**Al Imam Mohammad Ibn Saud Islamic University**

**College of Computer and Information Sciences**

**A 16-bit Machine for Shifting and Arithmetic Operations**

**Under Supervision of**

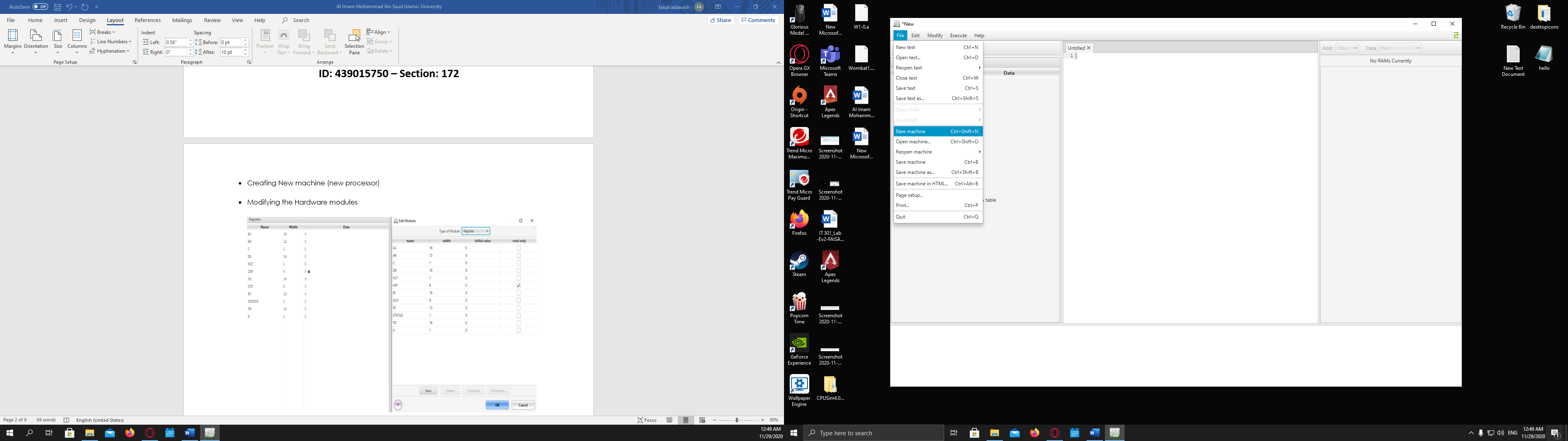
**Dr. Qaisar Abbas**

Preparation:

**Faisal Abdulrahman Aldawish**

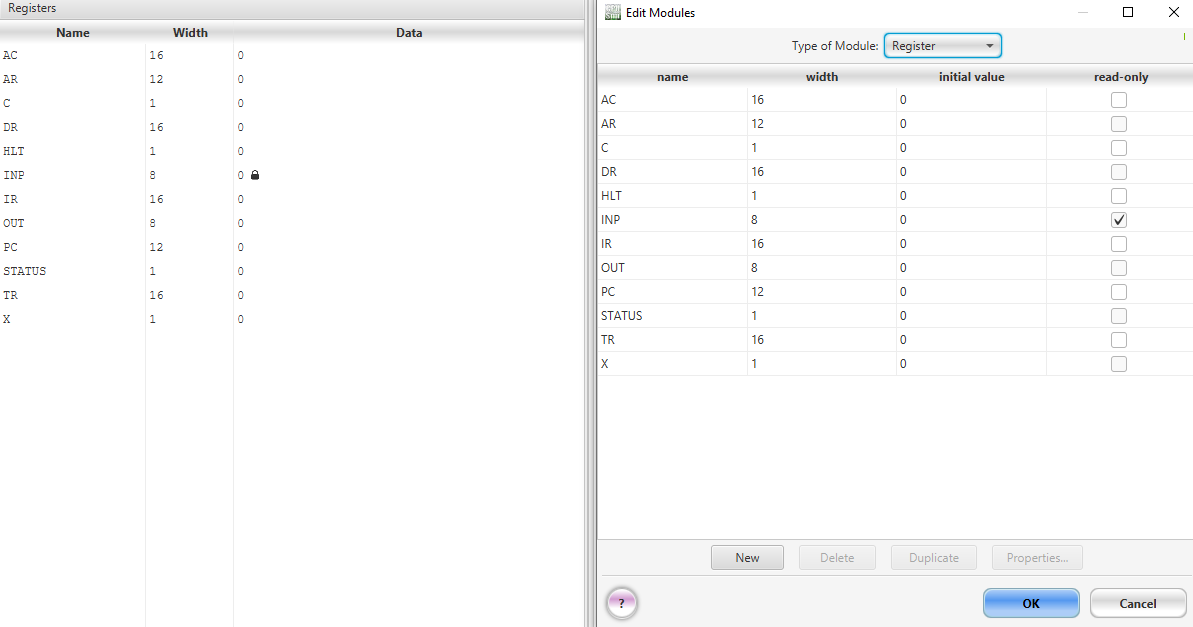
**ID: 439015750 – Section: 172**

* Creating New machine (new processor)
* file >new machine

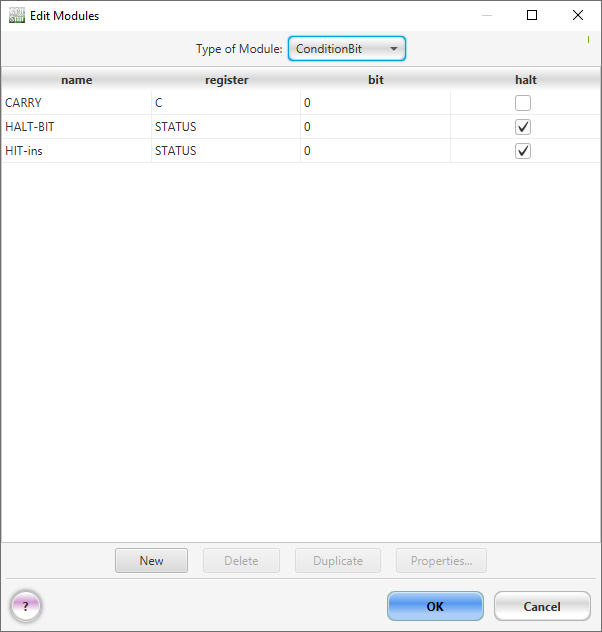
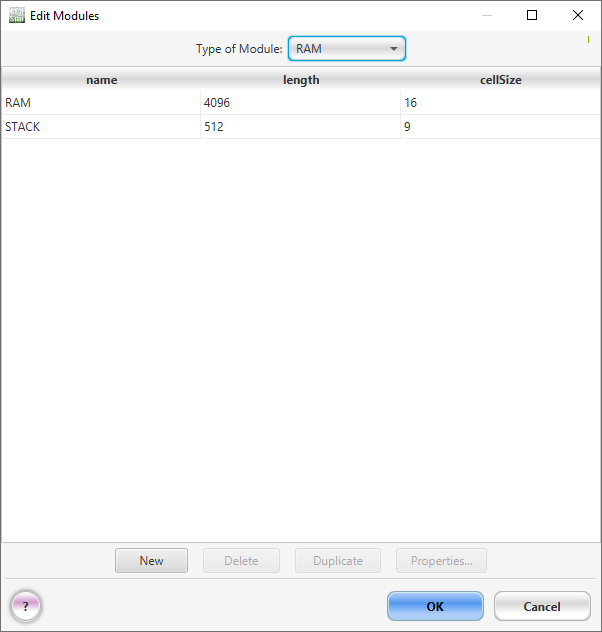


* Modifying the Hardware modules
* Modify > Hardware modules

Register:

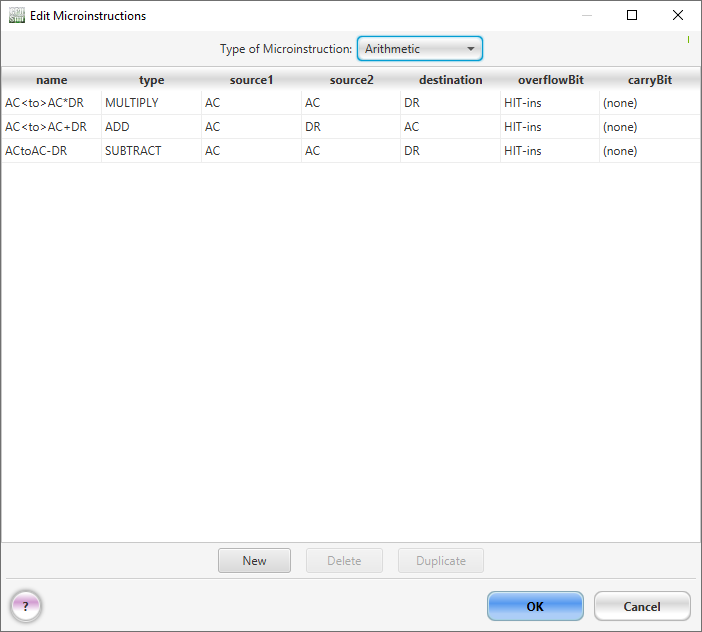
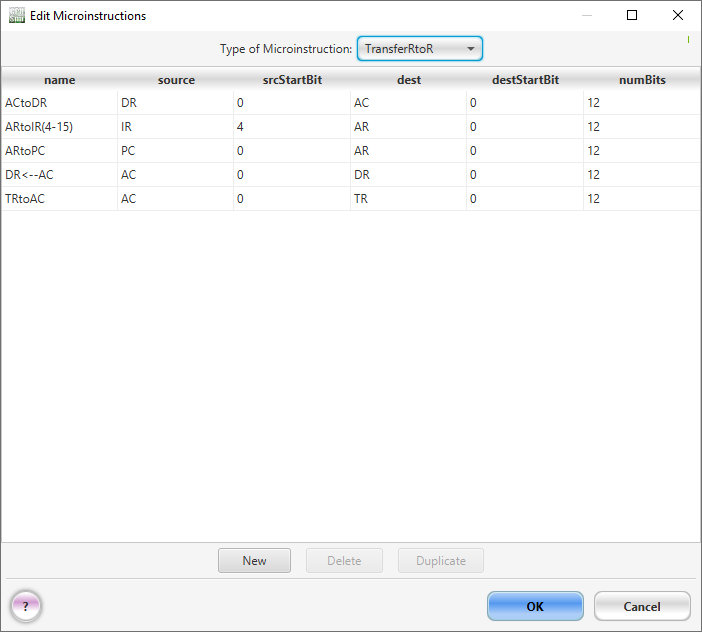


RAM: condition bit:

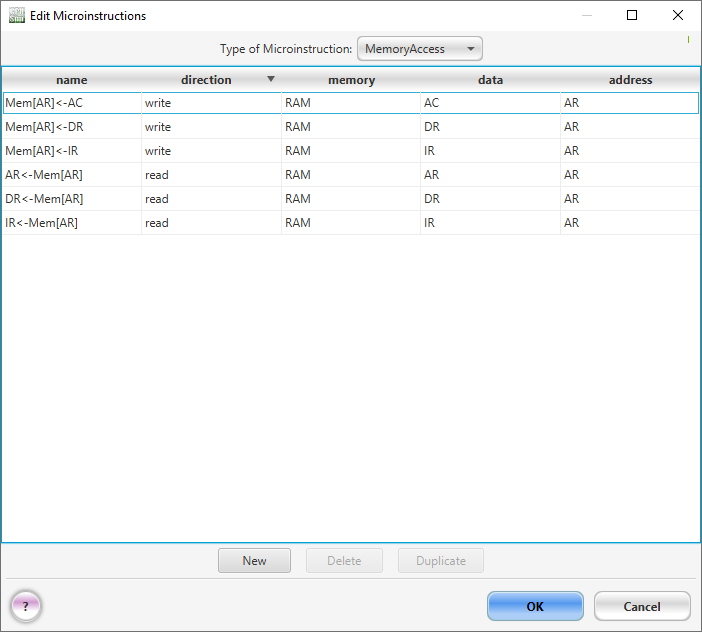
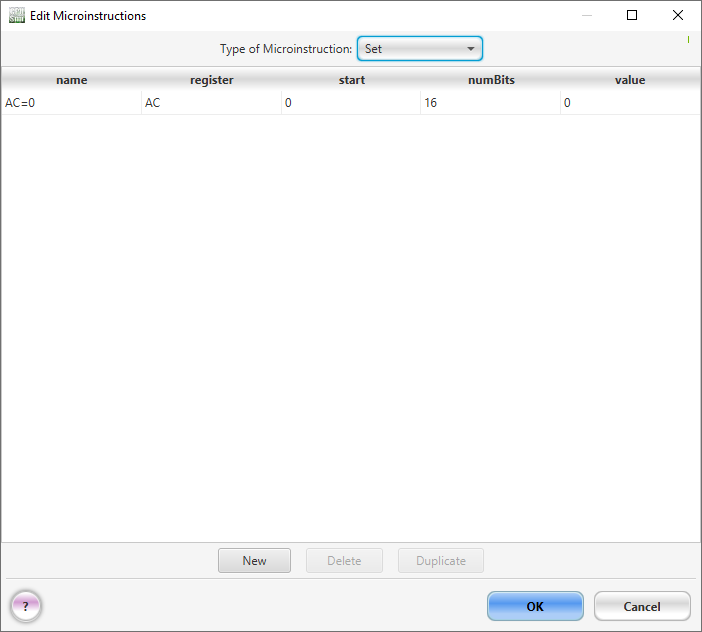


* Modifying the Microinstructions
* Modify > Microinstructions

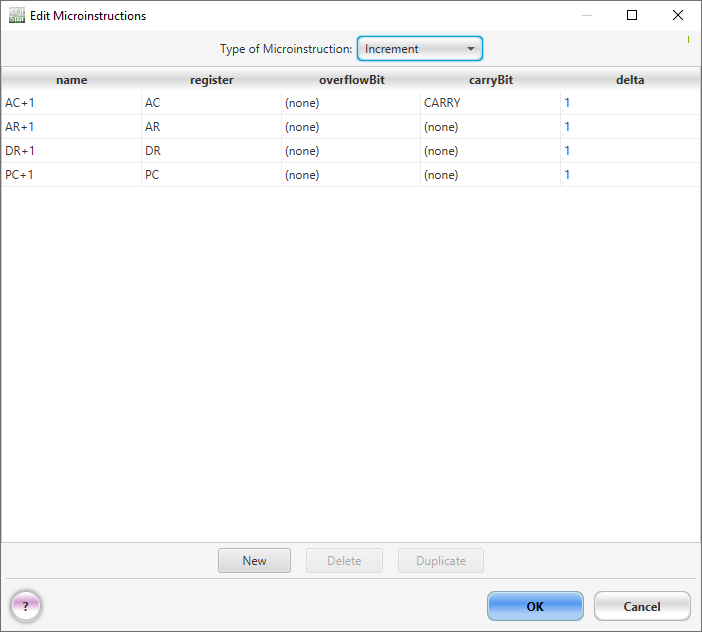
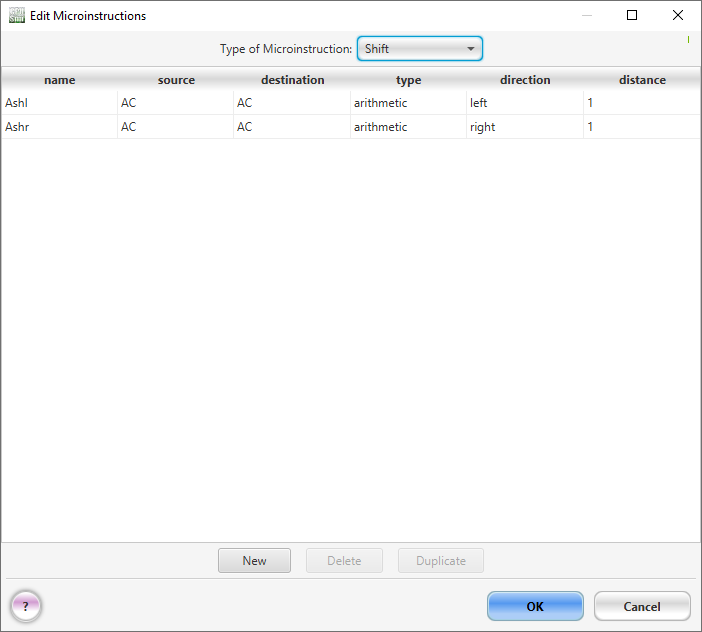
Transfertor: Arithmetic:



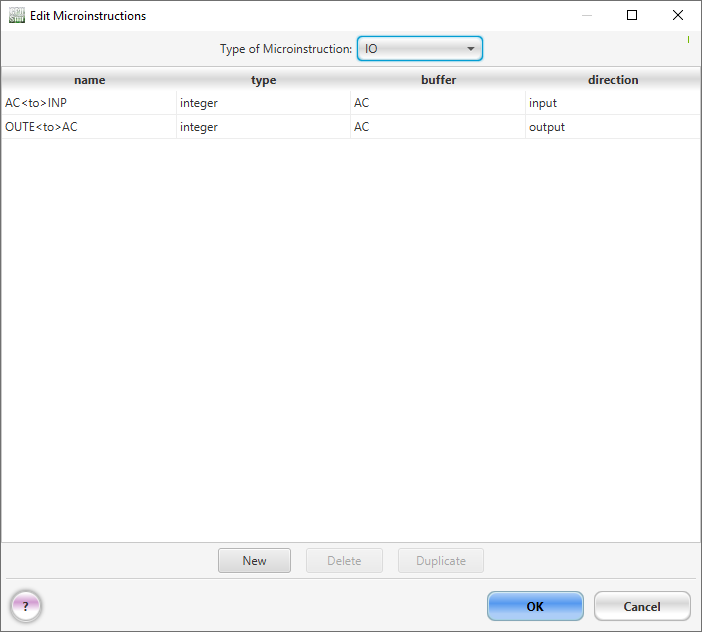
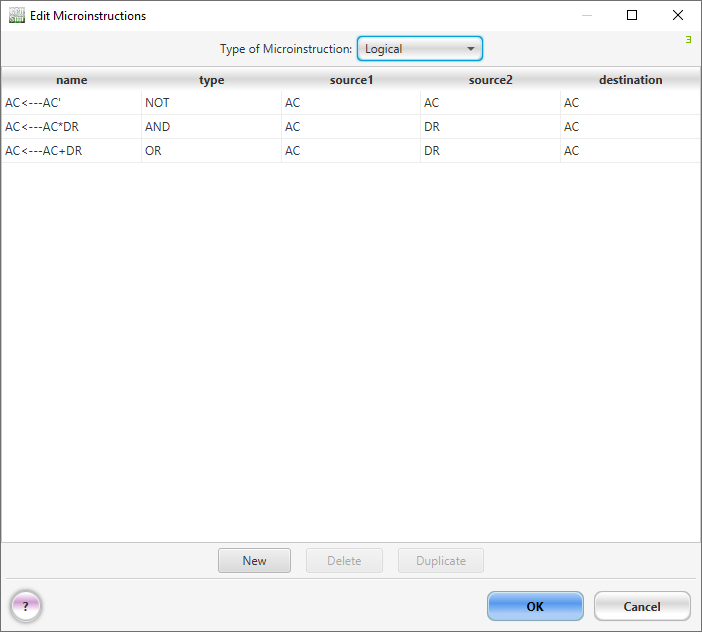
Set: MemoryAccess:



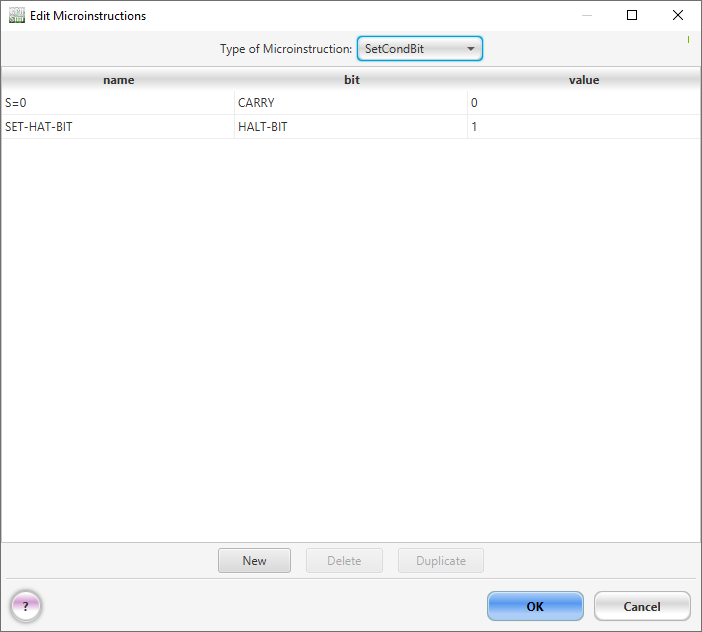
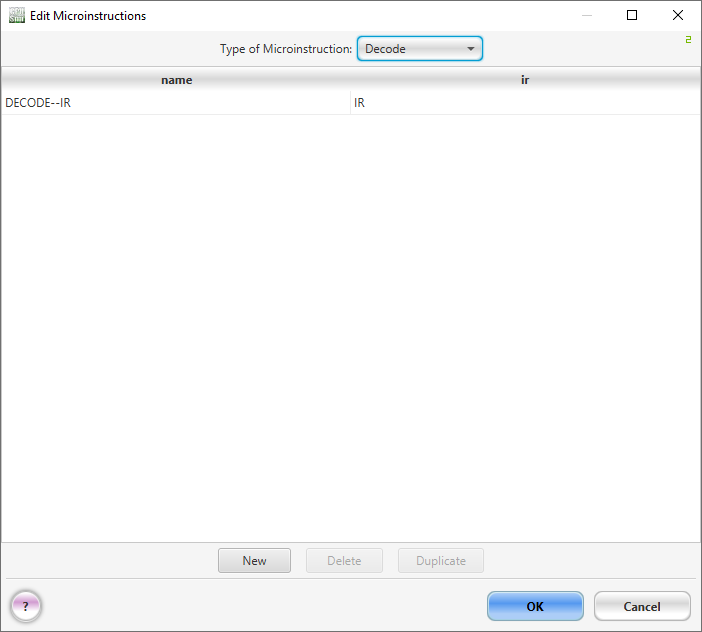
Shift: Increment:



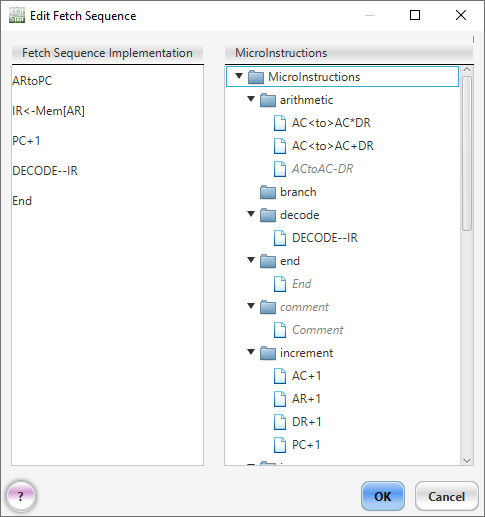
Logical: IO;



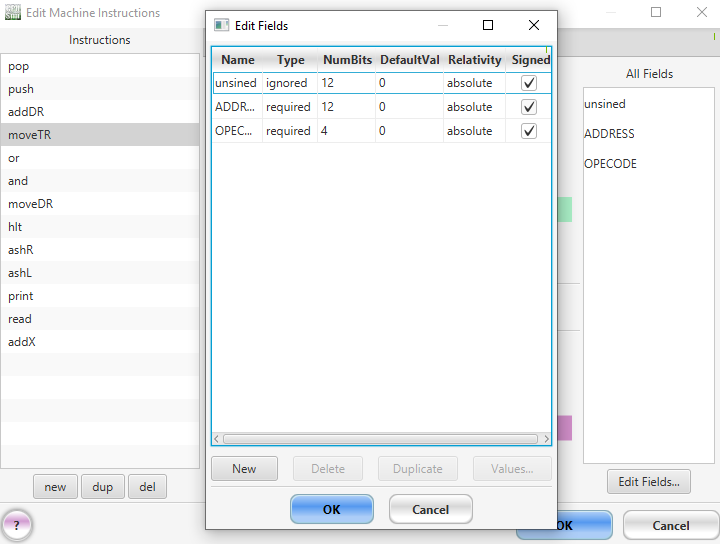
Decode: SetCondBit:



* Modifying the fetch and decode cycle
* Modify > fetch sequence

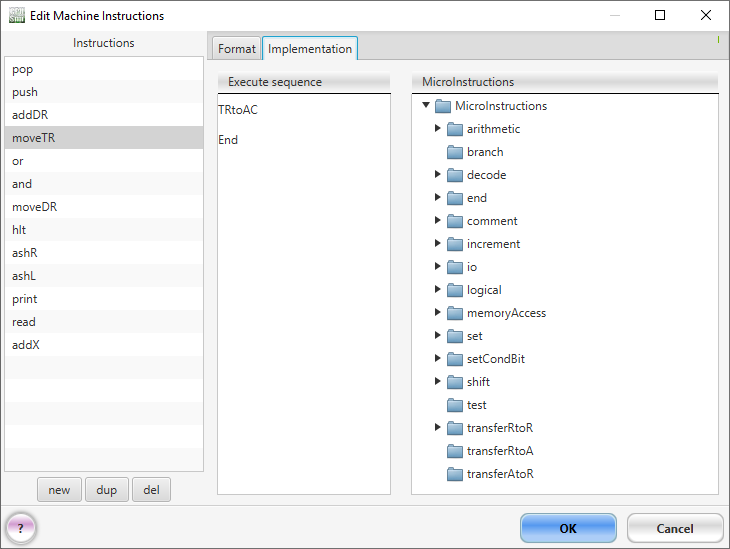
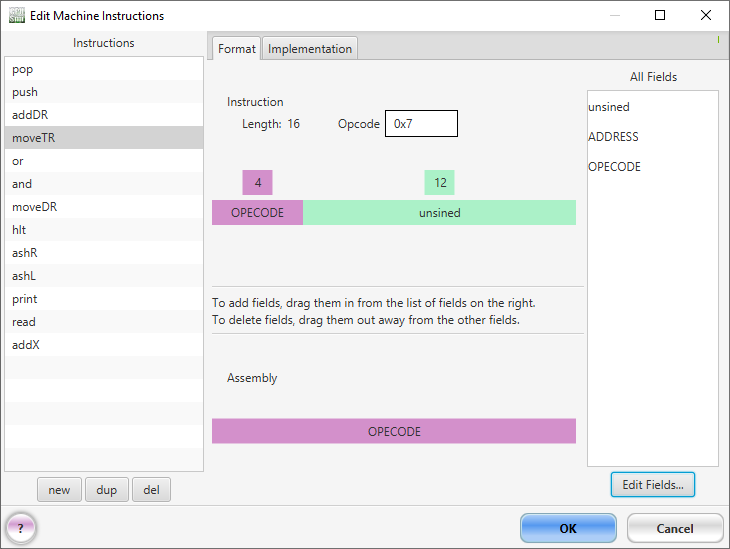


