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How to Use and Integrate AVR STUDIO With AVR GCC Compiler Step by Step

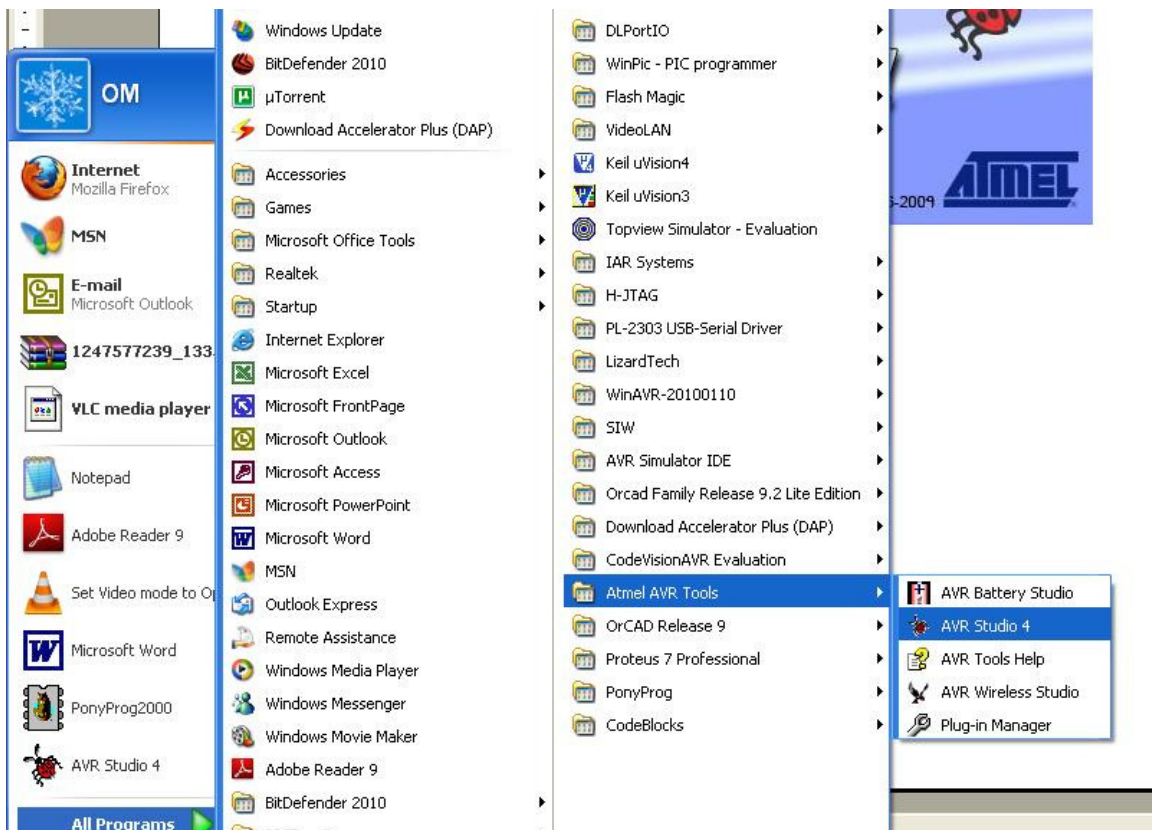
(For ATMEL AVR 8-Bit Series MCUs)



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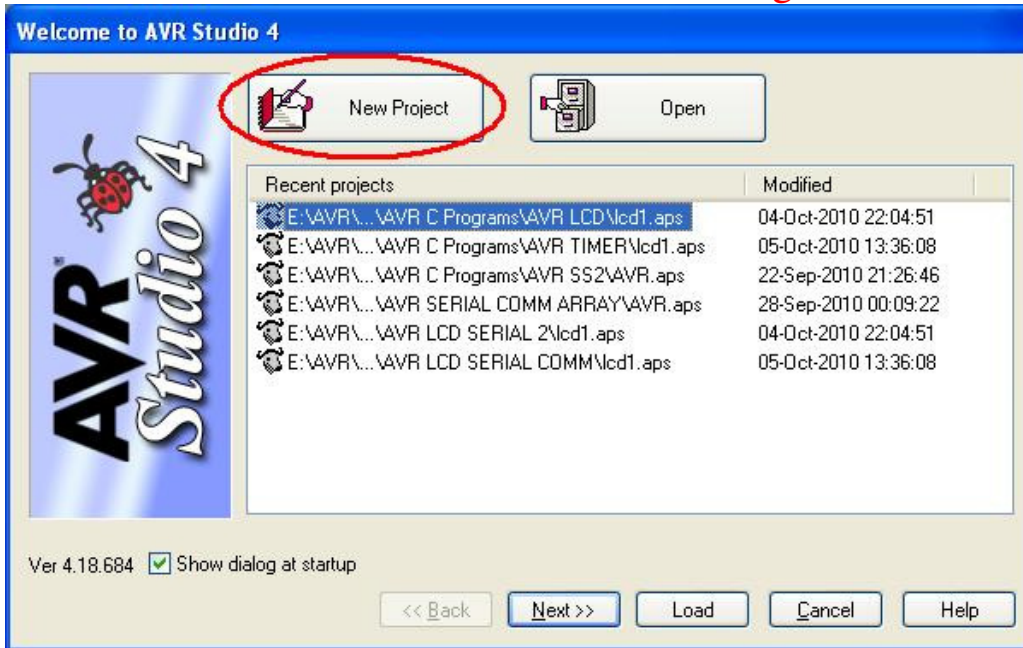
