Anant Gupta

csa assignment – cpusim

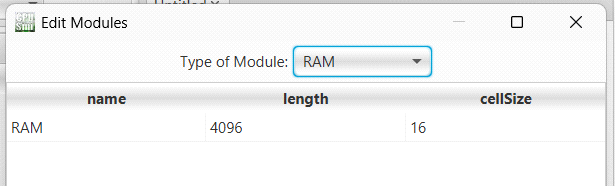
by: anant gupta

(24/48007)

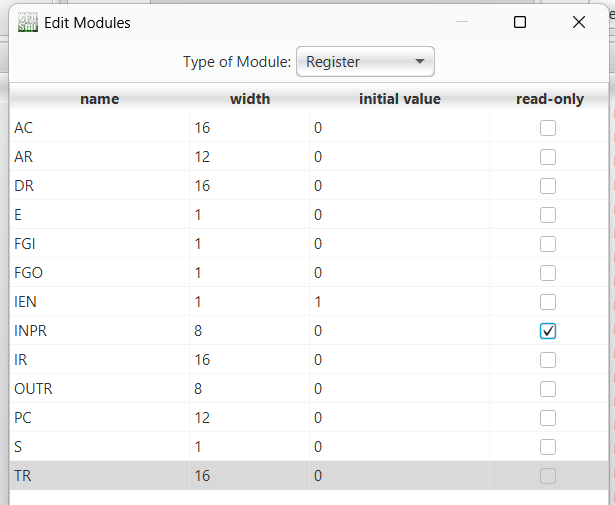
course: bsc(hons.) cs

CREATING HARDWARE MODULES:

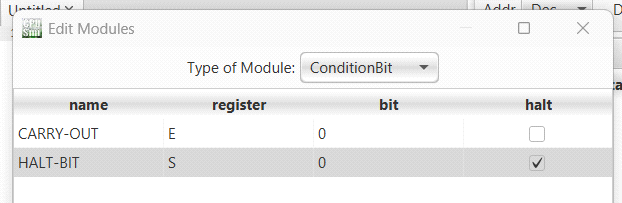
* **CREATING RAM:**



* **CREATING REGISTERS:**

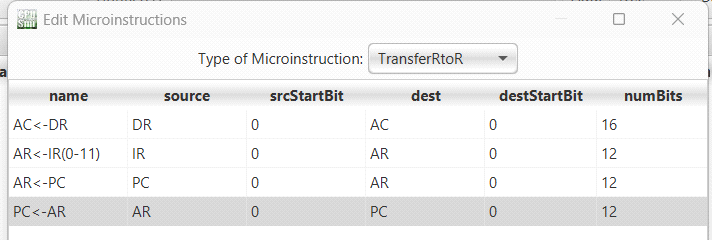


* **CONDITION BIT:**

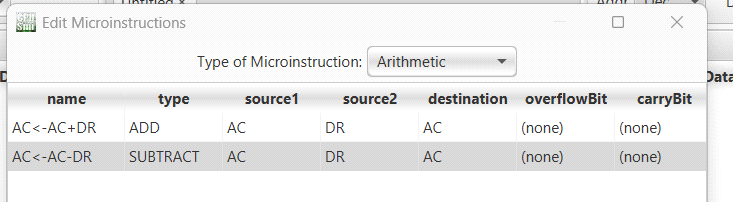
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* **CREATING MICROINSTRUCTIONS:**

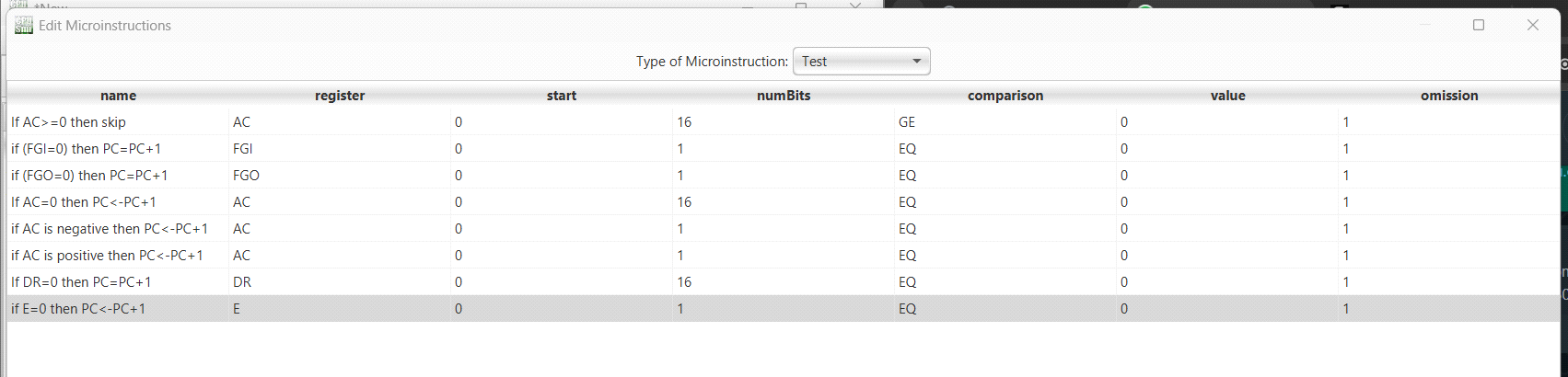
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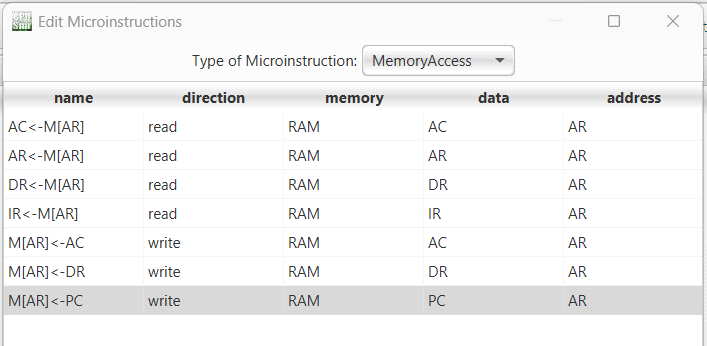
2.ARITHMETIC:



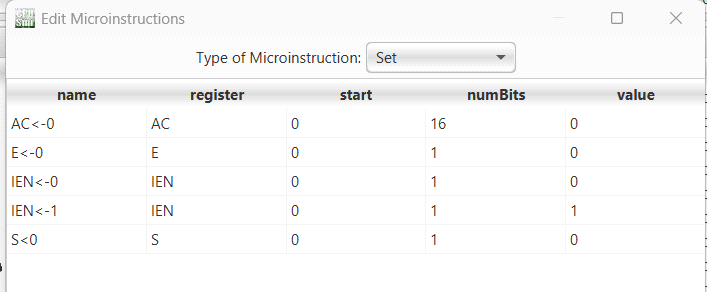
3. TEST:



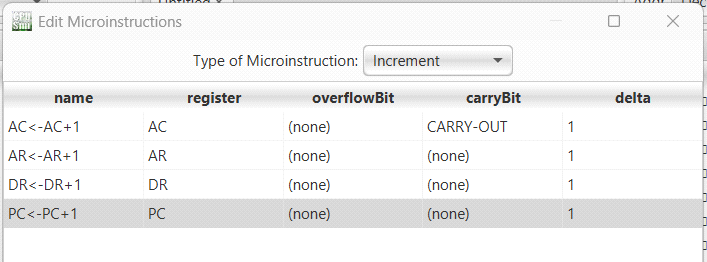
4. MEMORY ACCESS:



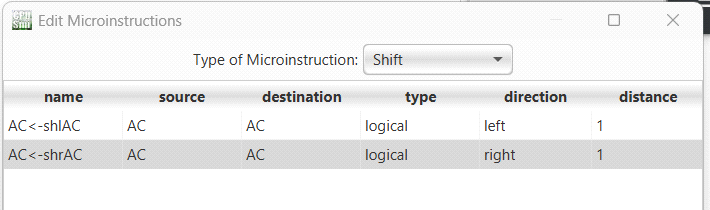
5. SET:



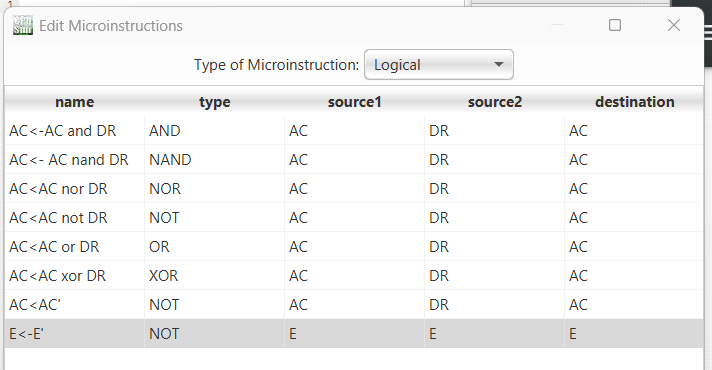
6. INCREMENT:



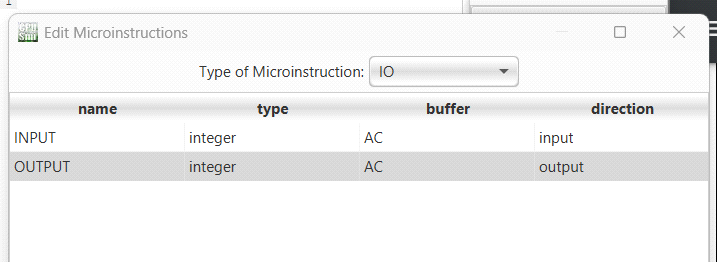
7. SHIFT:

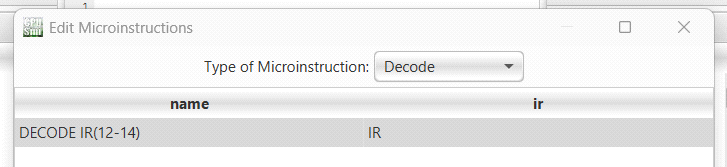


8. LOGICAL:

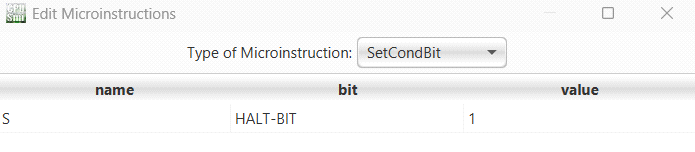


9. INPUT/OUTPUT:

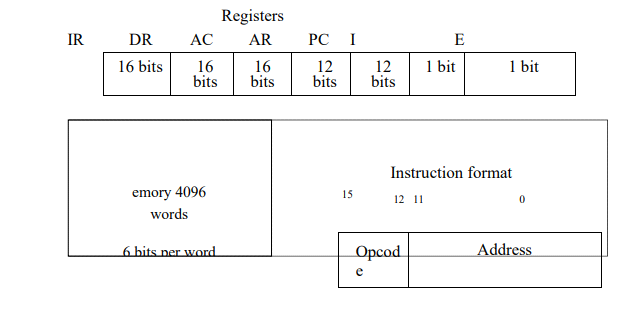


10. DECODE:

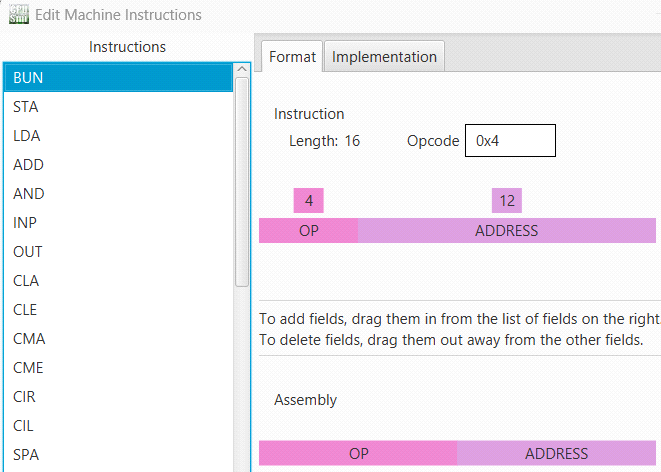
11. SETCONDBIT:

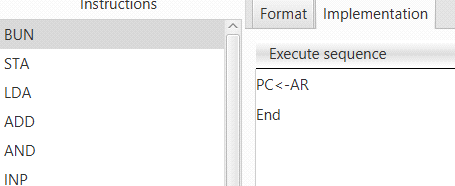


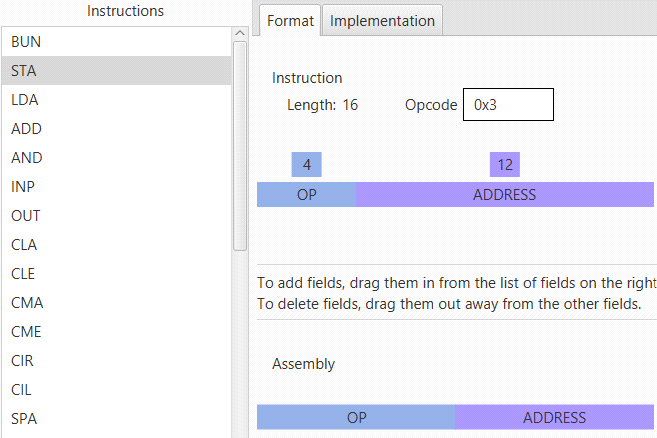
Q1. Create a machine based on the following architecture:

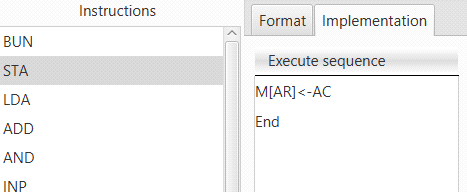


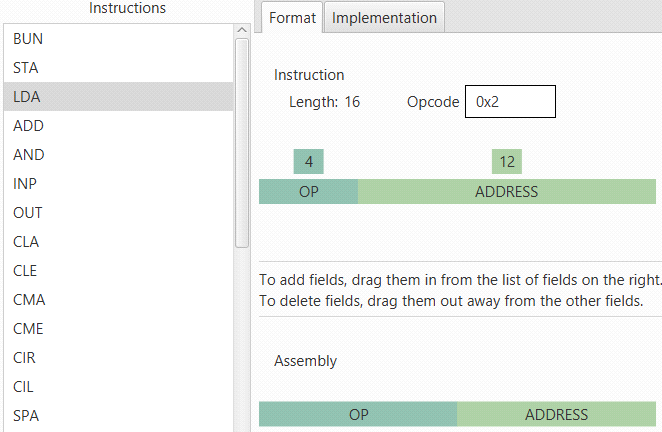
ANSWER:

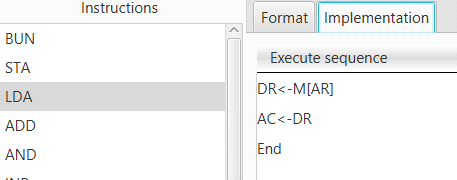


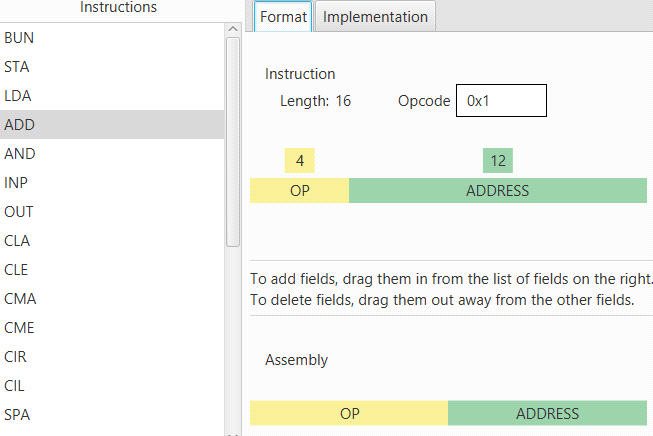


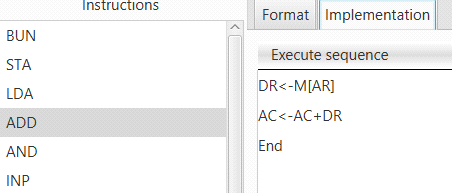


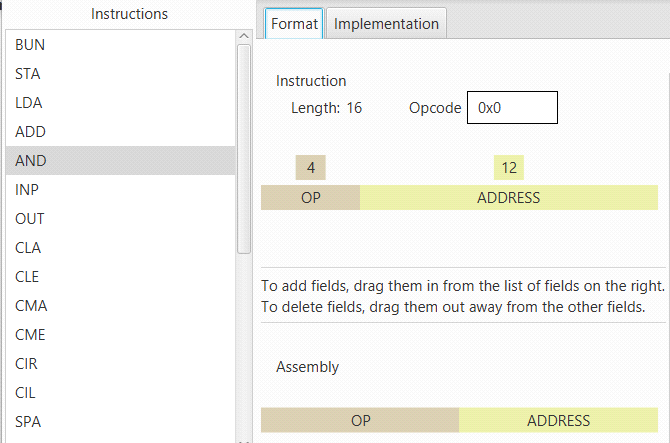


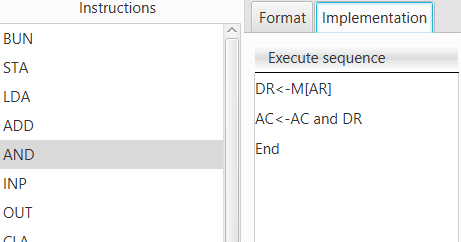


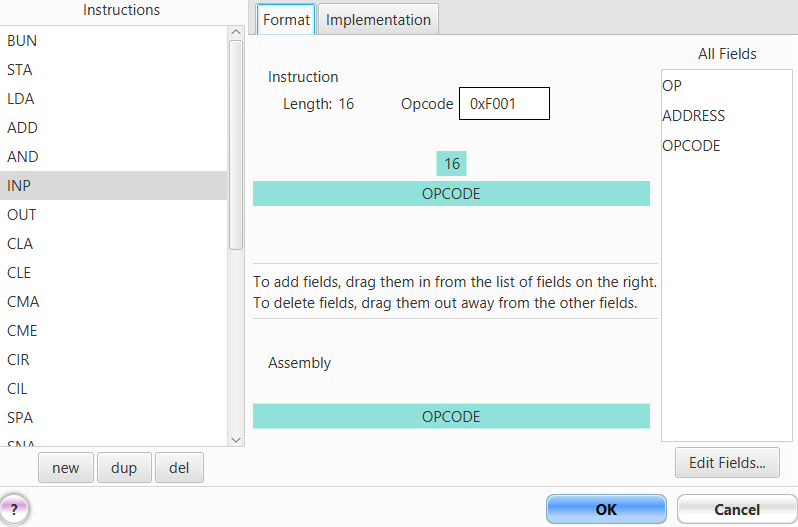


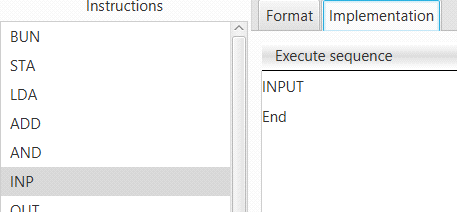


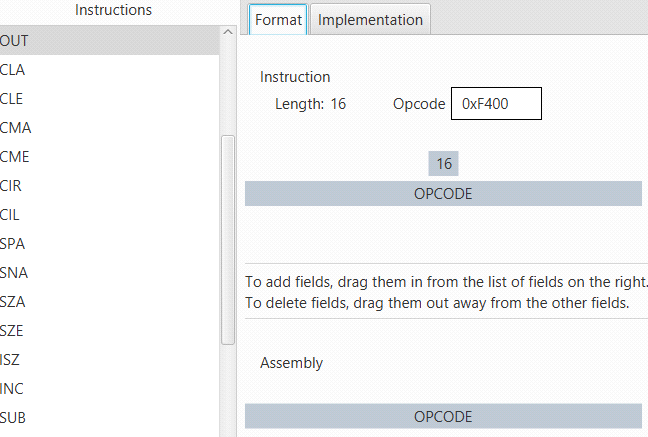


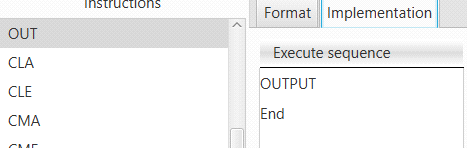


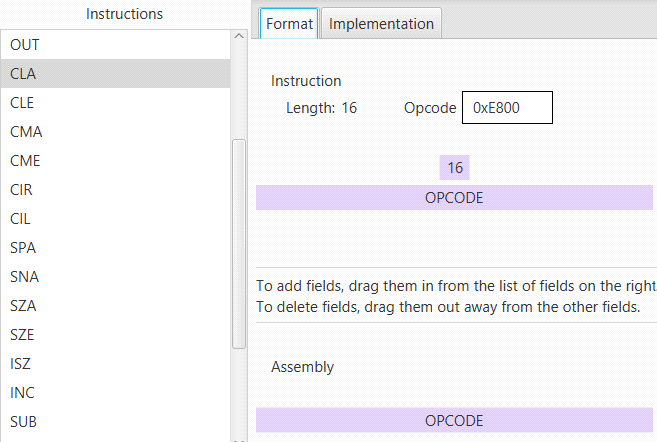


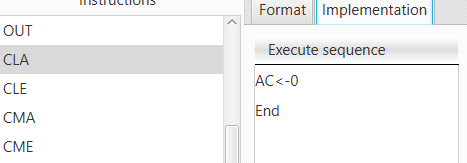


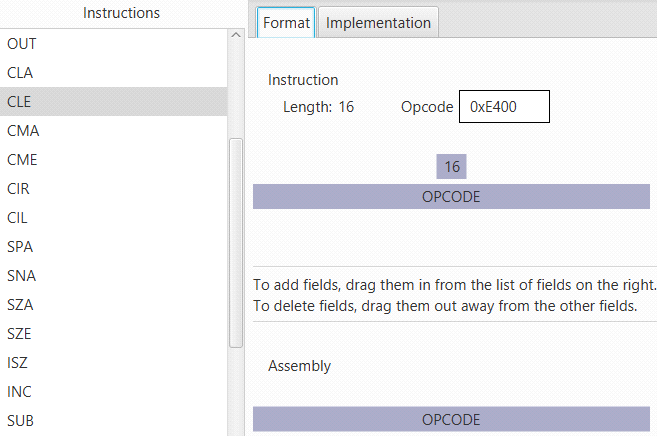


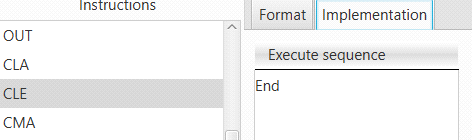


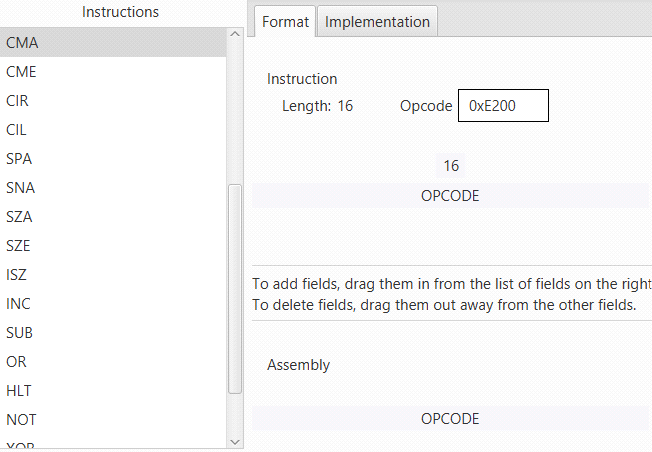


