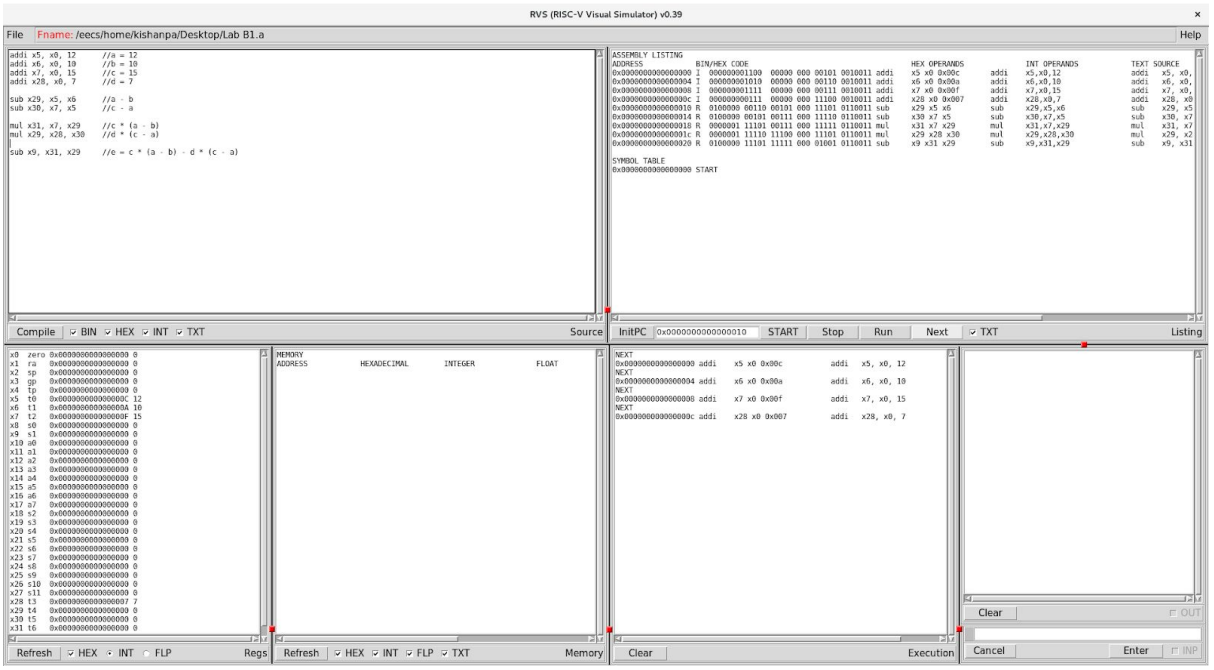
Step 2: Store 10 into x6 which is a temporary register