Step1: After installing AVR Studio and AVR GCC. Click on **AVR Studio 4** shown below.



Step 2 : Click on New Project.

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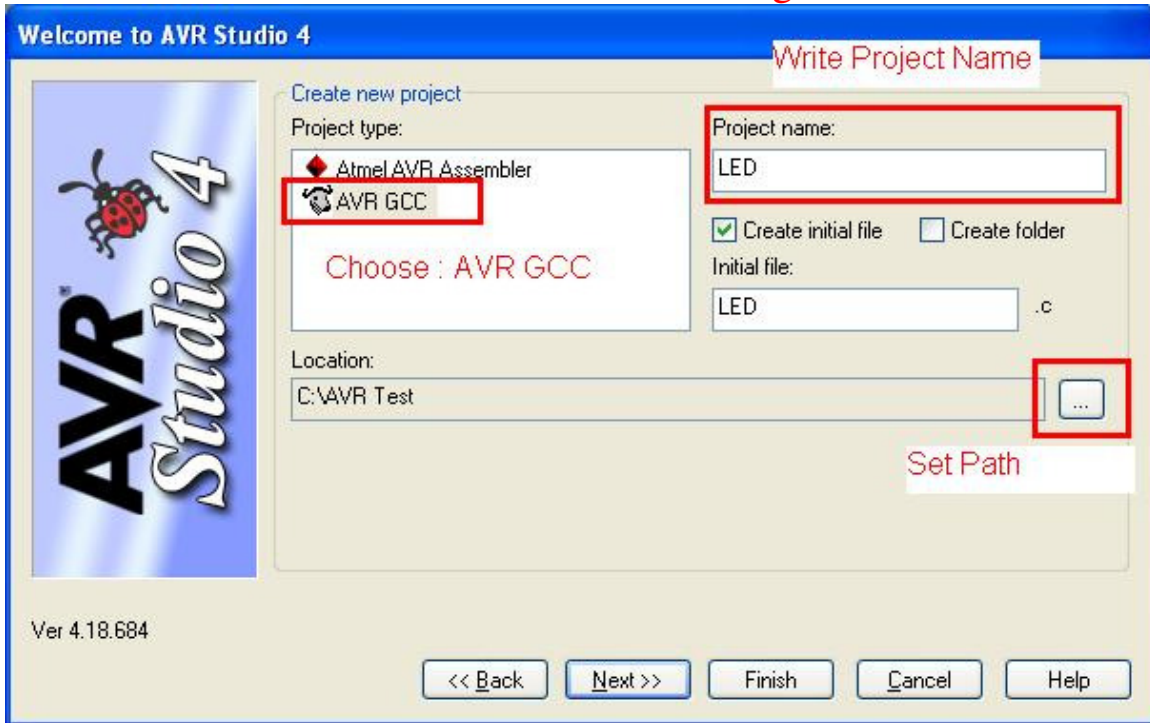


Step 3: Select Compiler **AVR GCC**, Set **Path** and **Project Name**, and then Click **Next**.

