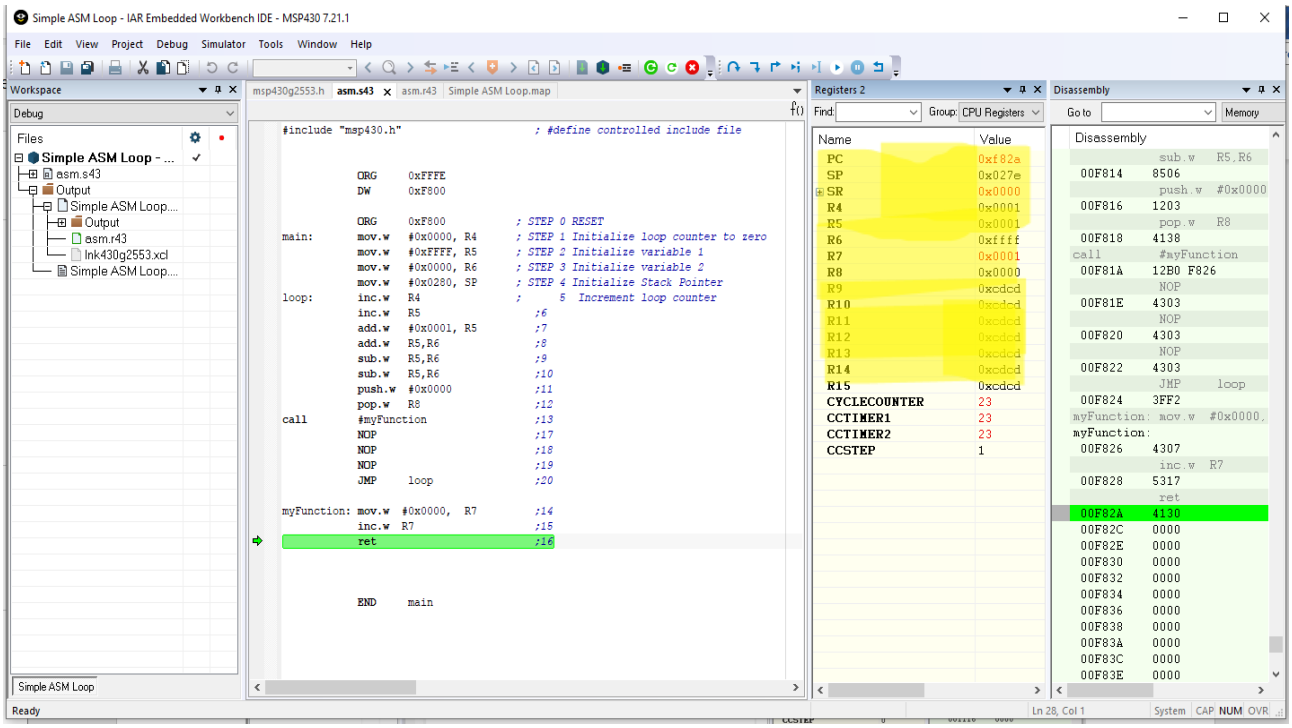
LAB_0 : IDE Familiarization Van Nguyen

1/- Registers - PC, SP, SR, and remaining registers :

Registers is a part of CPU, needed for the basic operation of the CPU, they are a set of 16 registers designated R0 – R15 needed to decode the instructions and implement them.
The generous set of 16 registers is characteristic of a reduced instruction set computer (RISC).

- The first four registers (**R0 - R3**) have dedicated functions with alternative names, such as the program counter (PC/R0), stack pointer (SP/R1), status register (SR/CG1/R2), and constant generator (CG2/R3).
- The remaining 12 registers (**R4 - R15**) are general-purpose working registers. Words or bytes can be written to CPU registers, but the byte behavior is different from main memory: The destination is always the low byte, and the high byte is cleared (reset to 0).



View → Registers → Register 1

2/- Z, N, C, V flags :

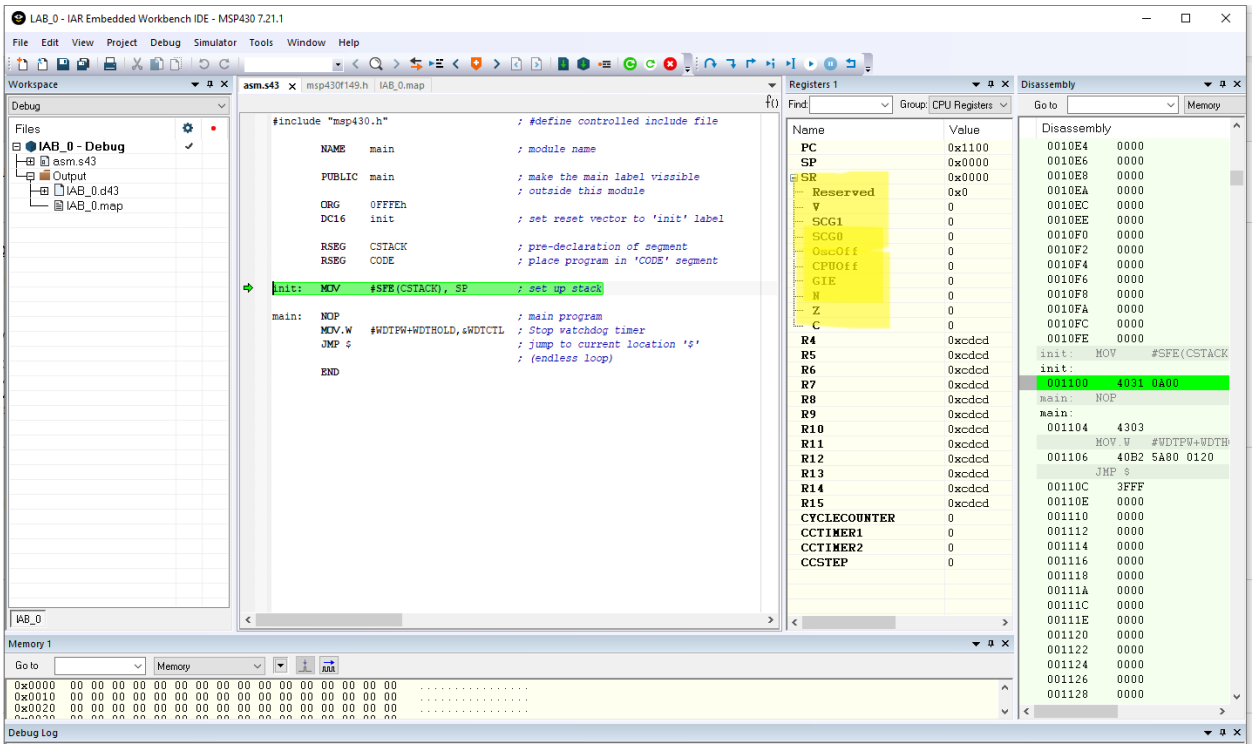
The Z, N, C, V flags to been contained in the Status Register (SR) – The status register stores the state and control bits or flags.

