EX NO:4 DATE:	EMBEDDED -C PROGRAMMING USING 8051 MICRO-CONTROLLER

AIM:-

To perform basic Arithmetic operations in 8051 Micro-controller using Embedded- C programming.

SOFTWARE REQUIRED:-

Keil µ vision5, 8051 Micro-controller.

DESCRIPTION:

KEIL µ VISION5:

Keil µ Vision5 is an integrated development environment (IDE) tailored for microcontroller software development. It supports various microcontroller families, provides a user-friendly interface, includes a powerful compiler and debugger, offers simulation capabilities, facilitates peripheral configuration, supports RTOS, integrates with version control systems, and allows for extensibility through plugins. It streamlines the development process, enabling efficient creation of embedded systems.

8051 MICRO-CONTROLLER:

The 8051 micro-controller, introduced by Intel in 1980, is an 8-bit microcontroller renowned for its simplicity and versatility. Featuring integrated peripherals like timers, UARTs, and GPIOs, it's widely used in embedded systems for applications ranging from industrial automation to consumer electronics. Its low power consumption, extensive development tool support, and numerous variants make it a popular choice in the industry.

The 8051 microcontroller features four 8-bit ports labelled P0, P1, P2, and P3. These ports serve as General Purpose Input/Output (GPIO) pins, enabling communication with external devices. Ports 0 and 1 are bidirectional, while Ports 2 and 3 have additional special features such as external memory interfacing, interrupt inputs, serial communication, and timer/counters. Control is managed via corresponding port registers, allowing for versatile I/O operations essential for embedded systems tasks.

PROGRAM:-

1.ADDITION

```
#include<reg51.h>
void main(void)
{
unsigned char x,y,z;
x=0x12;
y=0x34;
P0=0x00;
z=x+y;
P0=z;
}
```

2.SUBTRACTION

```
#include<reg51.h>
void main(void)
{
unsigned char a,b,c;
a=0x12;
b=0x34;
P1=0x00;
c=b-a;
P1=c;
}
```

3.MULTIPLICATION

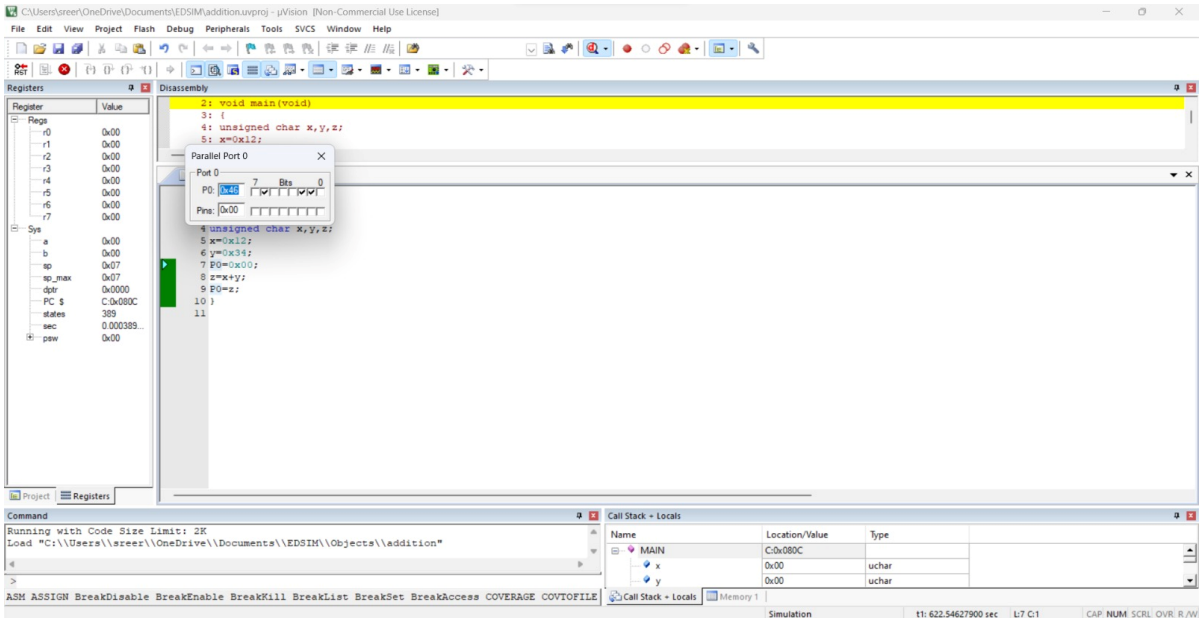
```
#include<reg51.h>
void main(void)
{
unsigned char d,e,f;
d=0x12;
e=0x34;
P2=0x00;
f=e*d;
P2=f;
}
```

