I/O Programming in C :

The general purpose I/O pins can be considered the simplest of peripherals. These I/O pins **allow the PIC32 microcontroller to monitor and control other devices**. To add flexibility and functionality to a device, some pins are multiplexed with alternate function(s)

Led Blinking Example

After knowing how to configure the GPIO ports, its time to write a simple program to blink the Leds.

1. Configure the PORTS as outputs using TRIS registers.
2. Turn ON all the LEDs and wait for some time.
3. Turn OFF all the LEDs and wait for some time.

```
#include <pic16f877a.h>



void DELAY_ms(unsigned int ms_Count)
{
   unsigned int i,j;
   for(i=0;i<ms_Count;i++)
   {
      for(j=0;j<1000;j++);
   }
}



int main()
{
  /* Configure all the ports as Output */
   TRISA = 0x00;
   TRISB = 0x00;
   TRISC = 0x00;
   TRISD = 0x00;

   while(1)
   {
      PORTA = 0xff; /* Turn ON all the leds connected to Ports */
      PORTB = 0xff;
      PORTC = 0xff;
      PORTD = 0xff;
      DELAY_ms(100);

      PORTA = 0x00; /* Turn OFF all the leds connected to Ports */
      PORTB = 0x00;
```

```
        PORTC = 0x00;
        PORTD = 0x00;
        DELAY_ms(100);
    }



    return (0);
}
```

view rawpic16f877a_ledBlinking.c hosted with ❤ by GitHub

Led and Switches

```
#include <pic16f877a.h>



int main()
{
    TRISB = 0x00;          // Configure PORTB as output to connect Leds
    TRISD = 0xff;          // Configure PORTD as INput to connect switches

    while(1)
    {
        PORTB = PORTD;     // Read the switch status and display it on Leds
    }
    return 0;
}
```