C – Carry flag indicates that the last ALU operation produced a carry.

Z – Zero flag indicates that the last ALU operation resulted in 0.

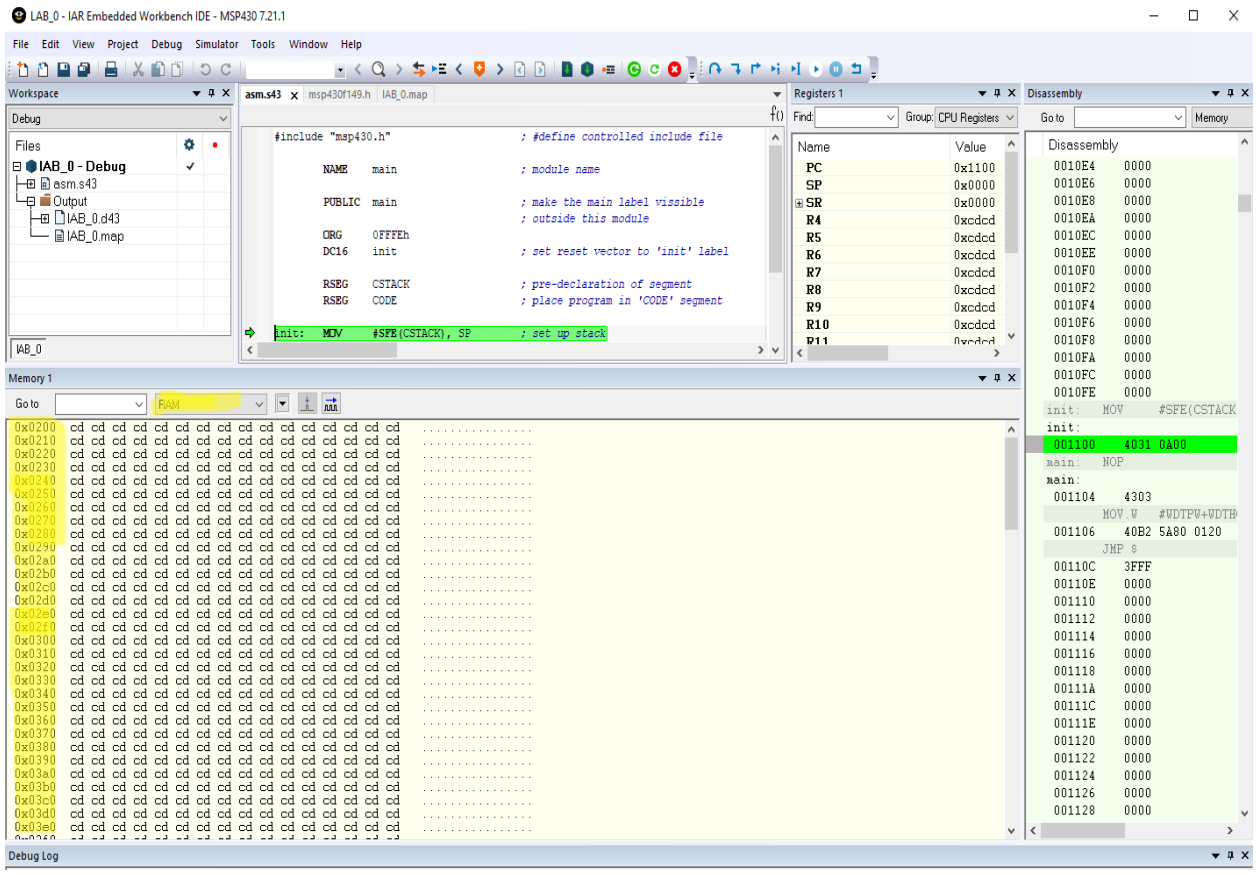
N – Negative flag indicates that the last ALU operation resulted in a value < 0.

V – Overflow flag indicates that the last ALU operation on a signed variable overflowed the signed variables range.



3/- RAM : (Random-Access Memory)

- RAM: SRAM, DRAM = volatile.
- Volatile: Loses its contents when power is removed
- Read or written with equal ease.



4/- FLASH :

- Nonvolatile memory : Retains its contents when power is removed and is therefore used for the program and constant data.
- Flash memory is the most common type of memory. It has largely superseded electrically erasable, programmable ROM (EEPROM)
- Flash memory must be erased before it can be written.