

'-----Title-----

' File.....shift1.pbp  
' Started....5/21/08  
' Microcontroller used: Microchip Technology PIC16F88  
' microchip.com  
' PicBasic Pro Code: micro-Engineering Labs, Inc.  
' melabs.com

'-----Program Description-----

' Program uses the shift left operator, <<, to shift  
' variable to the left 1 time (same as multiply by 2).  
' Both decimal and binary values are displayed on an LCD.

'-----PIC Connections-----

16F88 Pin	Wiring
RA0	LCD pin 11(DB4)
RA1	LCD pin 12(DB5)
RA2	LCD pin 13(DB6)
RA3	LCD pin 14(DB7)
RA4	LCD Register Select(RS)
RB3	LCD Enable(E)
Vdd	+5 V
Vss	Ground
MCLR	4.7K Resistor to +5 V

'-----LCD Connections-----

LCD Pin	Wiring
1	Ground(Vss)
2	+ 5v(Vdd)
3	Center of 20K Pot(Contrast)
4	RA4(Register Select,RS)
5	Ground(Read/Write,R/W)
6	RB3(Enable)
7	No Connection(DB0)
8	No Connection(DB1)
9	No Connection(DB2)
10	No Connection(DB3)
11	RA0(DB4)
12	RA1(DB5)
13	RA2(DB6)
14	RA3(DB7)

'-----Variables-----

i     **VAR**    **BYTE**            ' BYTE to store counter variable, i  
s0    **VAR**    **BYTE**            ' BYTE to store shift variable, s0

'-----Initialization-----'

```
ANSEL = 0           ' Configure all pins to digital
                    ' operation since not using ADC
                    ' (Analog to Digital Converter)

OSCCON = $60        ' Sets the internal oscillator in the
                    ' 16F88 to 4 MHz
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'-----Main Code-----'

start:

```
s0 = 3              ' Start out with s0 = 1

FOR i = 1 TO 7      ' Cycle through FOR..NEXT loop 7 times

LCDOUT $fe,1,"Decimal ",DEC s0
                    ' Display decimal value of s0 on first
                    ' line of LCD

LCDOUT $fe,$C0,"Binary ", "%",BIN s0
                    ' Display binary value of s0 on second
                    ' line of LCD

PAUSE 2000         ' Pause 2000 ms or 2 seconds

s0 = (s0<<1)       ' Shift left operator shifts value of
                    ' s0 to left 1 time (same as multiply by 2).
                    ' The new bits that are shifted in are set
                    ' to 0.

NEXT i             ' Go back to the FOR statement and do
                    ' next count

GOTO start         ' Loop forever

END
```