

### LAB 3 PRELAB

1. Some difference between the debugging mode and run mode of the AVR simulator is that debugging mode allows a line-by-line simulation and run mode continuously runs the program.

Some benefits of debugging mode of the AVR simulator are that it allows the programmer to verify data in register and memory and activates several new buttons that will allow you to navigate through the program, such as Step Into, Step Over, Step Out, Run to Cursor, and Reset.

Some benefits of run mode of the AVR simulator are that the program can run without any commands they may affect its performance, such as stopping the program or in an unwanted run of events.

2. Breakpoints are places in the code are where when certain conditions are met, will stop the code, displaying the part of the code at which the breakpoint is at, and then where the programmer can then analyze and debug the code if needed, understanding why there is a breakpoint there.

They are useful when you are simulating your code, because they can halt the simulation at buggy areas, which can save a lot of time and frustration.

3. I/O View and Processor windows are used for spaces that will indicate any problem that occur during a simulation at the current state of the microcontroller.

You can provide input to the simulation via these windows.

4. Data memory, program memory and EEPROM memory are the memory types that you can access by using the Memory window of the simulator.

(e) All three types