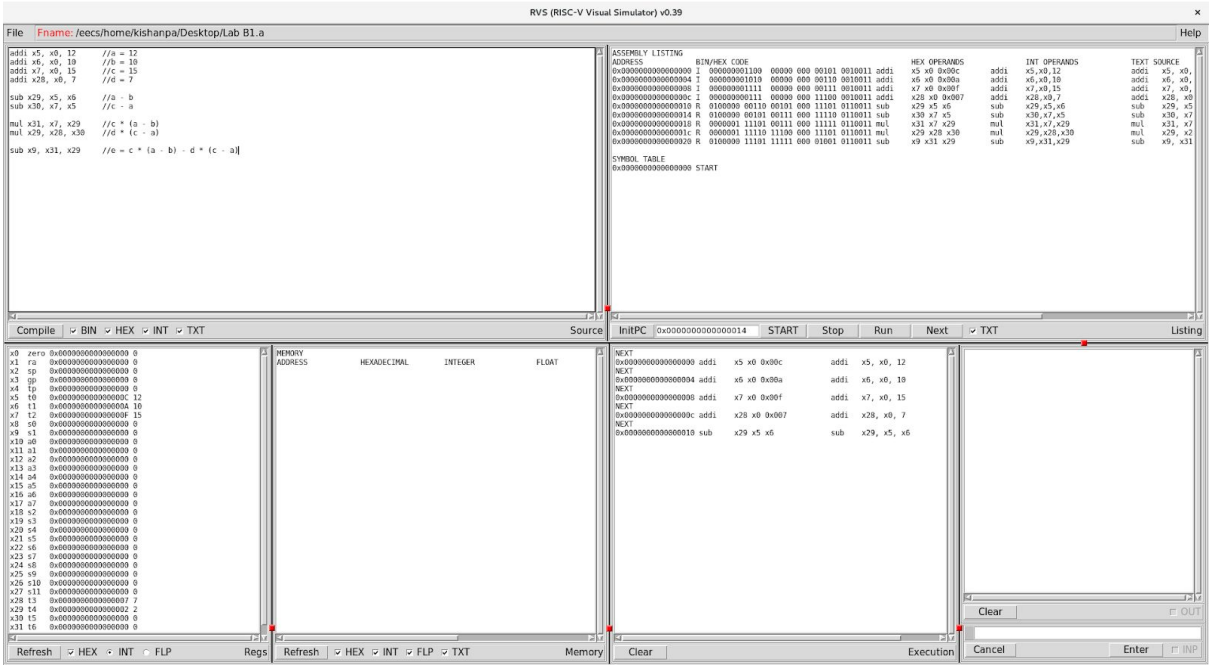
Step 3: Store 15 into x7 which is a temporary register



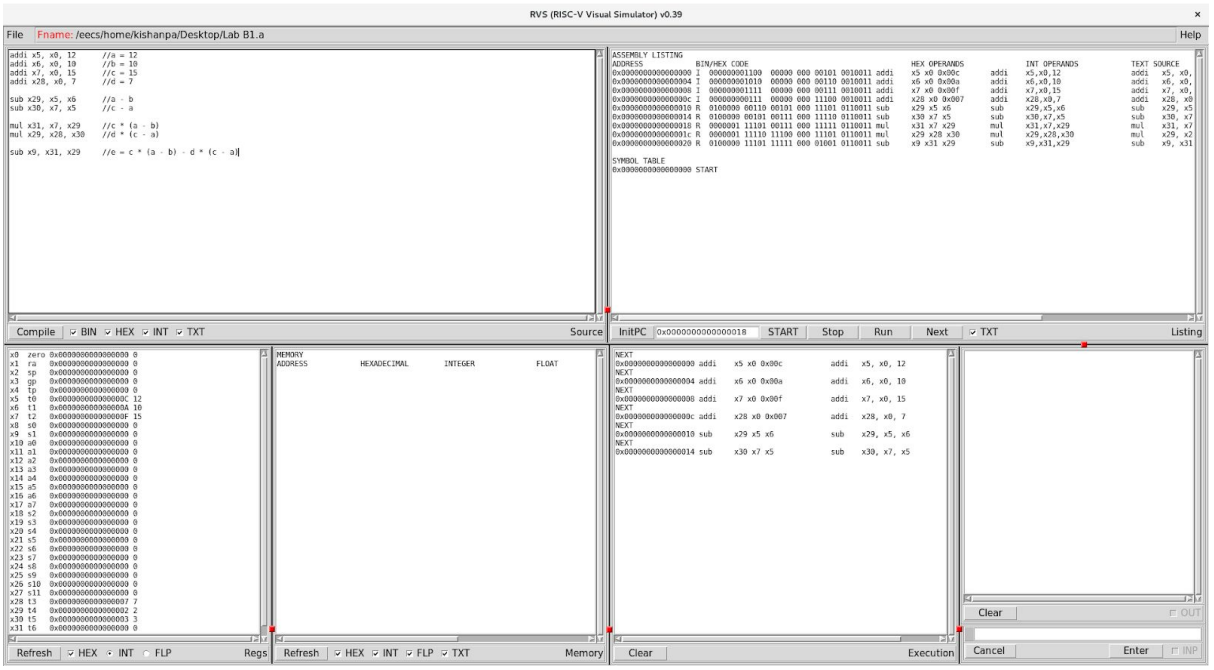
Step 4: Store 7 into x28 which is a temporary register