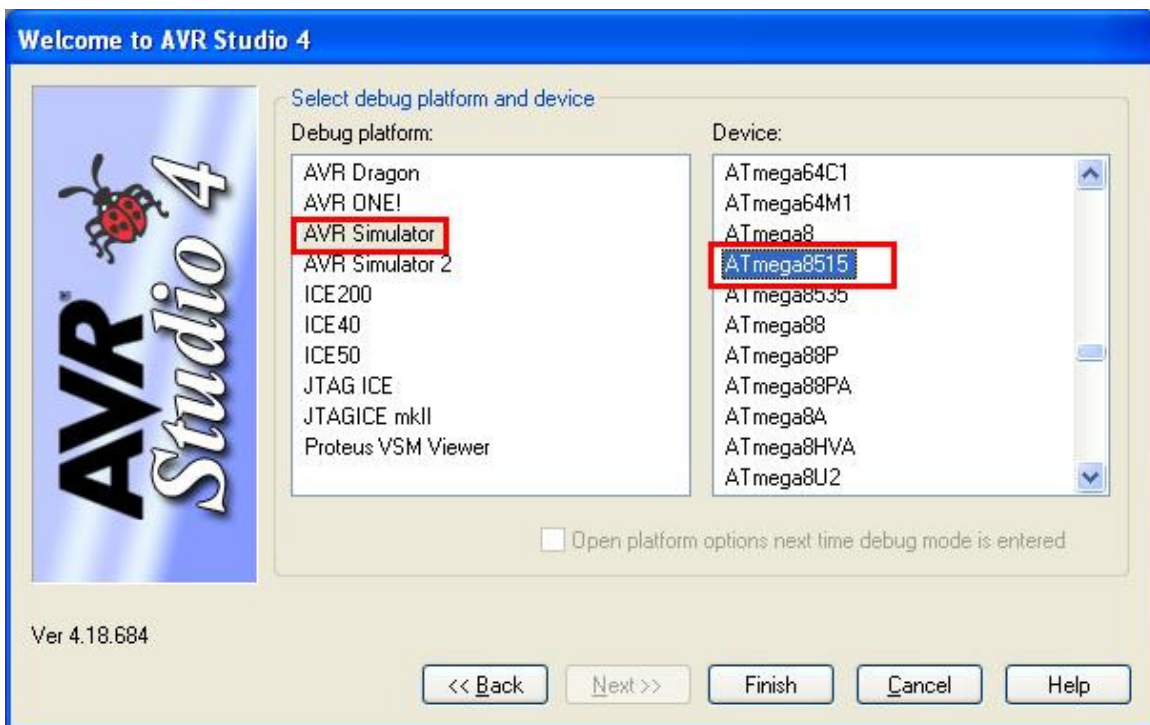
NOTE: Please note WINAVR must install before AVR GCC Compiler.

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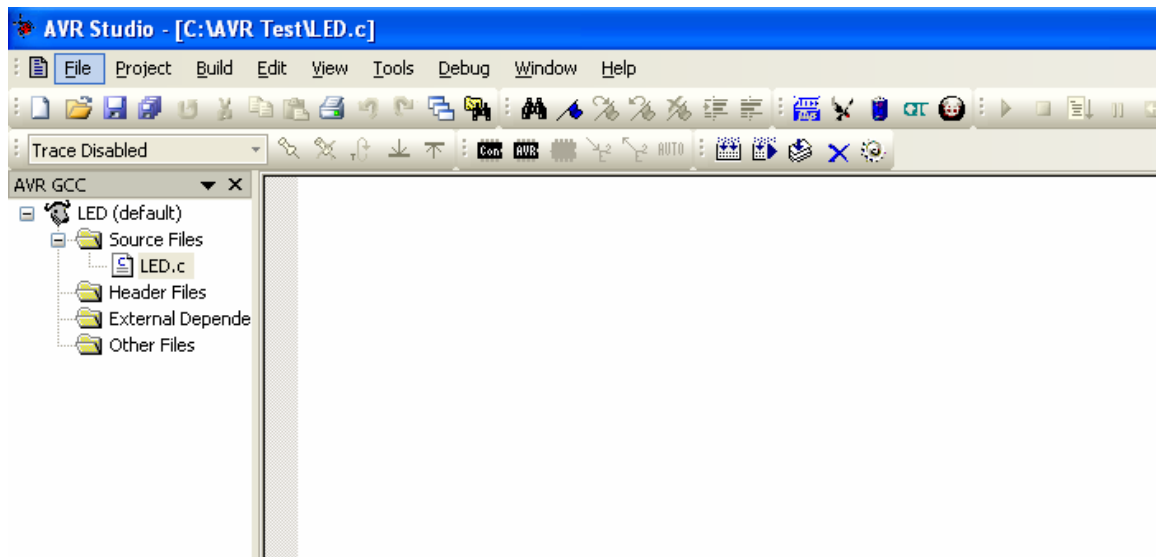
Step 4: Select **AVR Simulator** and **ATmega8515** MCU, then click **Finish**.