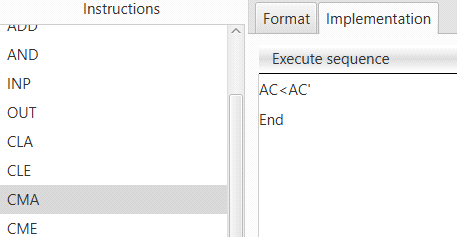


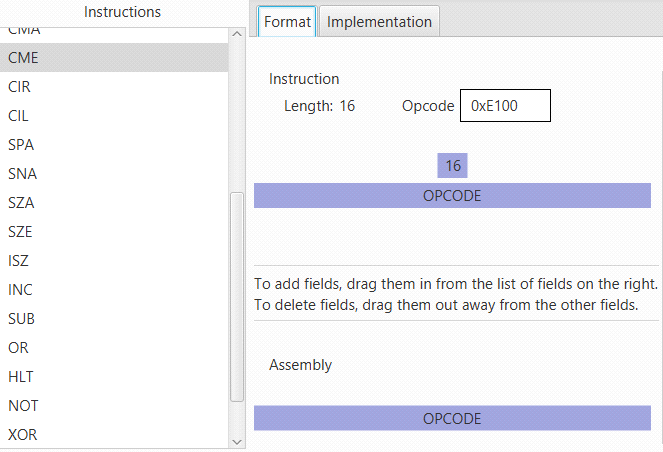


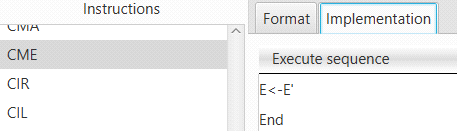


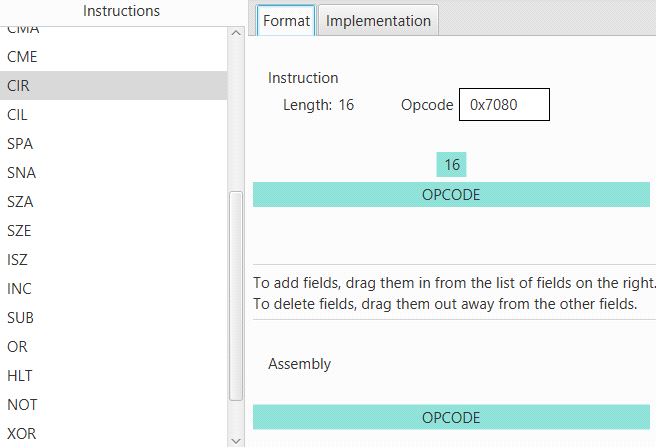


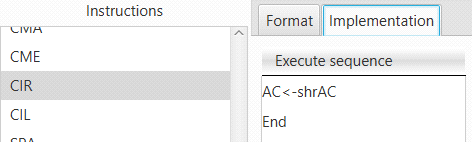


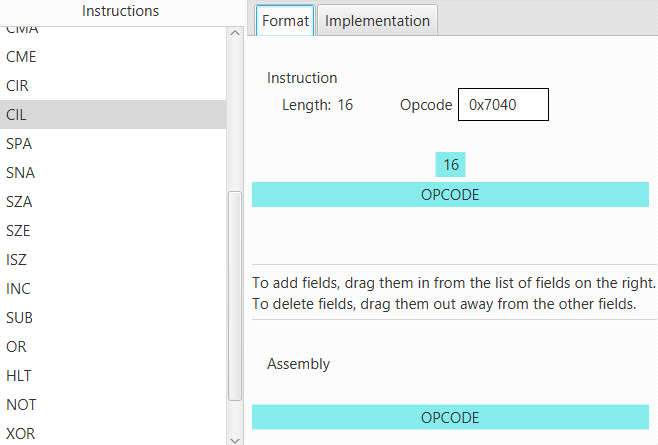


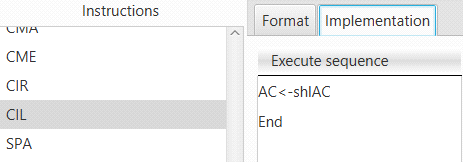


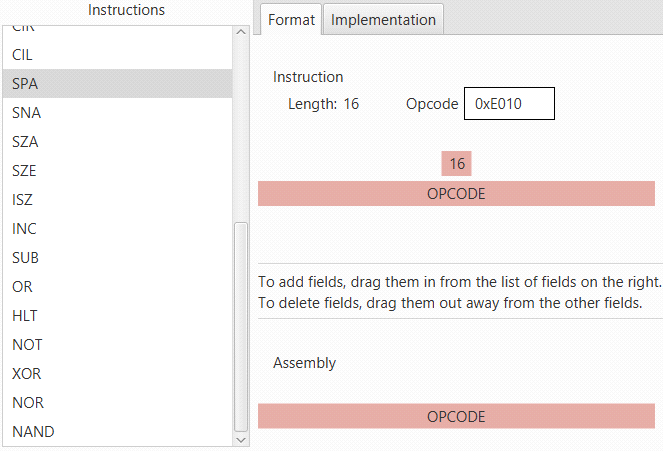


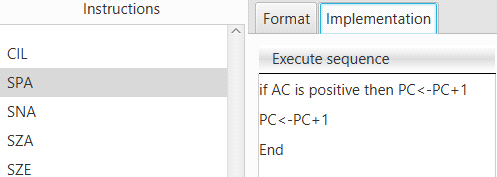


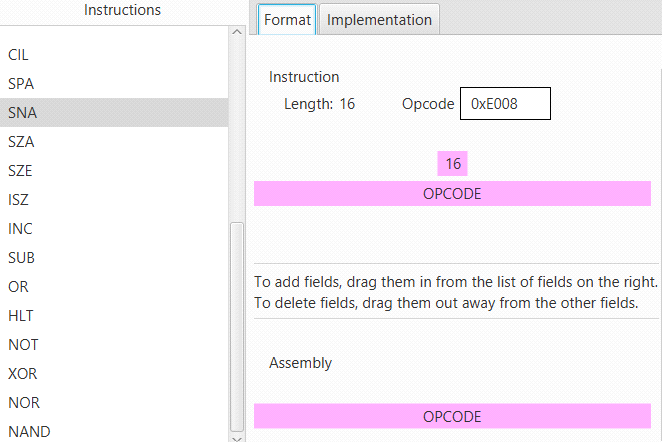


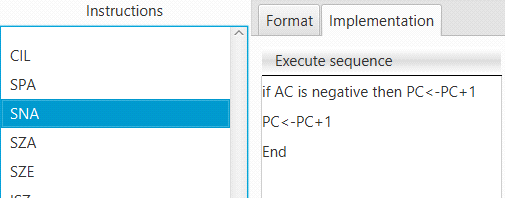


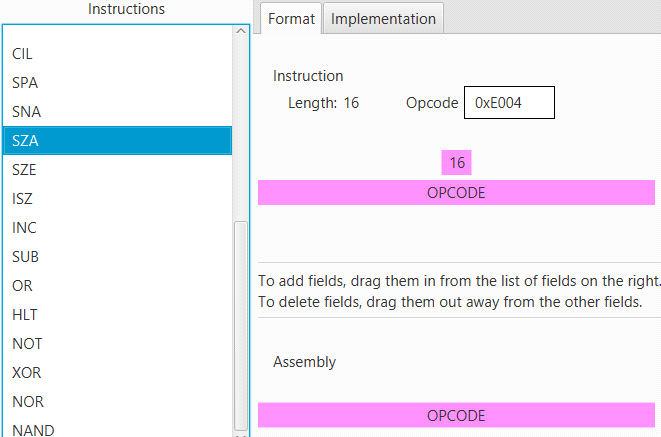


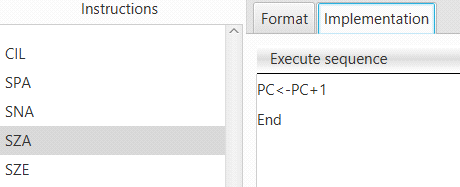


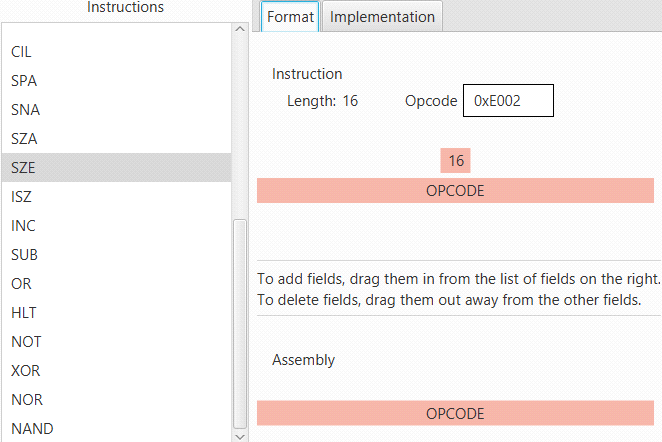