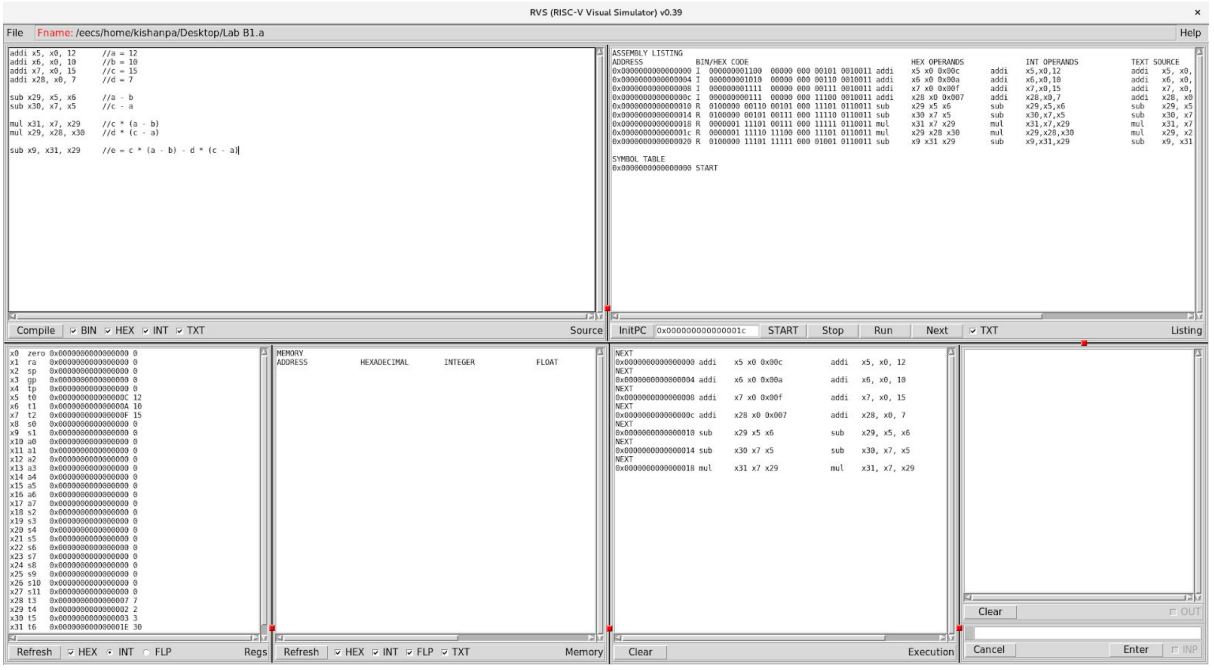
Step 5: Store a - b into x29 which is a temporary register