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Step 5: After that you see **LED.c** already added.



Step 6: After that you see **LED.c** already added. Write or Copy paste code in LED.C

```
// All LEDs are Connected to PORTA
// Author: embeddedcraft.org
// Company : IMBUENT TECHNOLOGIES PVT. LTD.
#include<avr/io.h>           //HEADER FILE FOR AVR INPUT OUTPUT
#include<util/delay.h>      //HEADER FILE FOR DELAY
#define F_CPU 8000000UL    // Crystal Frequency 8 MHz
#define LED_PORT PORTA    // All LEDs to PORTC
int main(void)
{
    DDRA = 0xFF;           //Configure PORTA as Output Port

    while(1)
    {
        LED_PORT= 0xFF ; //All LED ON
        _delay_ms(250); //DELAY IN
        _delay_ms(250); //DELAY IN

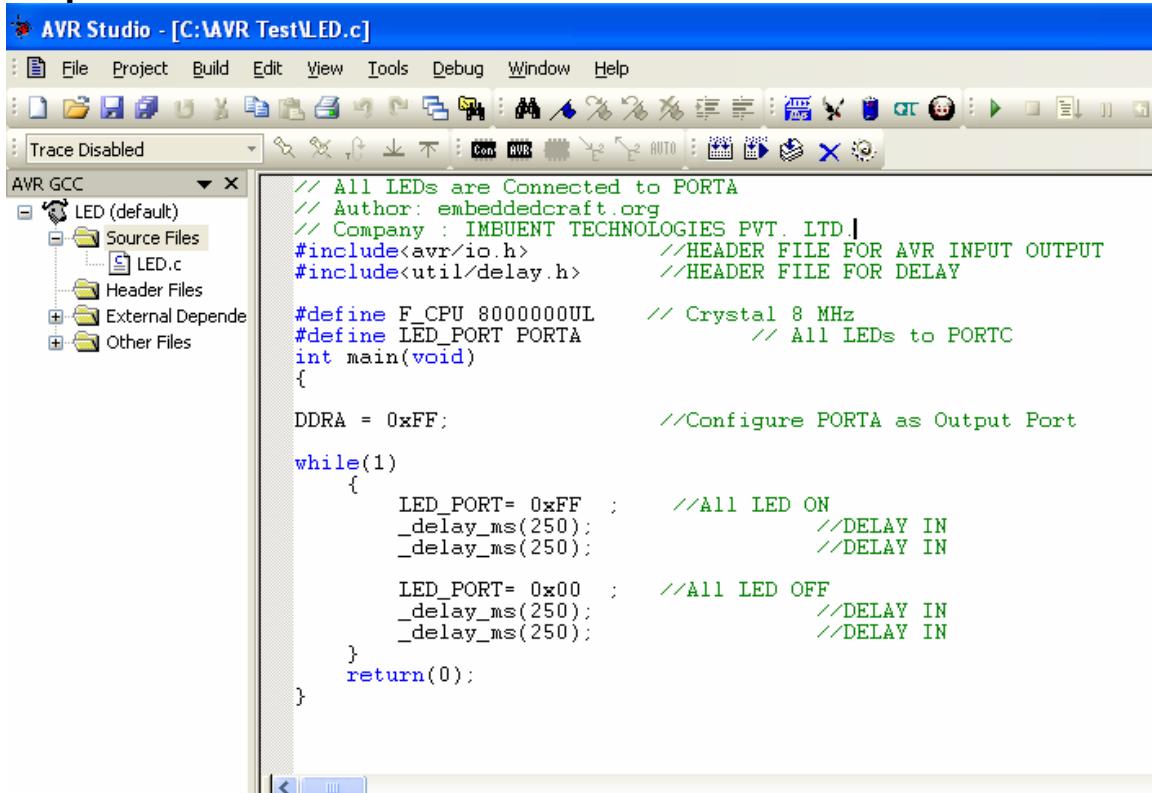
        LED_PORT= 0x00 ; //All LED OFF
        _delay_ms(250); //DELAY IN
    }
}
```

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```
        _delay_ms(250);                //DELAY IN  
    }  
    return(0);  
}
```

Step 7:



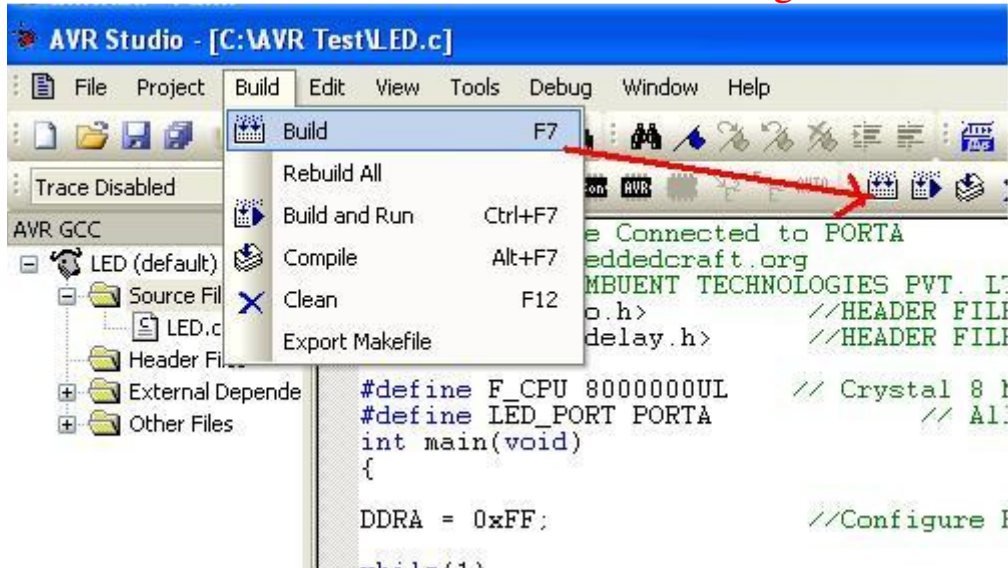