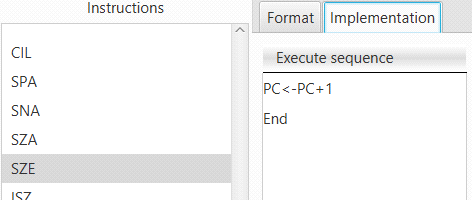


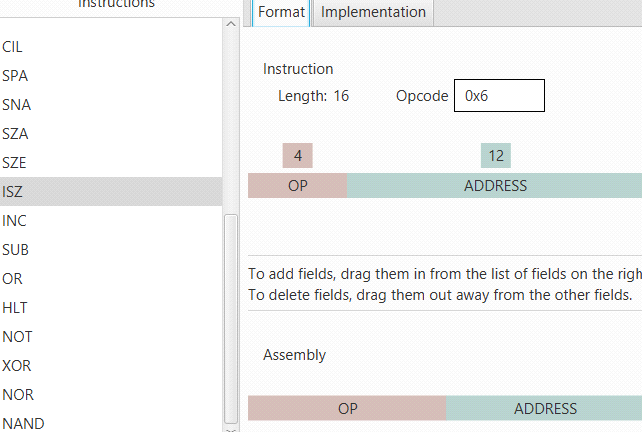


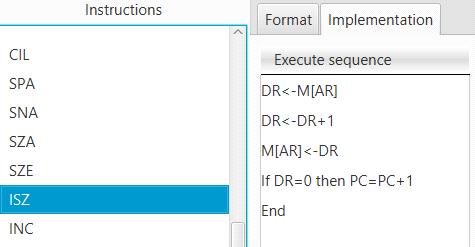


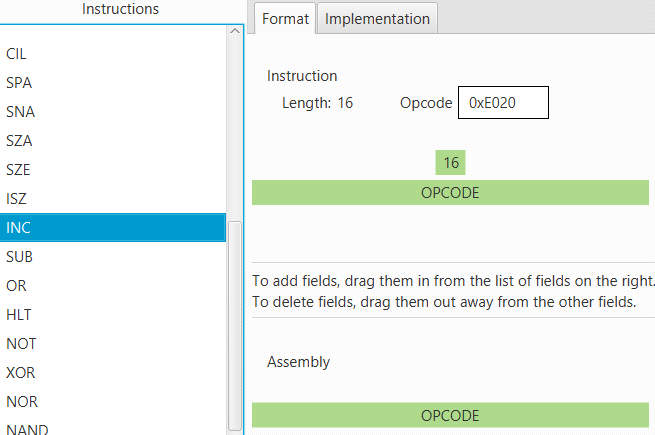


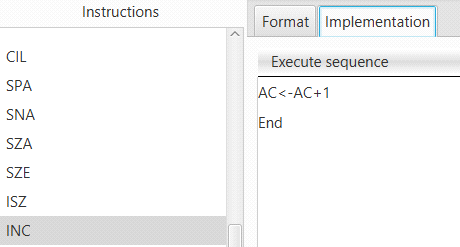


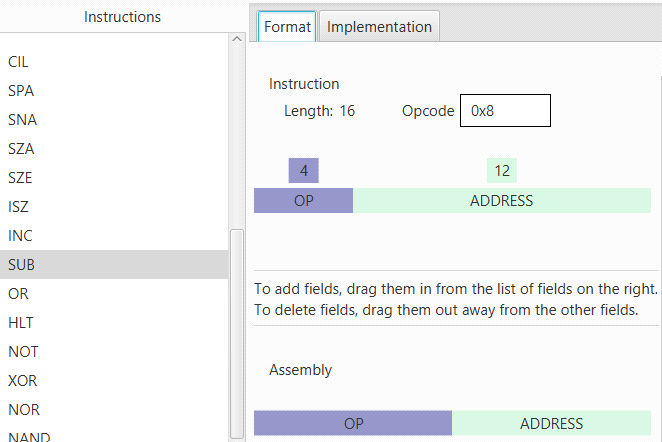


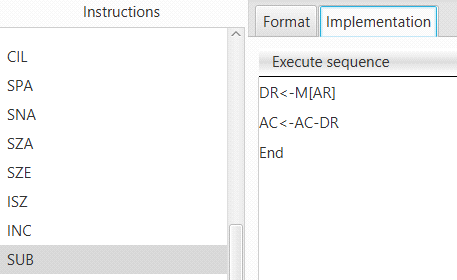


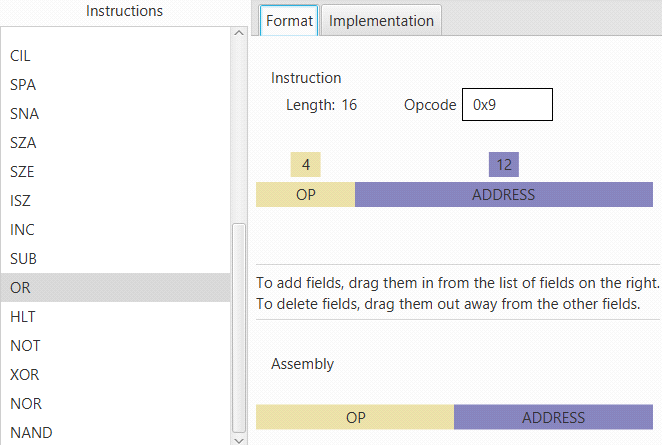


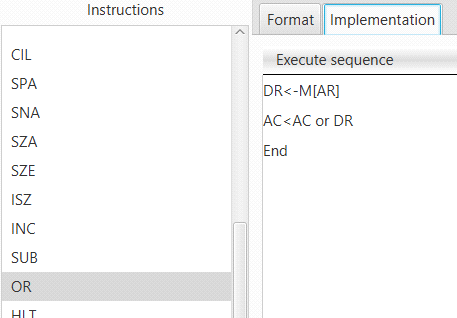


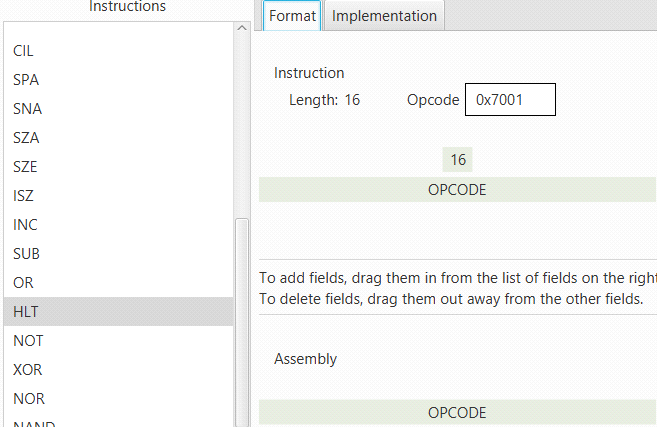


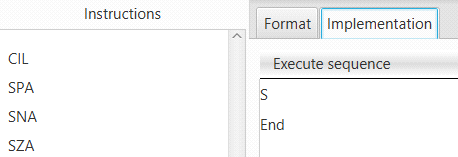


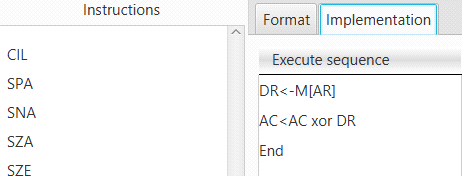
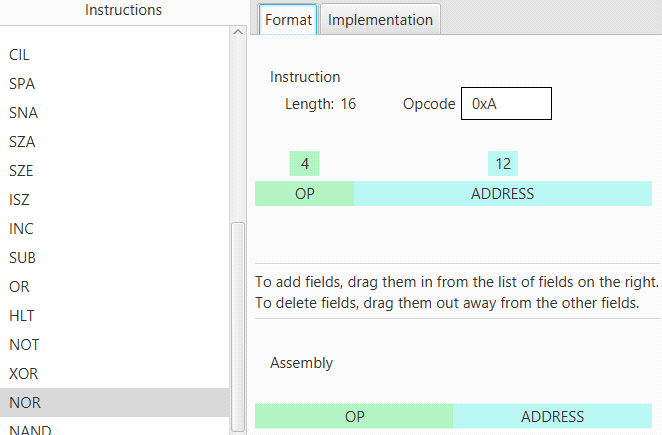
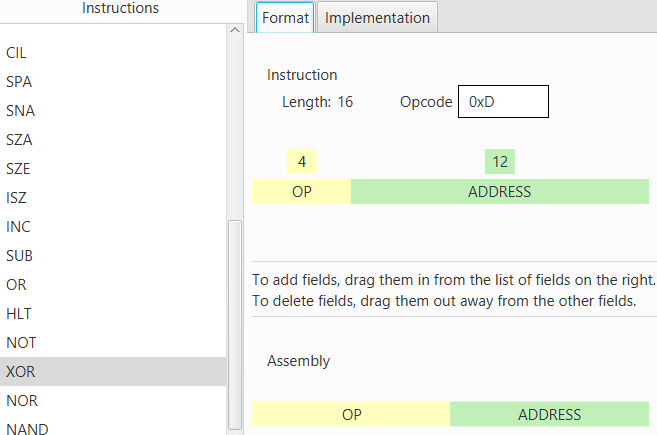