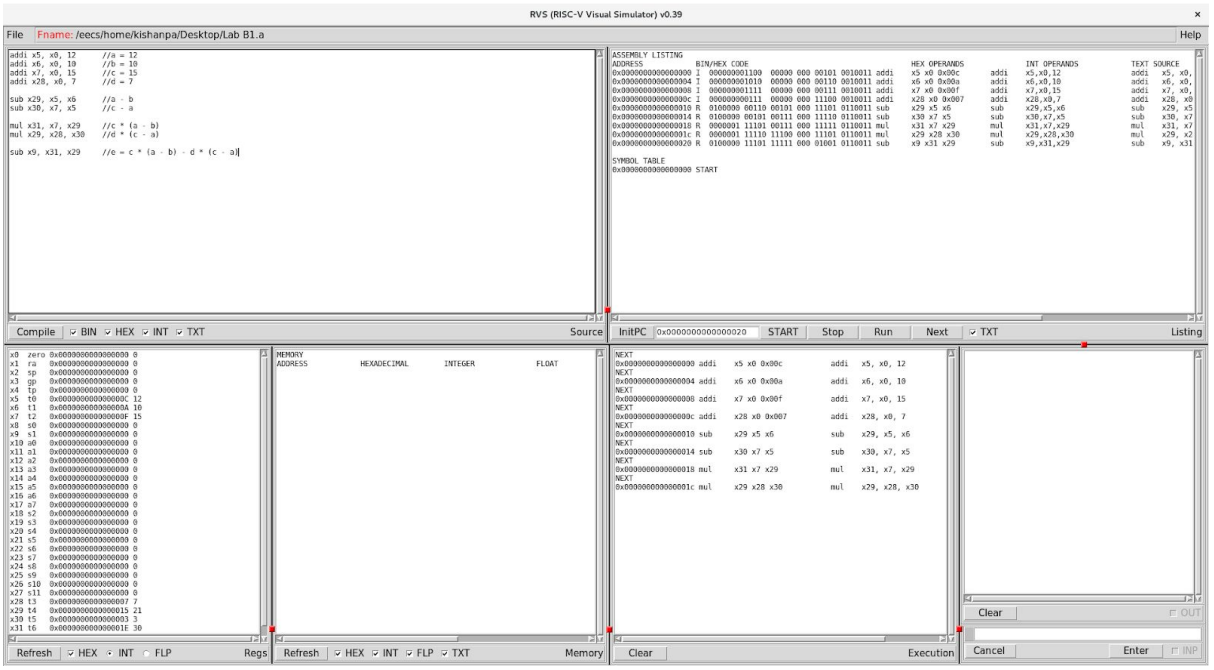
Step 6: Store c - a into x30 which is a temporary register



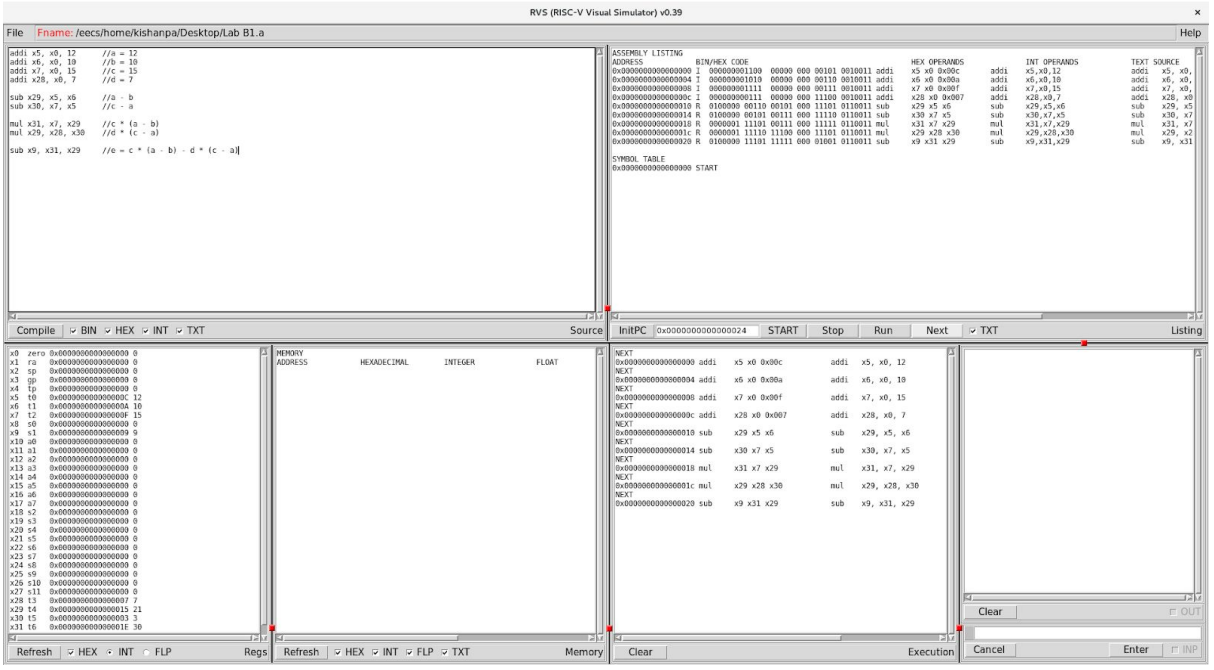
Step 7: Store c * (a - b) into x31 which is a temporary register