The screenshot shows the AVR Studio IDE interface. The title bar reads "AVR Studio - [C:\AVR Test\LED.c]". The menu bar includes File, Project, Build, Edit, View, Tools, Debug, Window, and Help. The toolbar contains various icons for file operations, editing, and debugging. The left sidebar shows a project tree for "LED (default)" with folders for Source Files (containing LED.c), Header Files, External Dependence, and Other Files. The main editor window displays the following C code:

```
// All LEDs are Connected to PORTA  
// Author: embeddedcraft.org  
// Company : IMBUENT TECHNOLOGIES PVT. LTD.  
#include<avr/io.h>           //HEADER FILE FOR AVR INPUT OUTPUT  
#include<util/delay.h>      //HEADER FILE FOR DELAY  
  
#define F_CPU 8000000UL      // Crystal 8 MHz  
#define LED_PORT PORTA      // All LEDs to PORTC  
int main(void)  
{  
    DDRA = 0xFF;             //Configure PORTA as Output Port  
  
    while(1)  
    {  
        LED_PORT= 0xFF ;    //All LED ON  
        _delay_ms(250);     //DELAY IN  
        _delay_ms(250);     //DELAY IN  
  
        LED_PORT= 0x00 ;    //All LED OFF  
        _delay_ms(250);     //DELAY IN  
        _delay_ms(250);     //DELAY IN  
    }  
    return(0);  
}
```

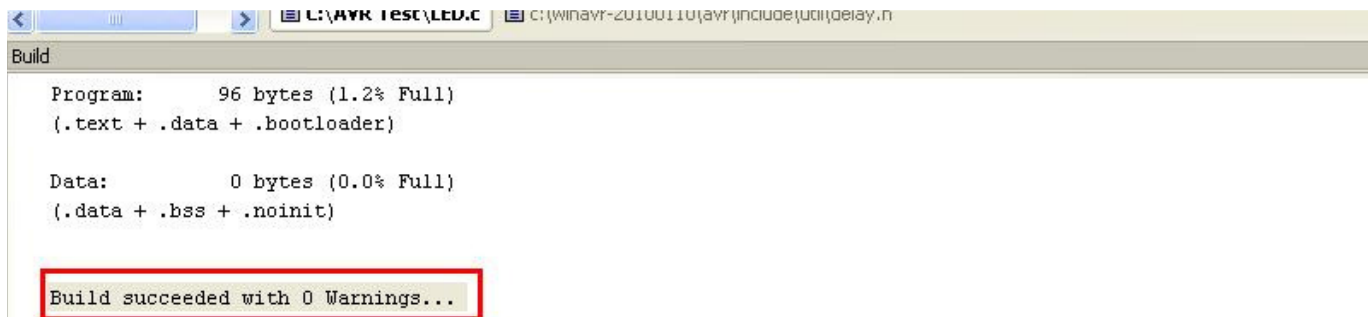
Step 8: Now Click on Build.

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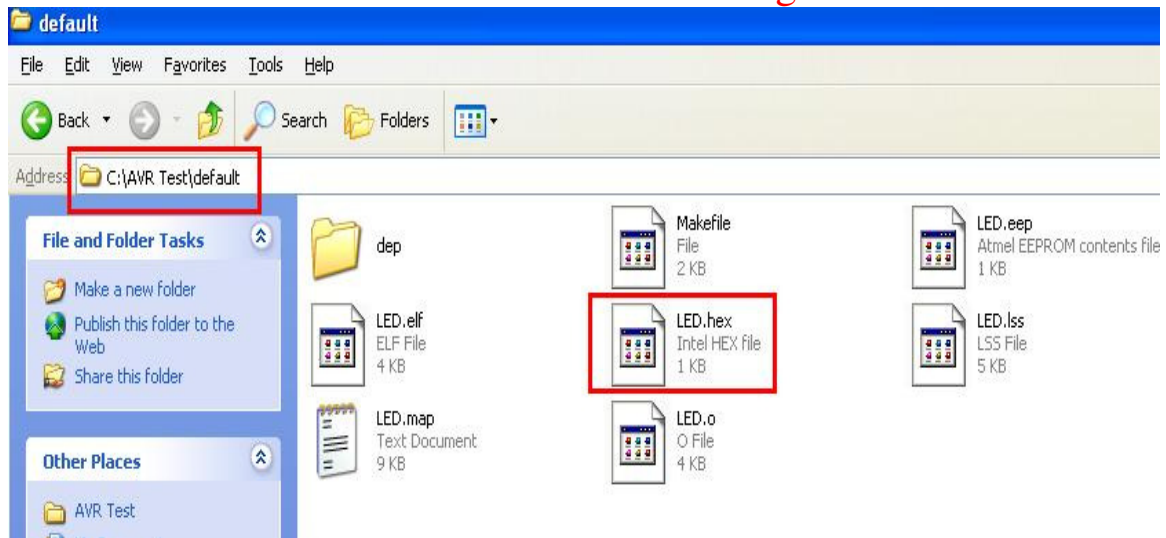
Step 9: Now you see Build Succeeded with 0 Warning...



Step 10: Now Open C:\AVR Test\default you will see LED.hex is created.
Download Hex file in Target Board.

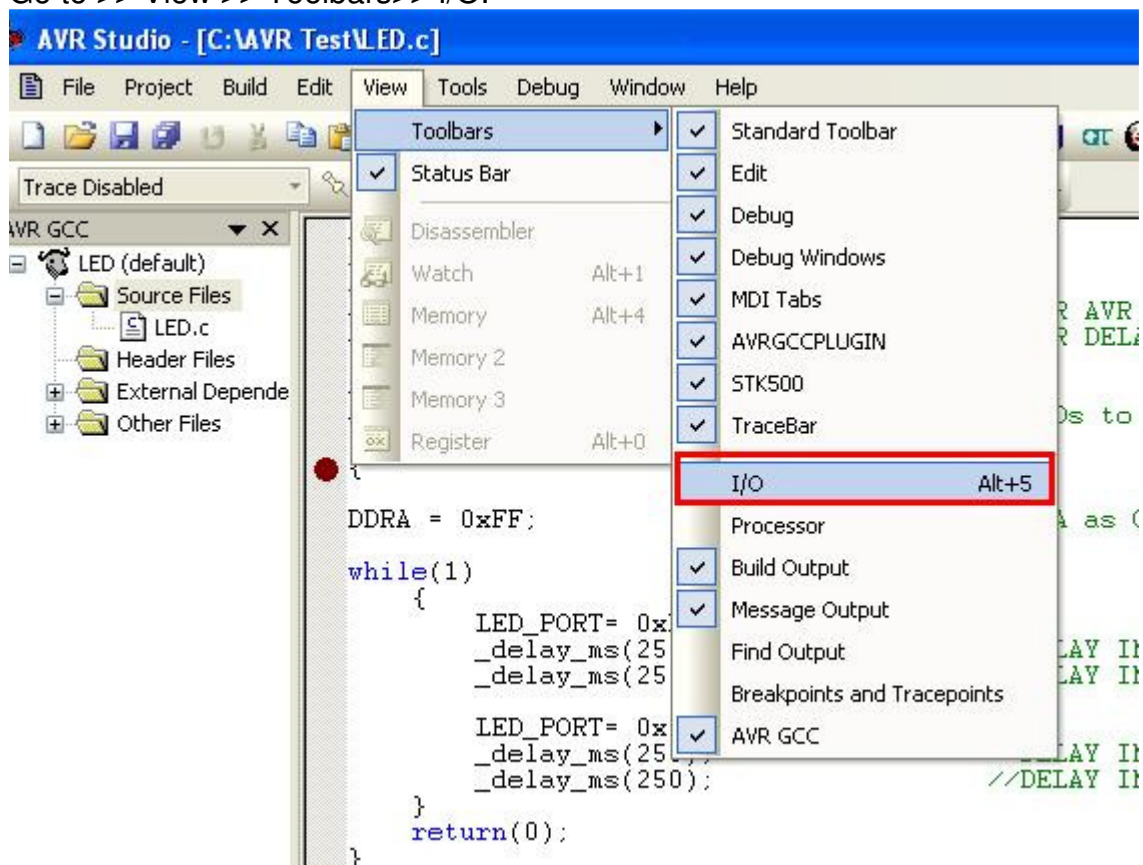
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For Testing on AVR Simulator

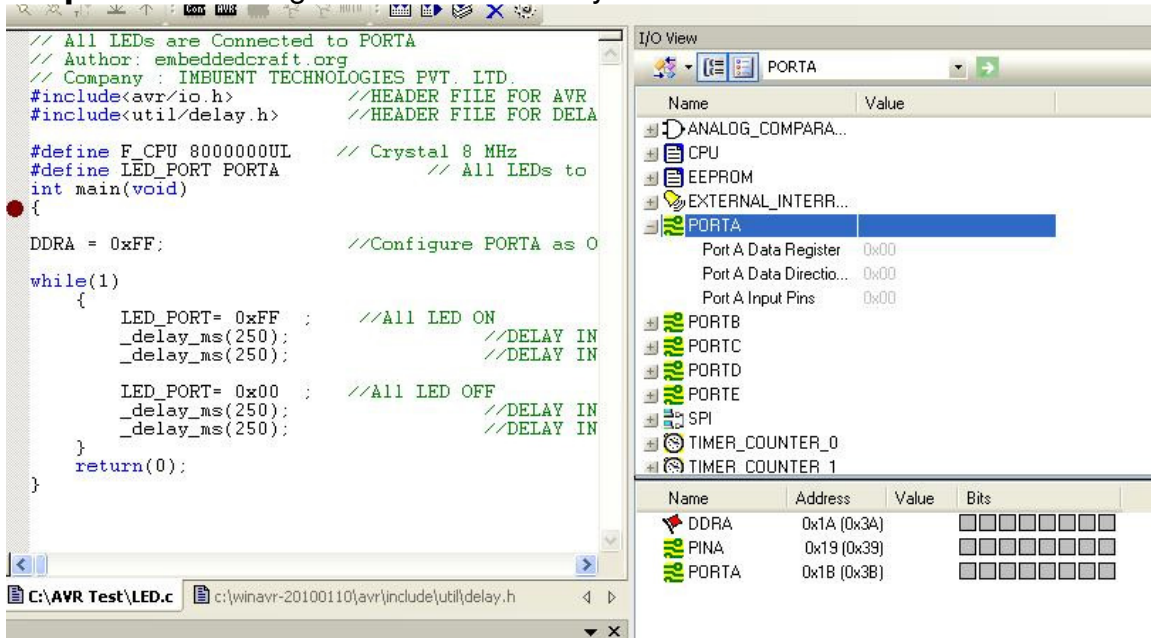
Step 11: Because we have also select AVR Simulator at Step4.
We can also test code without Hardware on Simulator.
Go to >> View >> Toolbars>> I/O.



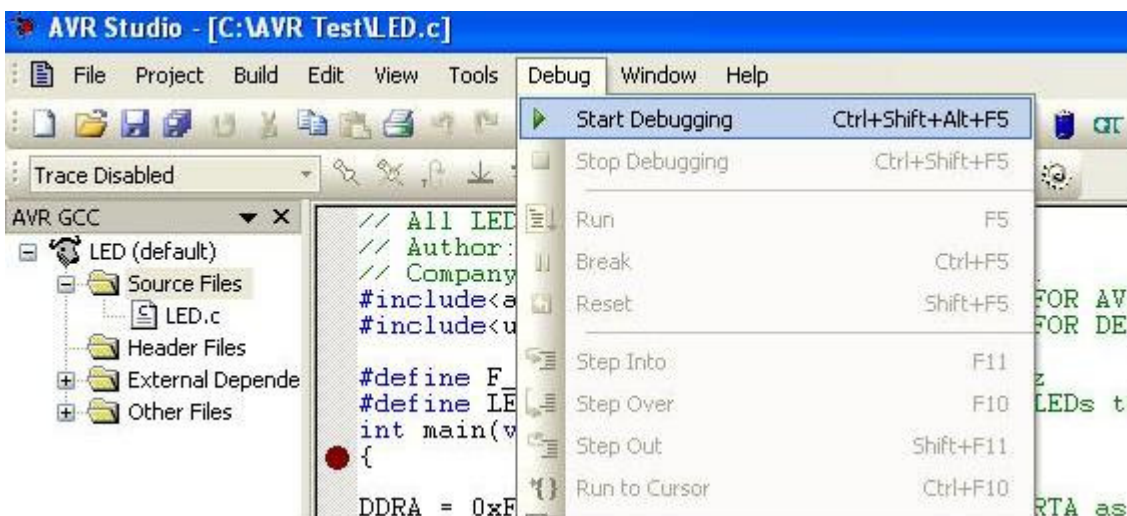
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Step 12: Following Windows shown to you.



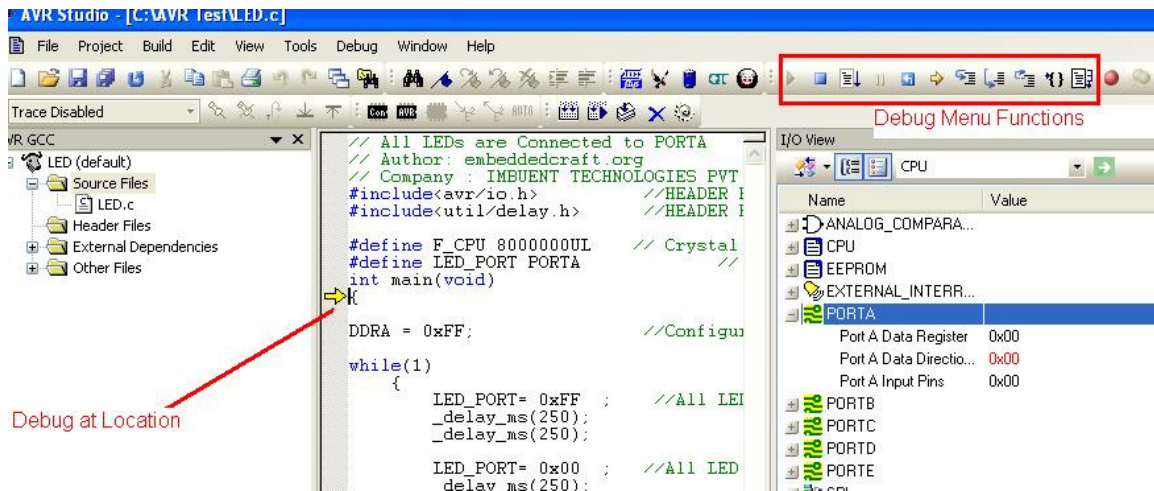
Step 12: Following Windows shown to you.



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Step 13: Here you can debug your code using Debug Menu Functions.



Thanks
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