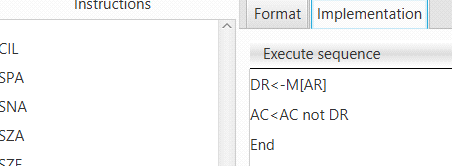
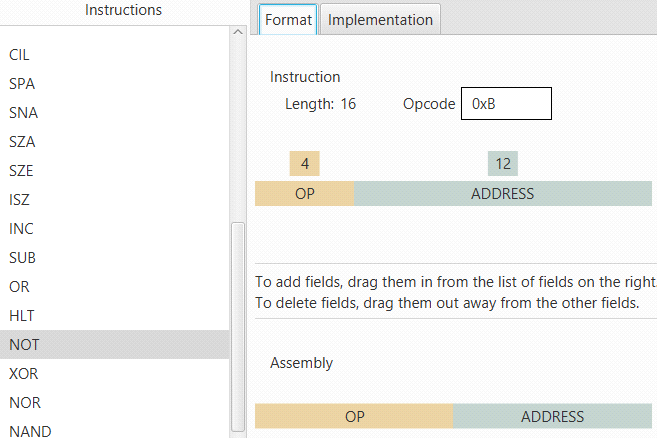


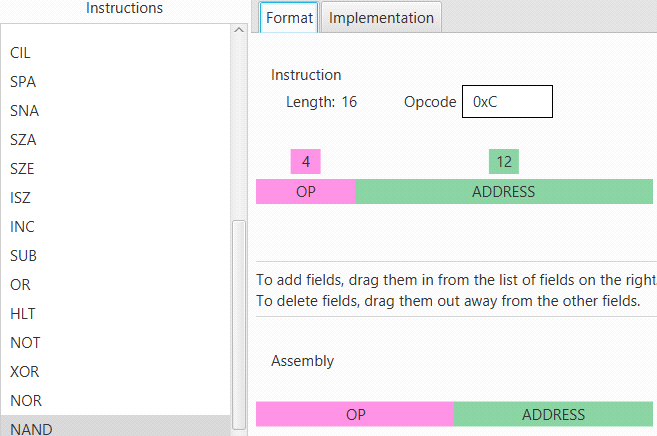
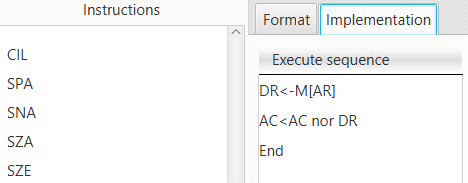


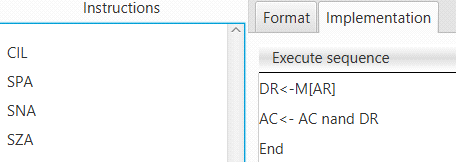






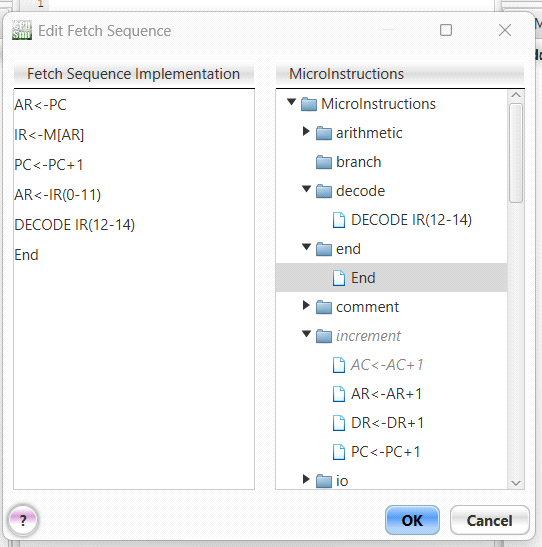






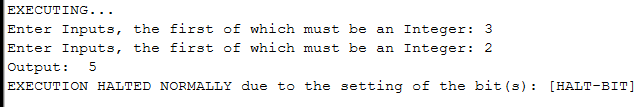
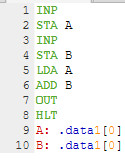
Q2. Create a Fetch routine of the instruction cycle.

ANSWER:



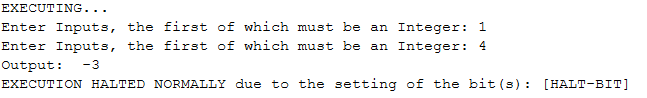
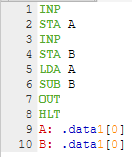
Q3. Write an assembly program to simulate ADD operation on two user-entered numbers.