Step 8: Store d * (c - a) into x29 which is a temporary register

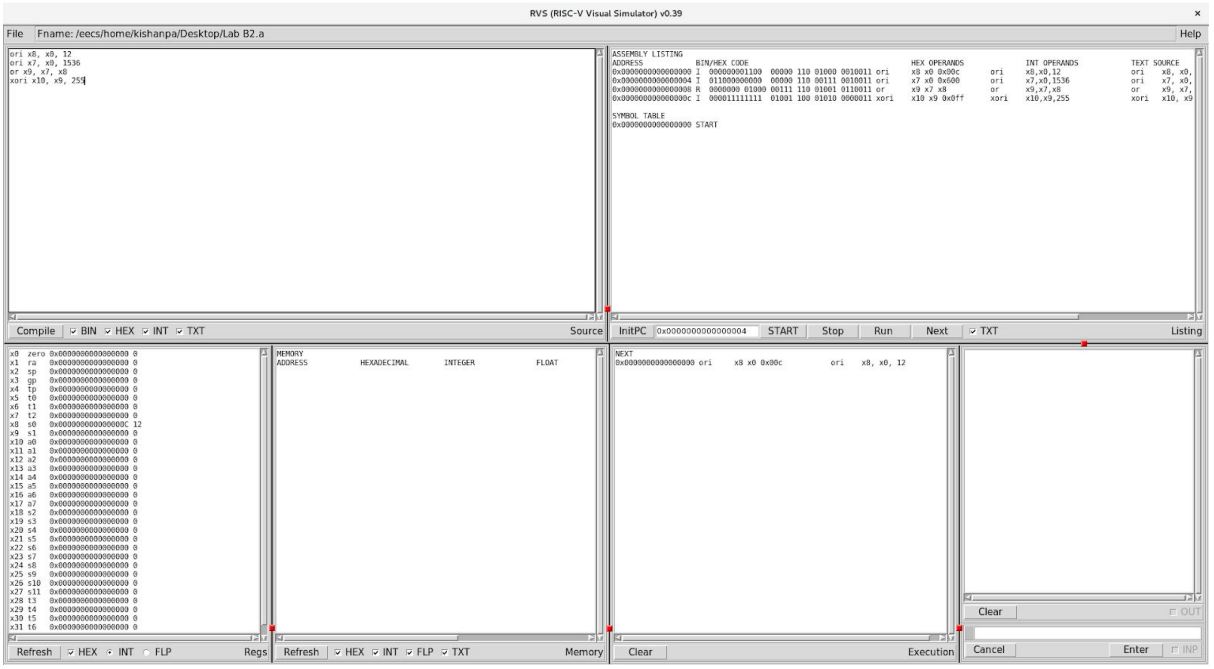


Step 9: Save e = c * (a - b) - d * (c - a) **into x9 which is a saved register**

