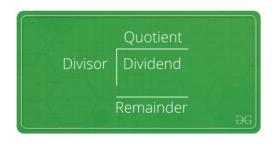
Unit II: embedded C programming Sample Program

```
//addition
// write a program in embedded C to add two 8 bit numbers
#include<reg51.h> // initialize preprocessor directive
                       // main function
void main ()
                       //start of main function
//Declare three variables//
unsigned char x,y,z;
//Assign values to integers
x=0x34;
y=0x54;
//Now declare port0 as output port
P0=0x00;
//Now perform addition
z=x+y;
//Now give values of z to ports
P0=z;
}
//addition
#include <reg51.h>
unsigned char result1;
sfr m = 0xE0;
sfr n = 0xf0;
sfr port1= 0X90;
       void main (void)
               unsigned char result;
                                       // First number 0X indicate hex data
               m = 0x21;
               n = 0x71;
                                       // Second number 0X indicate hex data
                                       // Add two numbers
               result = m + n;
               port1 = result;
                                       // Display result on P1
        }
```

Write a program to multiply two 8 bit Numbers

```
Multiplication :
# include <reg51.h>
       sfr a = 0xE0;
                                       // Define a as an accumulator
        sfr b = 0xF0;
                                       // Define b as B Register
                                       // Define P0 as RESULT
        sfr port0 = 0x80;
        void main (void)
               unsigned char x;
               a = 0x05;
                                       // First number
               b = 0x09;
                                       // Second number
                               // Multiply first and second numbers
               x = a*b;
                                       // Display result
               port0 = x;
}
```



```
// Division
# include <reg51.h>
sfr a = 0xE0;
                               // Define i as an accumulator
sfr b = 0xF0;
                               // Define j as B Register
sfr Quotient = 0x80;
                               // Define P1 as Quotient
sfr remainder = 0x90;
                               // Define P2 as Remainder
void main (void)
          //unsigned char x, y;
               a = 27;
                               // First number
               b = 5;
                               // Second number
                                       // Divide a by b and store quotient
               Quotient = a/b;
               remainder = a%b;
                                               // Store remainder
               remainder = remainder + 1;
  }
```

Logical operations

// Bitwise AND write a program to bitwise AND two 8 bit numbers

```
#include <reg51.h>
sfr a = 0xE0;
sfr b= 0xF0;
sfr port0 = 0x80;
sfr port1 = 0x90;

void main()
{
  unsigned char result;
  a=0x40;
  b=0x45;
  result=a&b;
  port0=result;
}
```

```
// Bitwise OR
```

```
#include <reg51.h>
sfr a = 0xE0;
sfr b = 0xF0;
sfr port0 = 0x80;
sfr port1 = 0x90;
void main()
{
unsigned char result;
a=0x40;
b=0x45;
result=a|b;
port0=result;
}
// Logical shift right and shift left
#include <reg51.h>
sfr a = 0xE0;
sfr b = 0xF0;
sfr port0 = 0x80;
sfr port1 = 0x90;
void main()
unsigned char result, result1;
a=0x40; //0100 0000
b=0x08; //0100 0101
result=a>>2;
result1 =b<<2;
port0=result;
port1=result1;
```