4.DIVISION

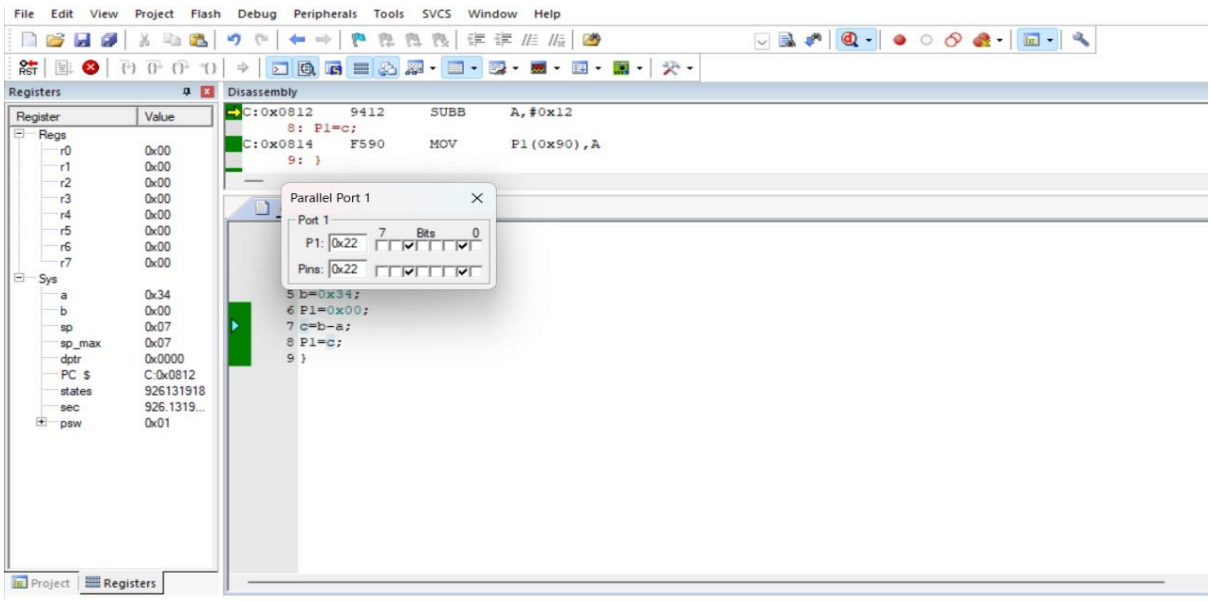
```
#include<reg51.h>
void main(void)
{
unsigned char p,q,r;
p=0x12;
q=0x34;
P3=0x00;
r=q/p;
P3=r;
While(1);
}
```