* Creating new Machine Instruction
* Modify > Machine Instruction



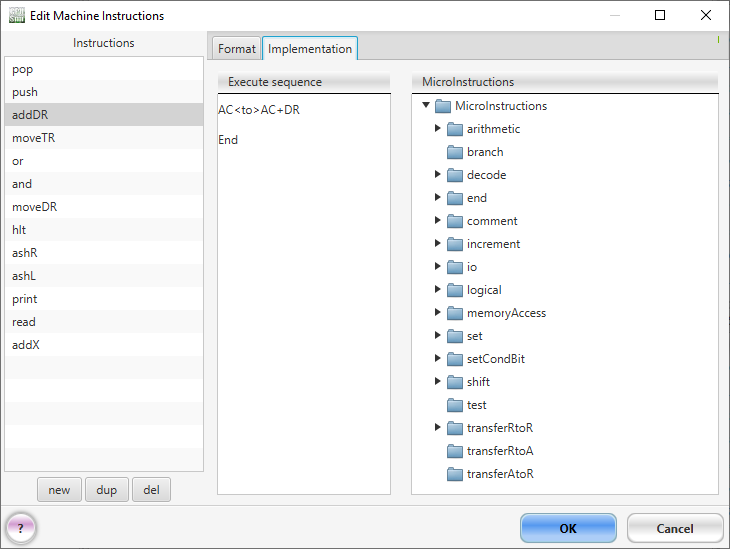
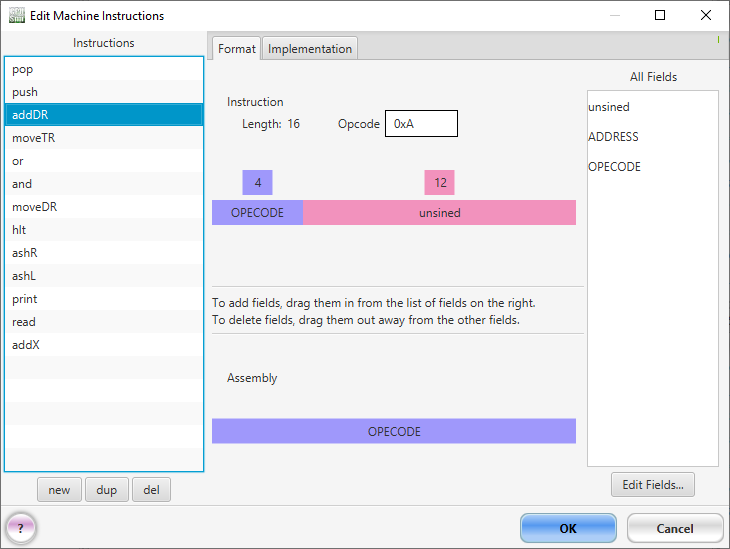
moveTR:

Format: Implementation:



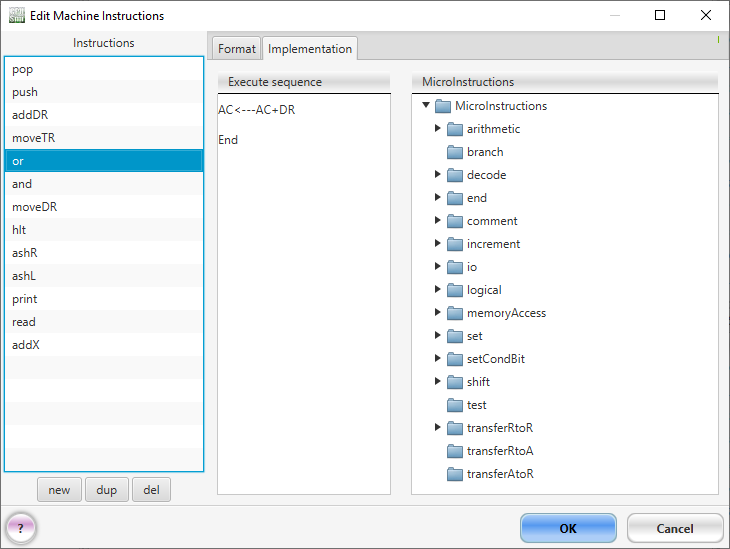
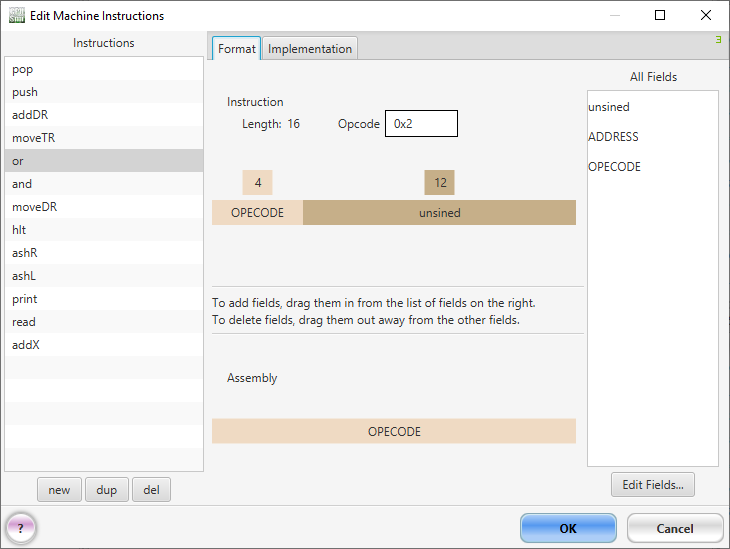
AddDR:

Format: Implementation:



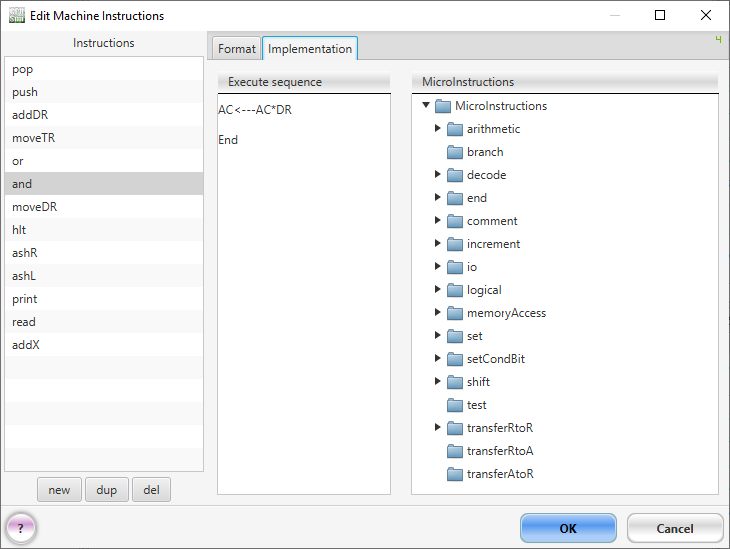
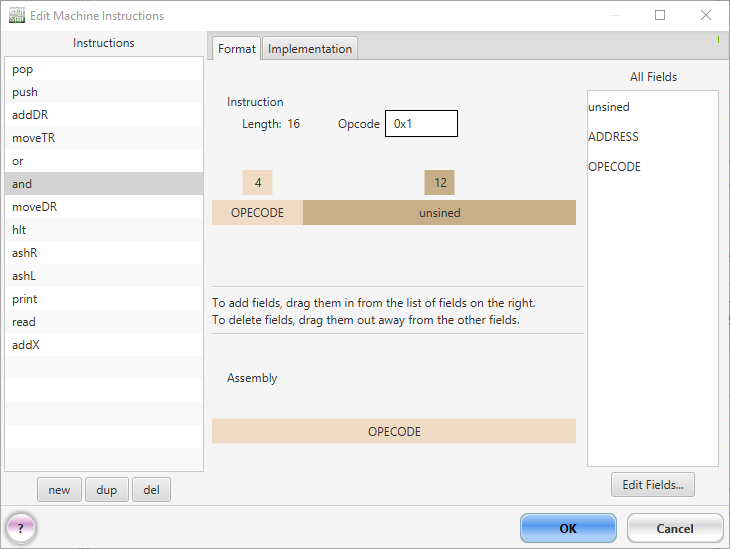
OR:

Format: Implementation:



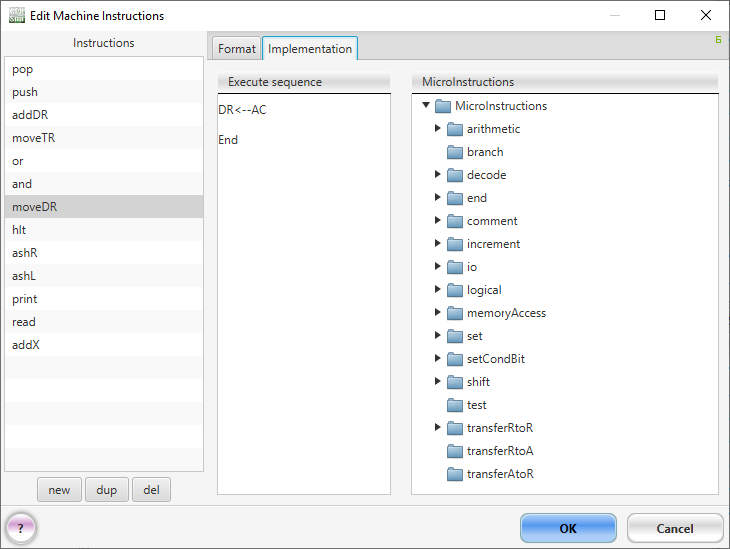
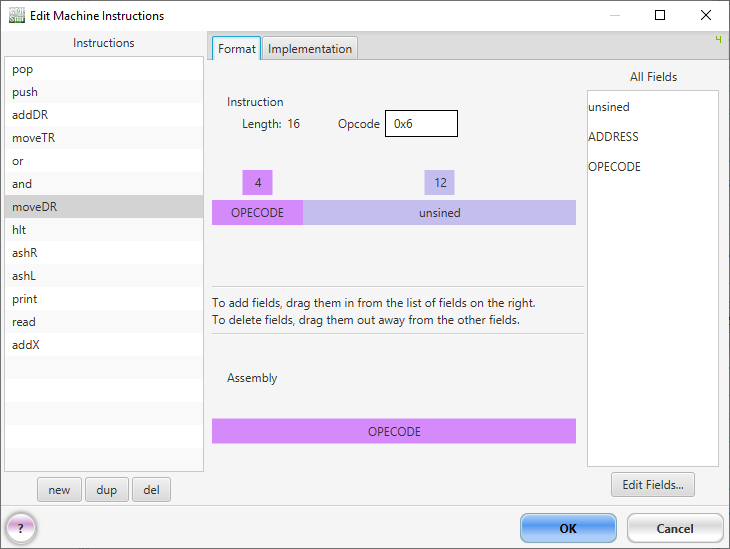
And:

Format: Implementation:



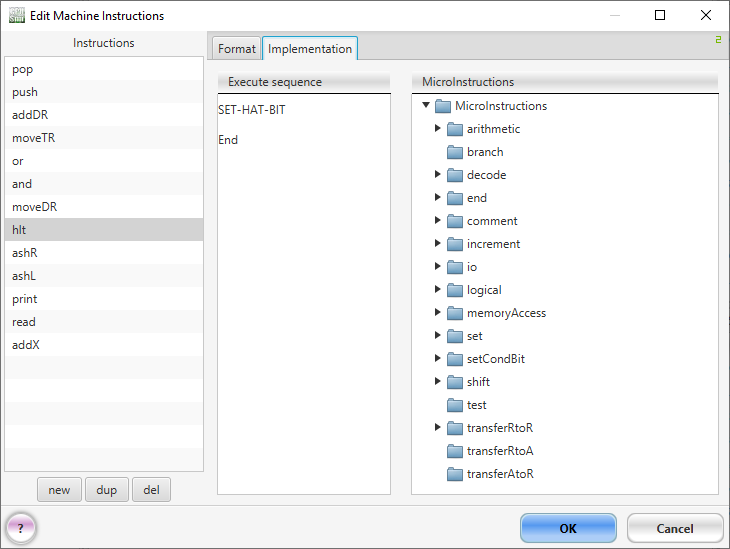
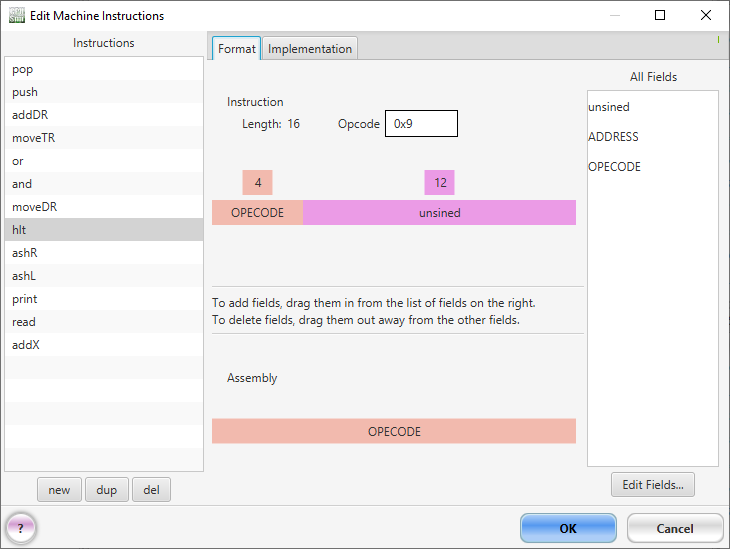
MoveDR:

Format: Implementation:



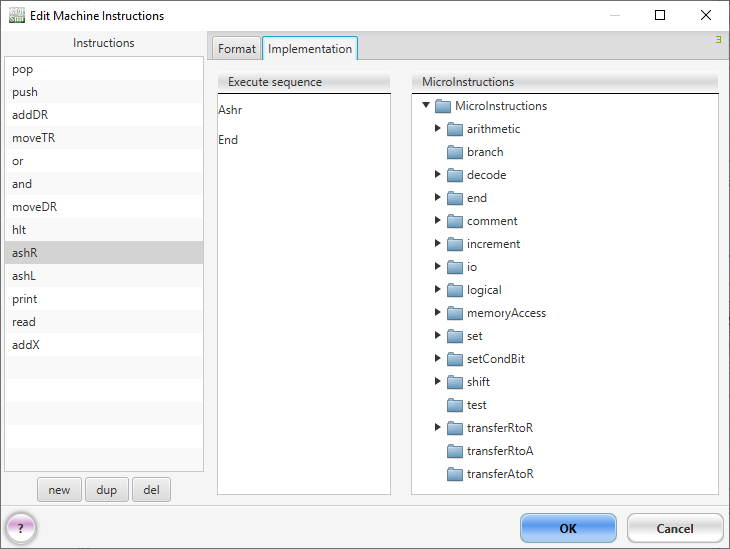
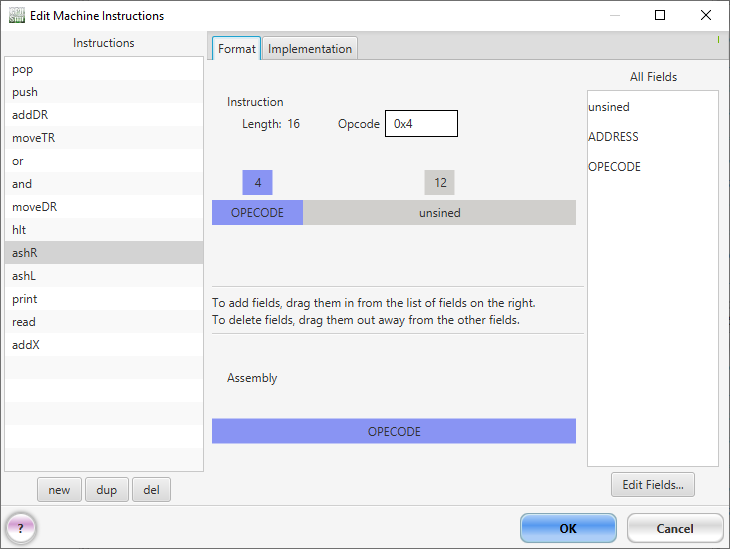
HLT:

Format: Implementation:



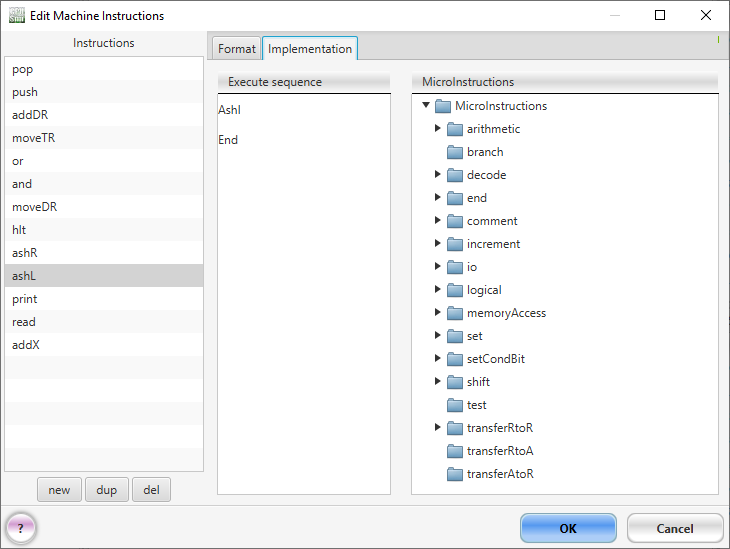
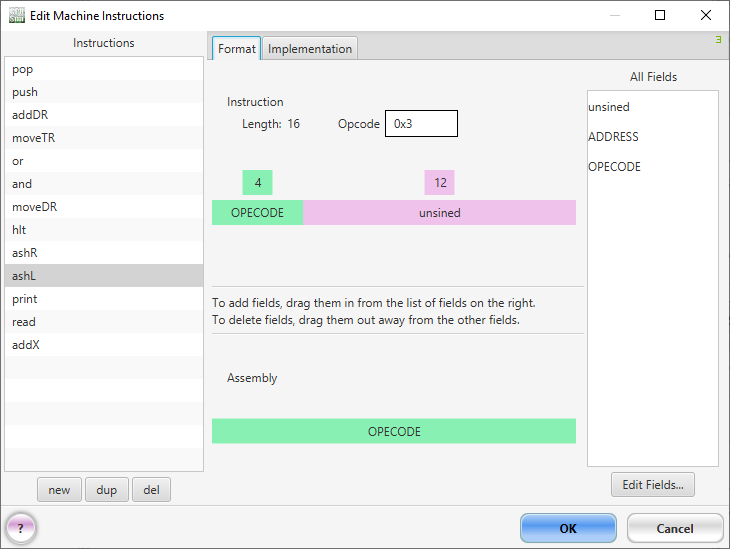
AshR:

Format: Implementation:



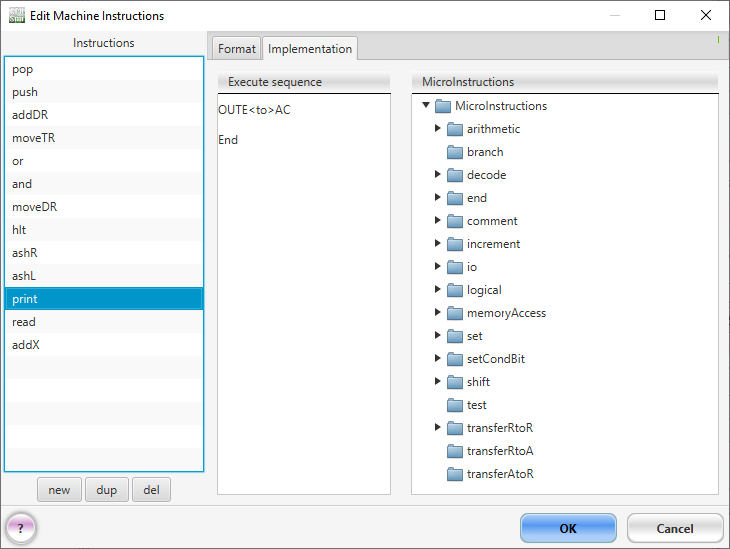
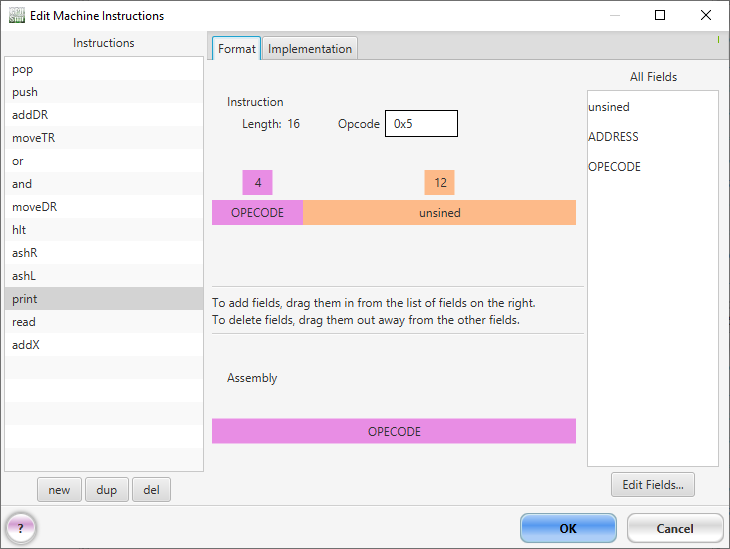
ashL:

Format: Implementation:



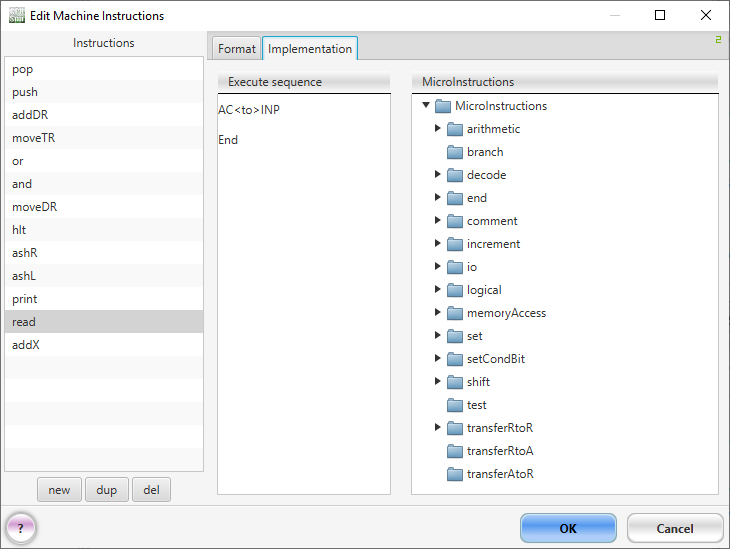
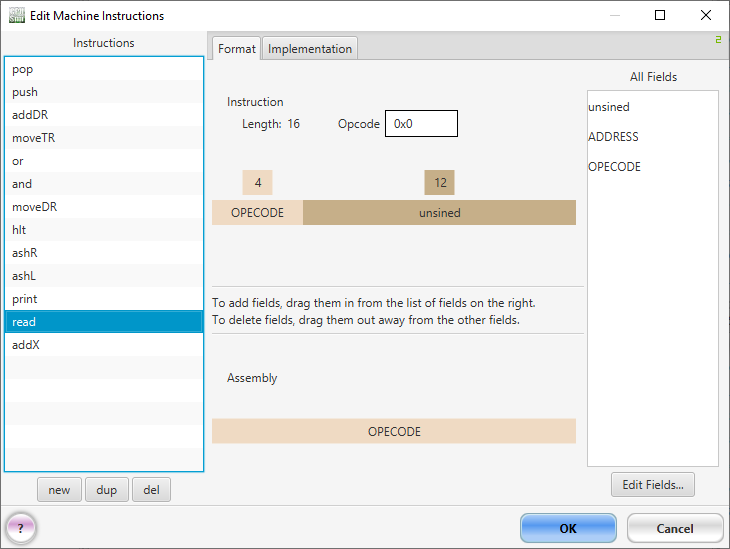
Print:

Format: Implementation:



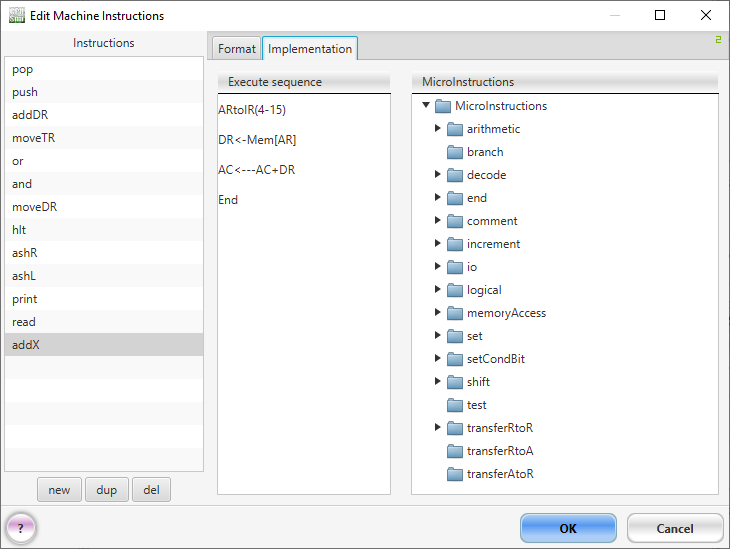
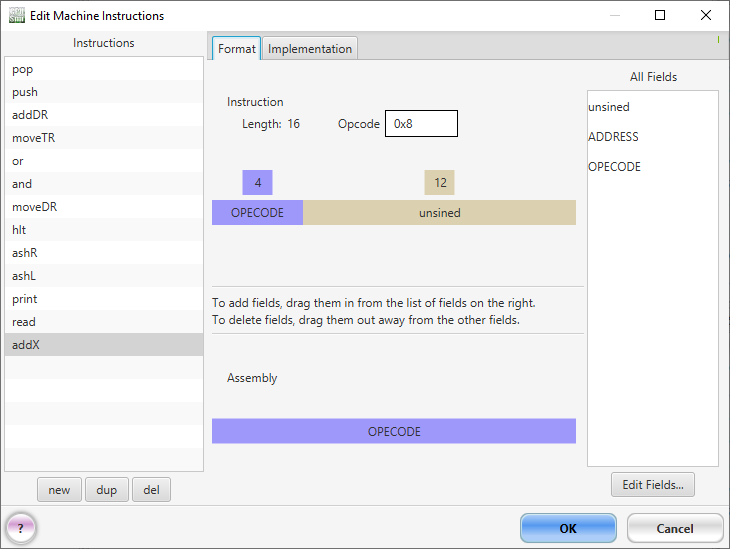
Read:

Format: Implementation:



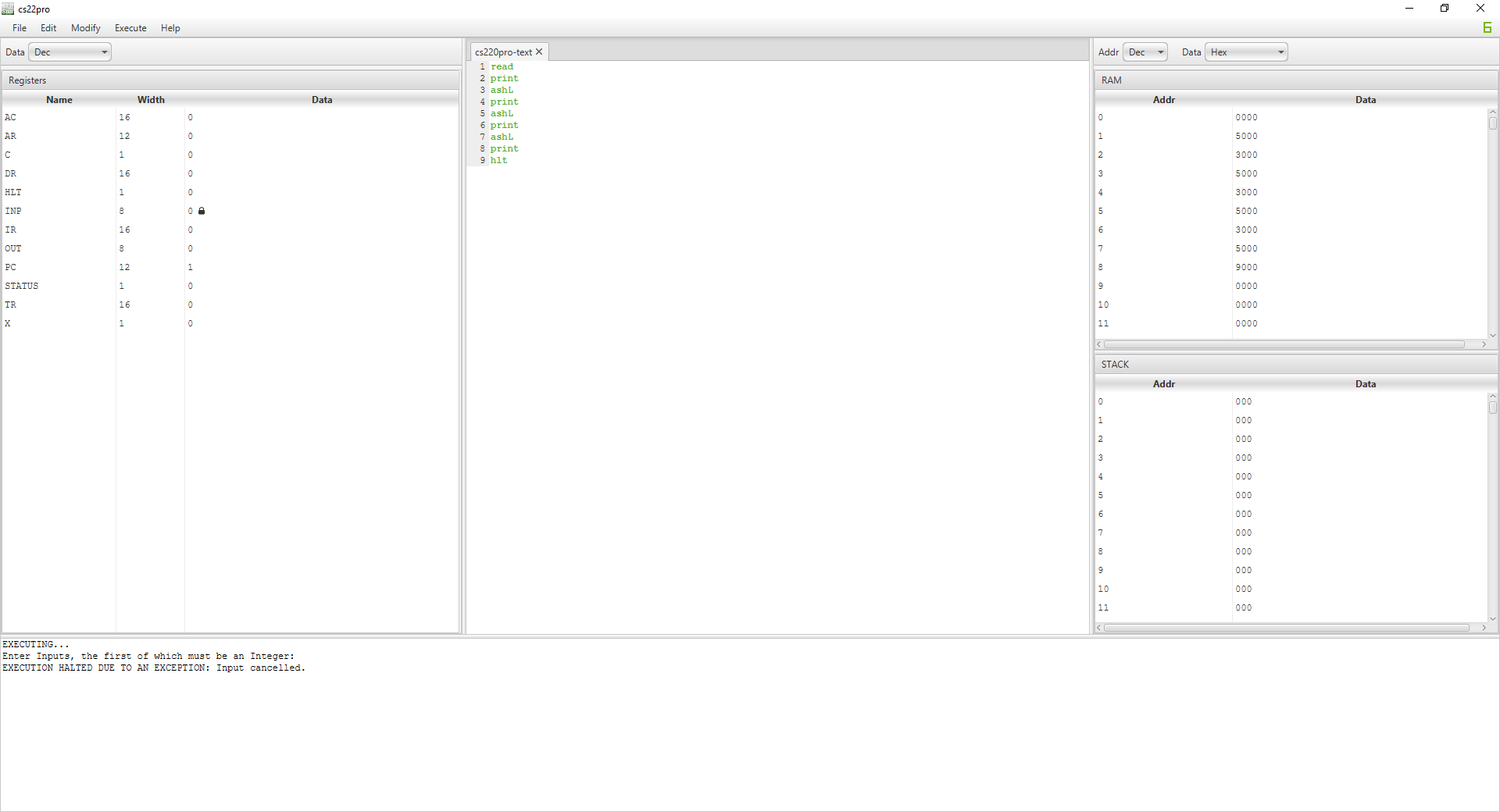
addX:

Format: Implementation:



* Creating new programs using the Machine Instructions

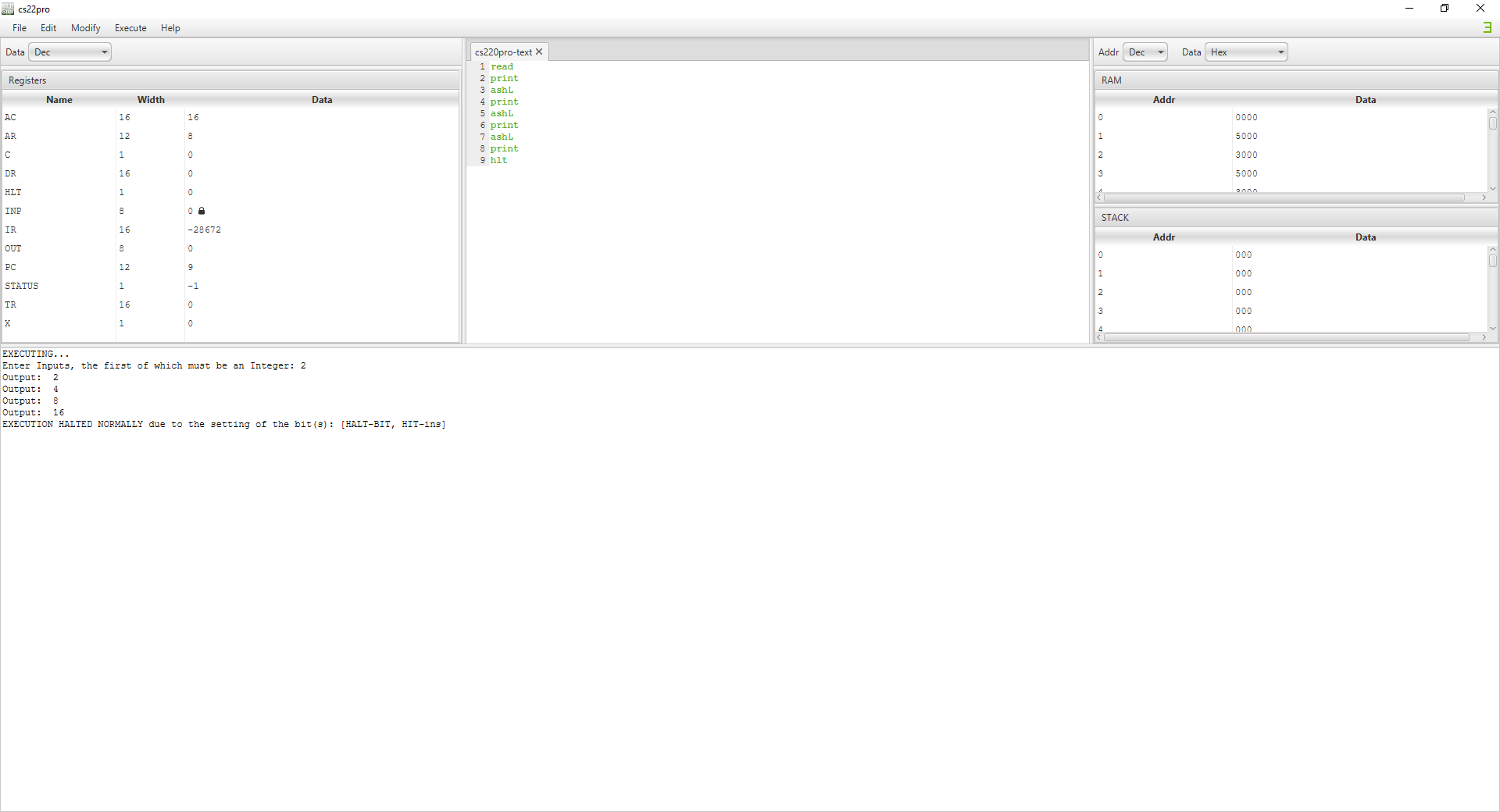
Q15: Write an assembly like program that reads a number A then prints A, 2A ,4A ,8A