ANSWER:



Q4. Write an assembly program to simulate SUBTRACT operation on two user-entered numbers

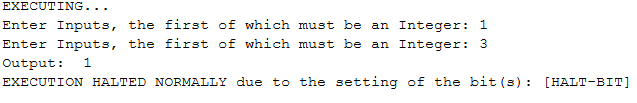
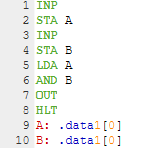
ANSWER:



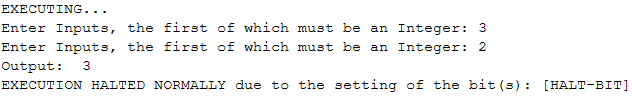
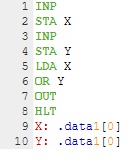
Q5. Write an assembly program to simulate the following logical operations on two user- entered numbers.

ANSWER:

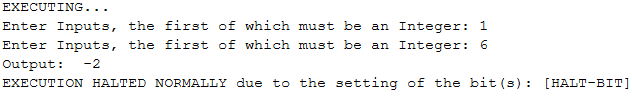
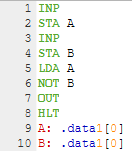
1.AND



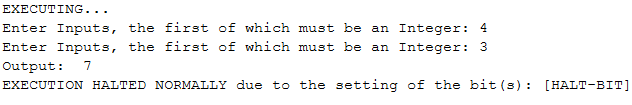
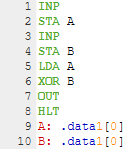
2.OR



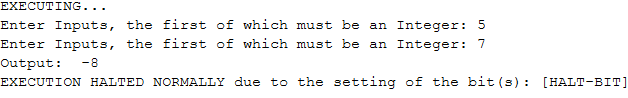
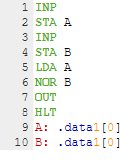
3.NOT



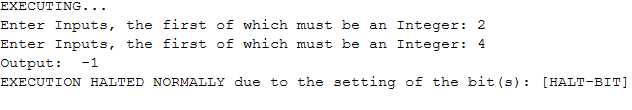
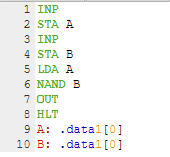
4.XOR



5.NOR



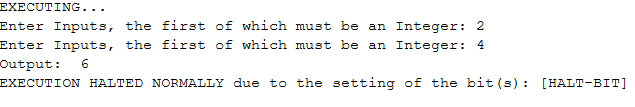
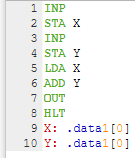
6.NAND



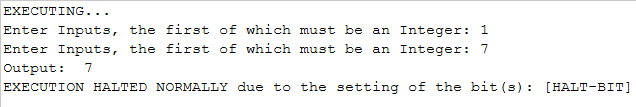
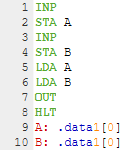
Q6. Write an assembly program for simulating following memory-reference instructions.

ANSWER:

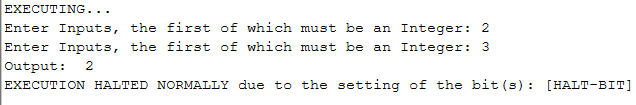
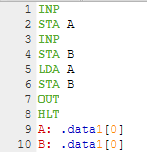
1.ADD



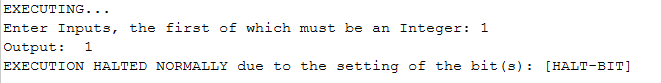
2.LDA



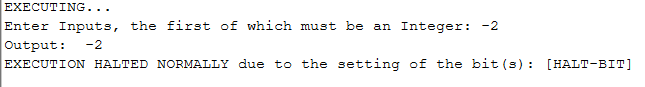
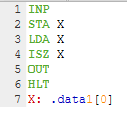
3.STA

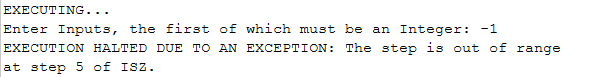


4.BUN



5.ISZ

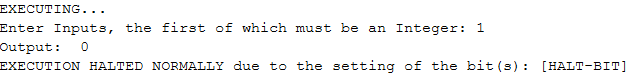




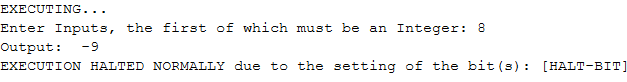
Q7. Write an assembly language program to simulate the machine for following register reference instructions and determine the contents of AC, E, PC, AR and IR registers in decimal after the execution:

ANSWER:

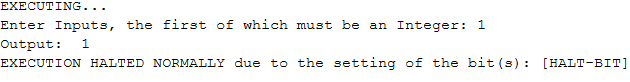
1.CLA



2.CMA



3.CME



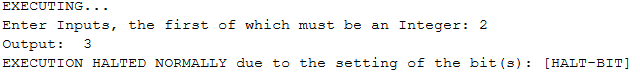
4.HLT



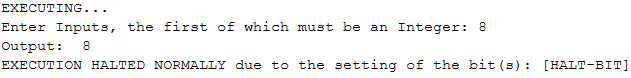
Q8. Write an assembly language program to simulate the machine for following register reference instructions and determine the contents of AC, E, PC, AR and IR registers in decimal after the execution:

ANSWER:

1.INC



2.SPA



3.SNA



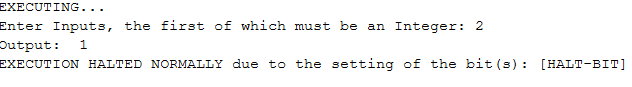
4.SZE



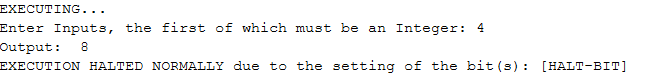
Q9. Write an assembly language program to simulate the machine for following register reference instructions and determine the contents of AC, E, PC, AR and IR registers in decimal after the execution:

ANSWER:

1.CIR

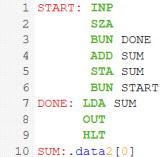


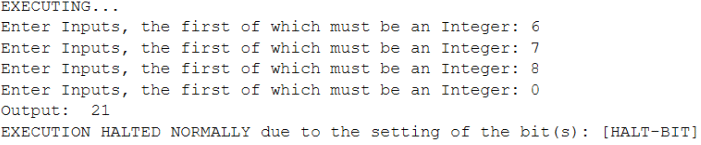
2.CIL



Q10. Write an assembly program that reads in integers and adds them together; until a negative non-zero number is read in. Then it outputs the sum (not including the last number).

ANSWER:





Q11. Write an assembly program that reads in integers and adds them together; until zero is read in. Then it outputs the sum.

ANSWER:

