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'-----Title-----
' File.....4 TSA Music'10.pbp
' Started....1/25/10
' Microcontroller used: Microchip Technology 16F88
'                          microchip.com
' PicBasic Pro Code: micro-Engineering Labs, Inc.
'                          melabs.com

'-----Program Description-----
' TSA Music Production Program 2010: Track 4

'-----Revision History-----
' 2/1/10 Changed VAR to CON
' 2/11/10 Program Finalized

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

    DEFINE OSC 20           ' Sets microcontroller operating frequency
                          ' to 20 MHz.

    TRISB = %11111000      ' Sets up pins RB0 - 3 of PORTB as an output

    PORTB = %00000000      ' Sets all pins on PORTB to low (0V).

' The variable "x" represents the eighth note. The length of time that the
' eighth note (x) is played is deteremined by the value set at 200.
' A quarter note is two times an eighth note or 2x.

    x VAR WORD

' These are the constants that we used to declare the frequencies as notes.
' For example shg represents Super High G which has a frequency of 1568 Hz.

    shg CON 1568
    shef CON 1244
    shc CON 1046
    shbf CON 932
    shaf CON 830
    hg CON 784
    hf CON 698
    hef CON 622
    hd CON 587
    hc CON 523
    hbf CON 466
    haf CON 415
    g CON 392
    f CON 349
    ef CON 311
    d CON 293
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```
c CON 261
bf CON 233
af CON 208
lg CON 196
lf CON 174
lef CON 155
ld CON 146
lc CON 130
lbf CON 116
laf CON 103
slg CON 98
slf CON 87
slef CON 78
sld CON 73
slc CON 65
```

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'-----Main Code-----
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```
    x = 200                ' An eighth note (x) will be 200 ms long.

    PAUSE 1000            ' Pause 1000 ms before starting generating tones

' line1

    FREQOUT 1, 6*x, lc    ' We use FREQOUT to generate a tone. 1 represents
the                        ' output pin RB1 on the Pic16F88. "x" symbolizes
                          ' eighth note. "lc" is defined as the frequency
392 Hz.

    FREQOUT 1, 4*x, slg
    FREQOUT 1, 4*x, ld
    FREQOUT 1, 6*x, lc
    FREQOUT 1, 4*x, slg
    FREQOUT 1, 4*x, ld
    FREQOUT 1, 6*x, lc

' line 2

    FREQOUT 1, 5*x, slg
    FREQOUT 1, 3*x, lc
    FREQOUT 1, 4*x, lef

    FREQOUT 1, 4*x, ld

' line 3

    FREQOUT 1, 6*x, lc
    FREQOUT 1, 4*x, slg
    FREQOUT 1, 4*x, ld
    FREQOUT 1, 6*x, lc
    FREQOUT 1, 4*x, slg
    FREQOUT 1, 4*x, ld
    FREQOUT 1, 6*x, lc
```

FREQOUT 1, 4*x, slg

'line 4

FREQOUT 1, 3*x, lc
FREQOUT 1, 4*x, lef
FREQOUT 1, 4*x, ld
FREQOUT 1, 4*x, ld
FREQOUT 1, x, 0
FREQOUT 1, 14*x, lc
FREQOUT 1, 14*x, laf

'line 5

FREQOUT 1, 8*x, lbf
FREQOUT 1, 6*x, slg
FREQOUT 1, 14*x, lc

'line 6

FREQOUT 1, 14*x, laf
FREQOUT 1, 8*x, lbf
FREQOUT 1, 6*x, slg
FREQOUT 1, 2*x, lc
FREQOUT 1, 2*x, lc
FREQOUT 1, 2*x, lc

'line 7

FREQOUT 1, 4*x, lc
FREQOUT 1, 6*x, lc
FREQOUT 1, 4*x, lg
FREQOUT 1, 4*x, ld
FREQOUT 1, 6*x, lc
FREQOUT 1, 4*x, slg
FREQOUT 1, 4*x, ld
FREQOUT 1, 6*x, lc
FREQOUT 1, 5*x, slg
FREQOUT 1, 3*x, lc
FREQOUT 1, 4*x, lef
FREQOUT 1, 4*x, ld
FREQOUT 1, 6*x, lc

'line 8

FREQOUT 1, 4*x, slg
FREQOUT 1, 4*x, ld
FREQOUT 1, 6*x, lc
FREQOUT 1, 4*x, slg
FREQOUT 1, 4*x, ld
FREQOUT 1, 6*x, lc
FREQOUT 1, 5*x, slg

'line 9 & 10

FREQOUT 1, 8*x, lc

END