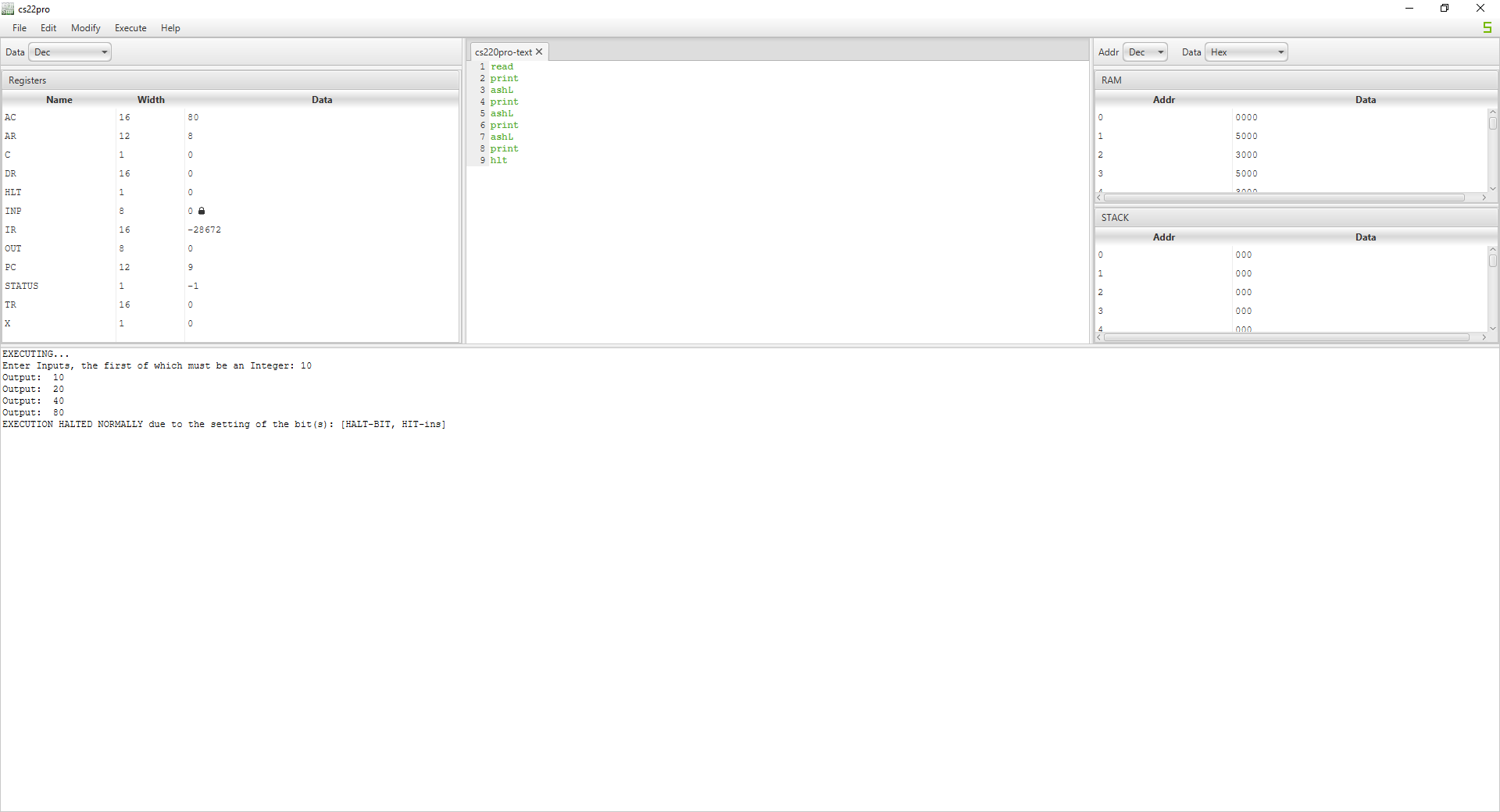
* Executing the programs with example

Q15: Write an assembly like program that reads a number A then prints A, 2A ,4A ,8A.

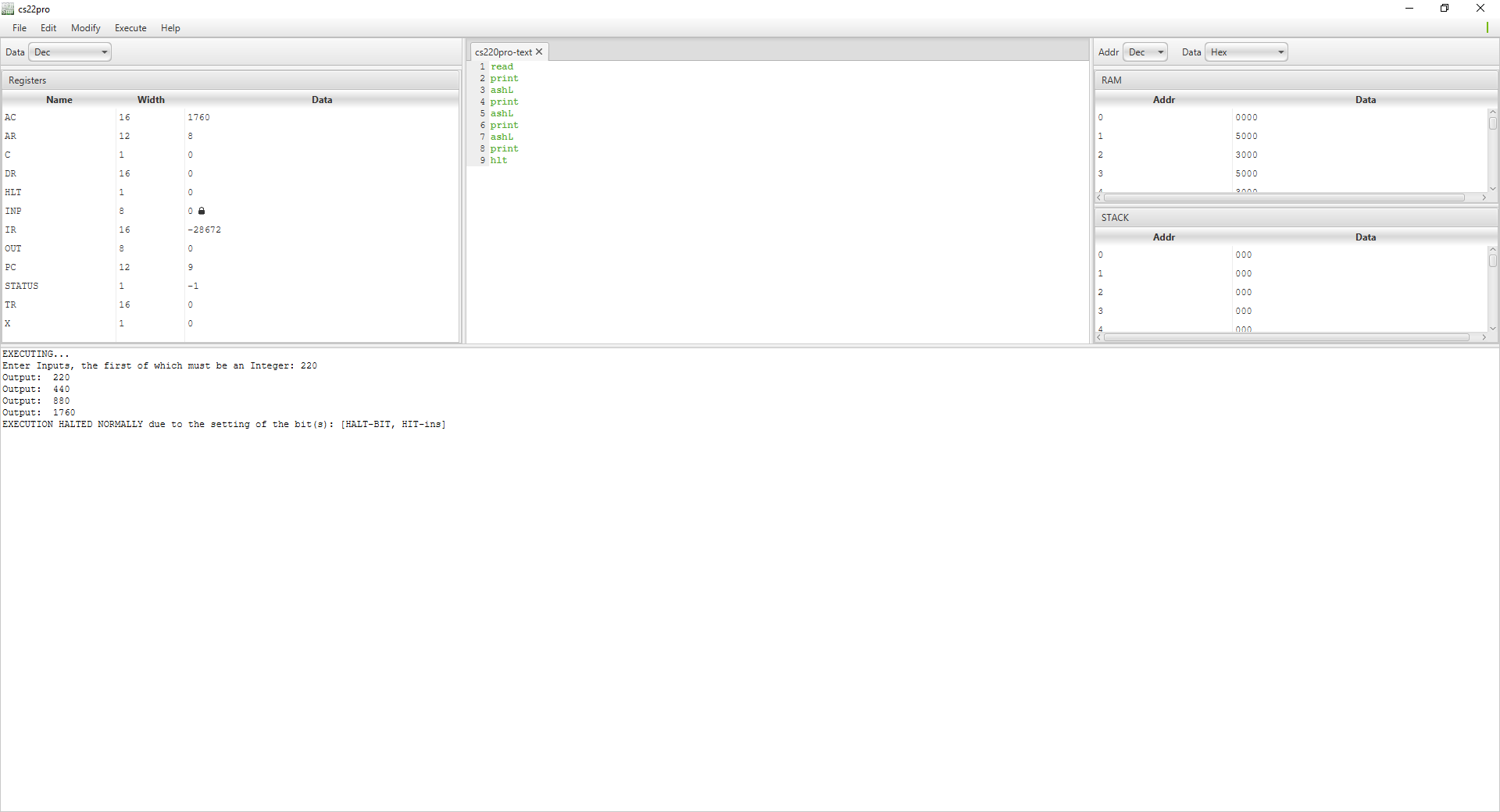
Input=2



Input=10



Input=220



Input=2000