OUTPUT:-

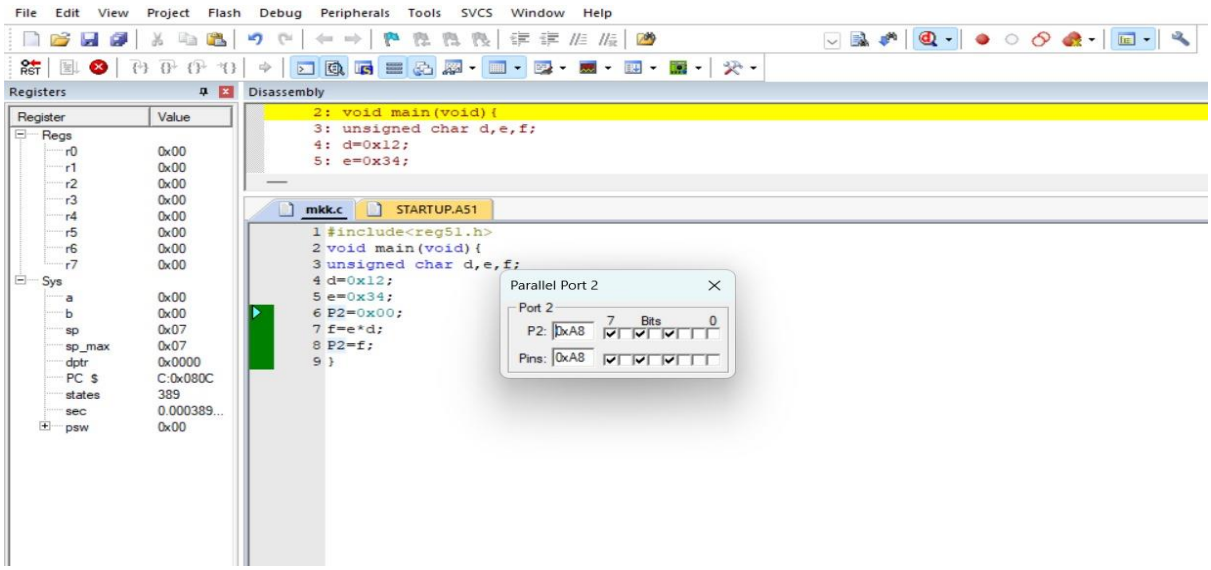
1.ADDITION



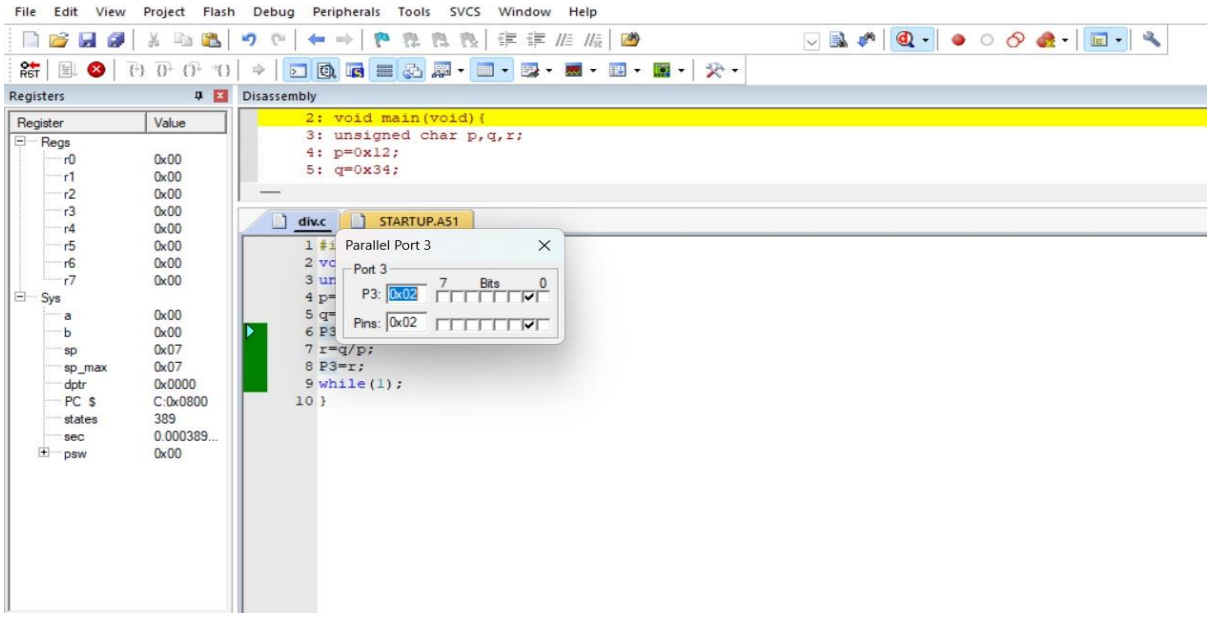
2.SUBTRACTION



3.MULTIPLICATION



4.DIVISION



RESULT:-

Thus the basic Arithmetic operations in 8051 micro-controller using Embedded- C programming was executed successfully.