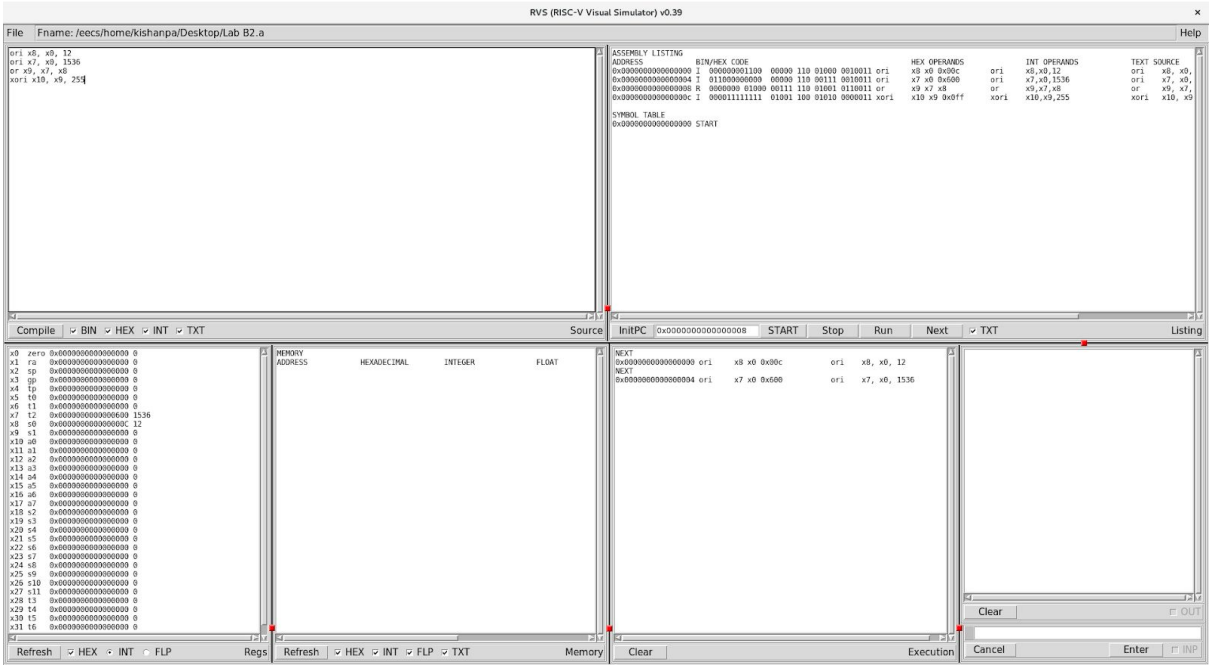


Q2:

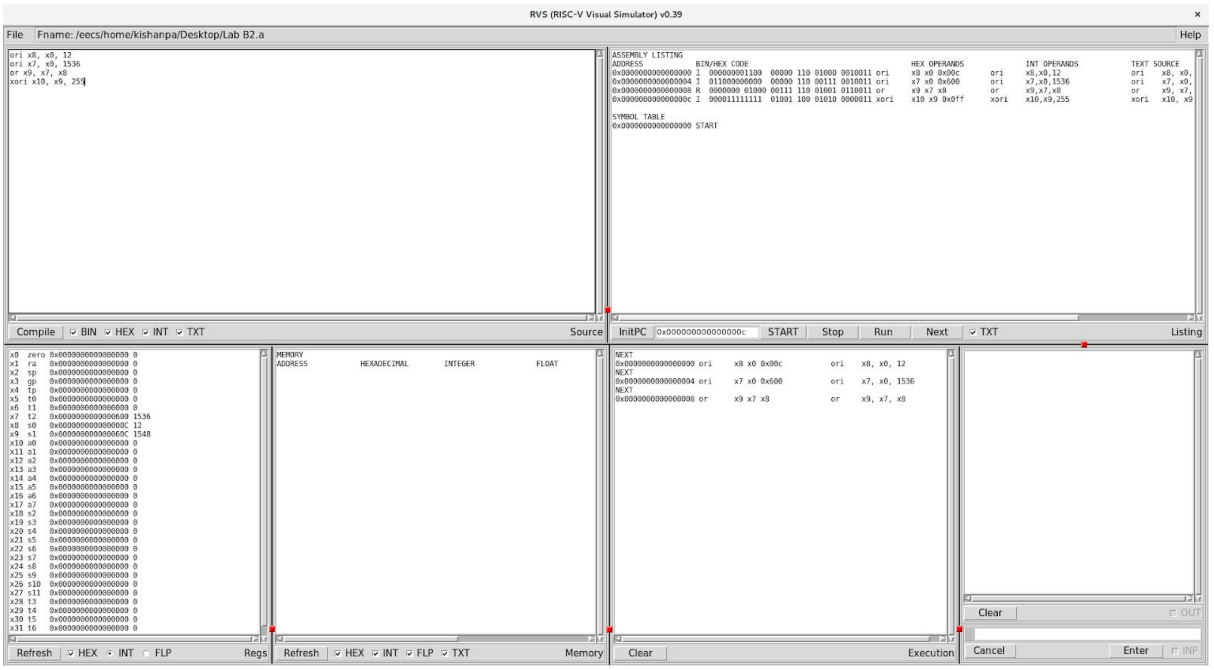
Step 1: Store 12 into x8. Since ori compared to x0 will just store the immediate number



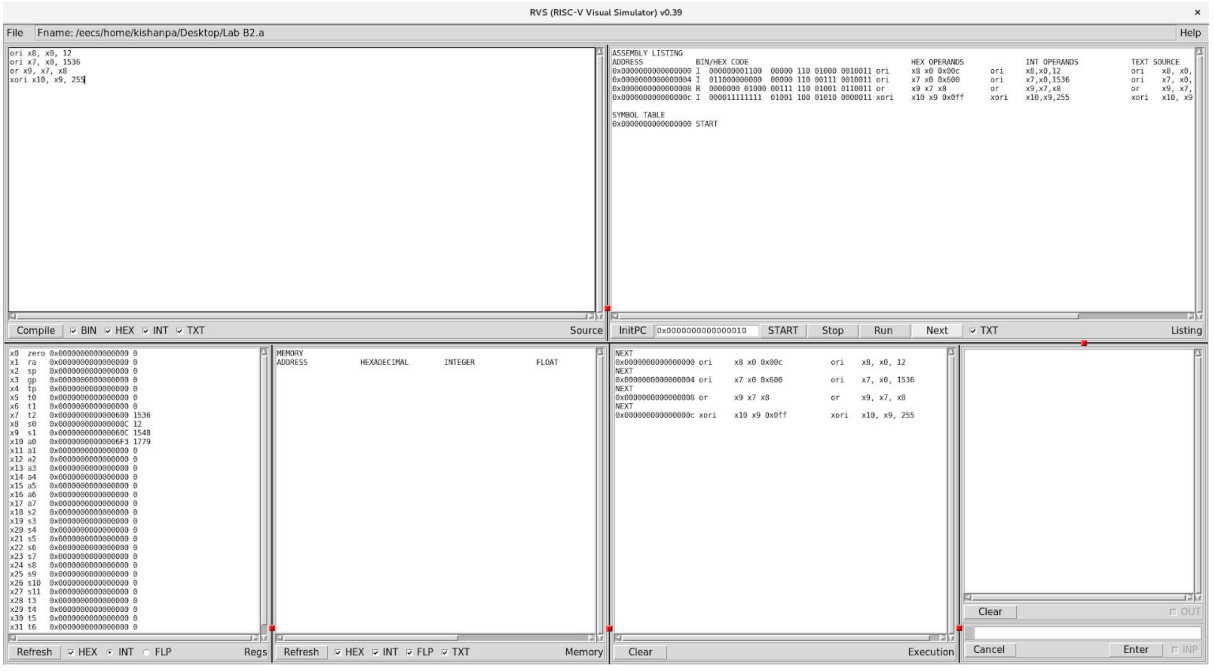
Step 2: Store 1536 into x7. Since ori compared to x0 will just store the immediate number



Step 3: Store the addition of x8 and 1536 (x7) into x9. Since or will save when either number has bit 1, it is the same as adding



Step 4: Store the inversion of 8 bits into x10. Since xori compared to 255 which in binary is all 1s, will just store the xor value of the bit which is the same as inversion.



This lab taught me ways to store values without using the obvious operators and logical operators only. So, it teaches us how to do arithmetic operations without the use of arithmetic operators and via the use of logical operators instead.