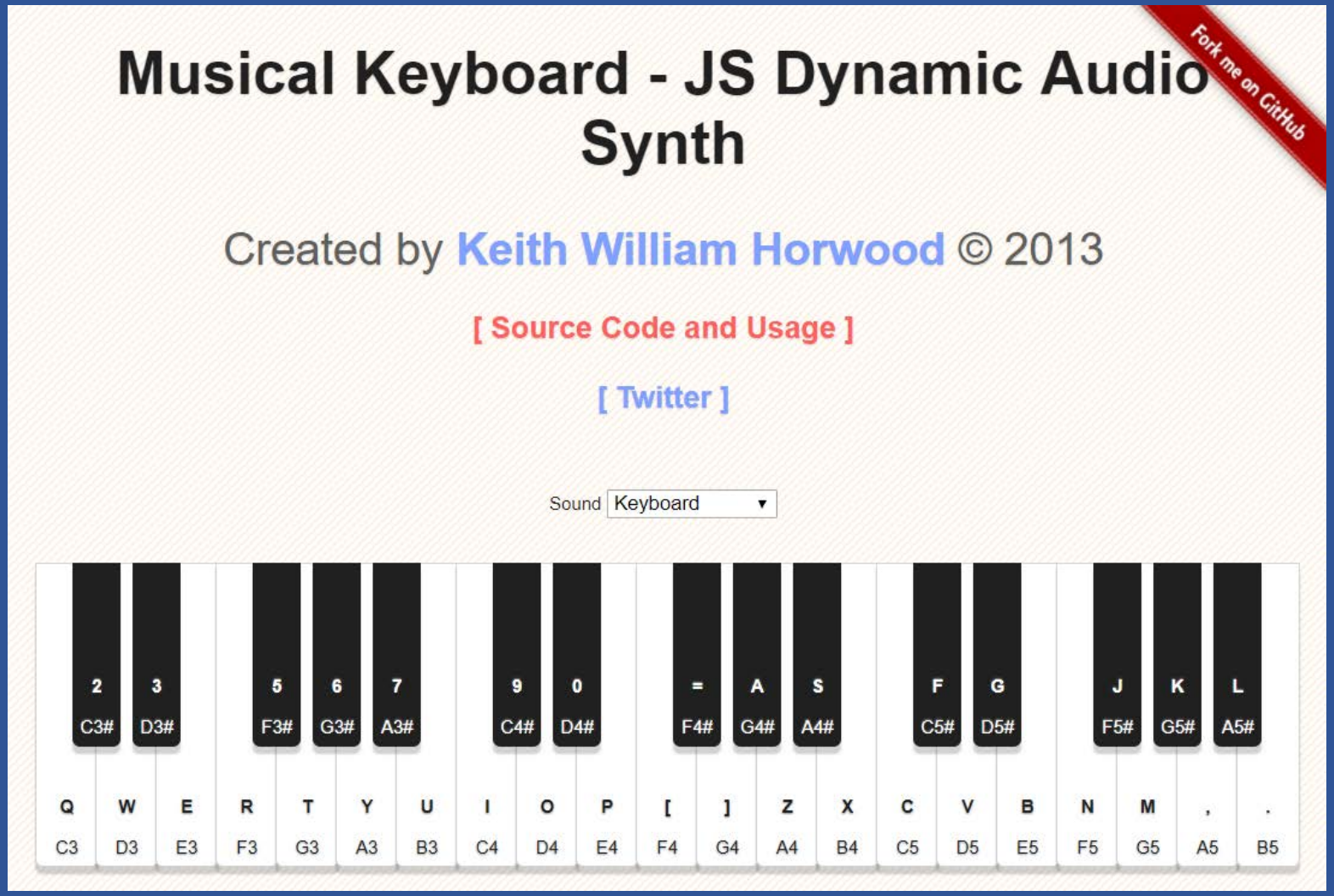
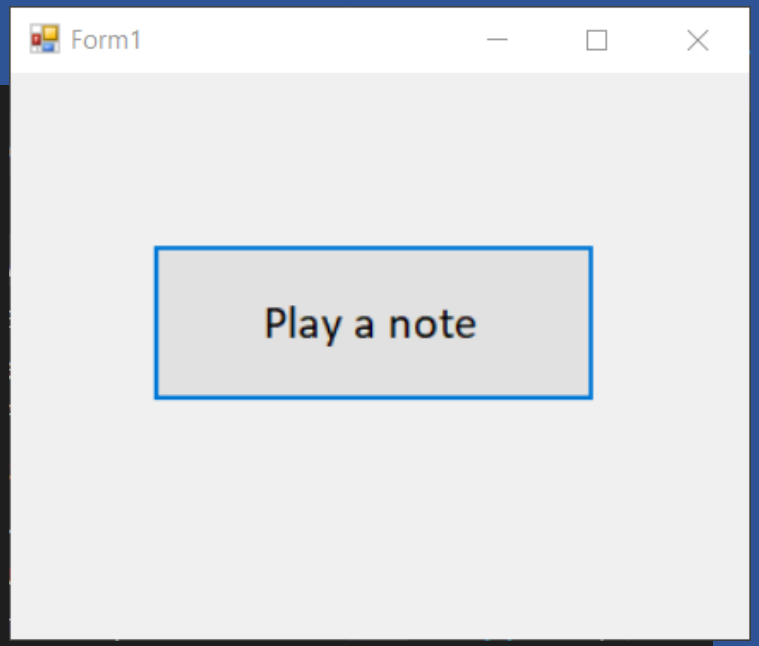
Piano

http://www.keithwhor.com/music/

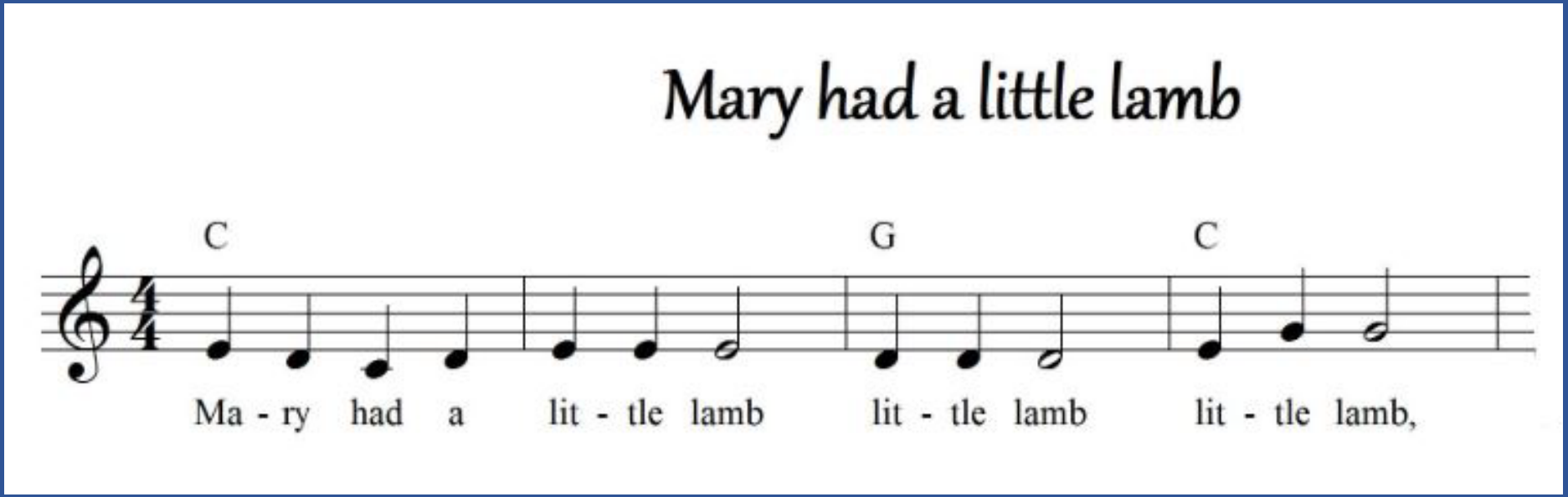


Play a note

```
1   using System;
2   using System.Windows.Forms;
3   using System.Media;
4
5   namespace test
6   {
7       public partial class Form1 : Form
8       {
9           public Form1()
10          {
11              InitializeComponent();
12          }
13          private void buttonHello_Click(object sender, EventArgs e)
14          {
15              SoundPlayer player = new SoundPlayer("d:\\temp\\wav\\01c4.wav");
16              player.Play();
17          }
18      }
19  }
20
```



Mary had a little lamb



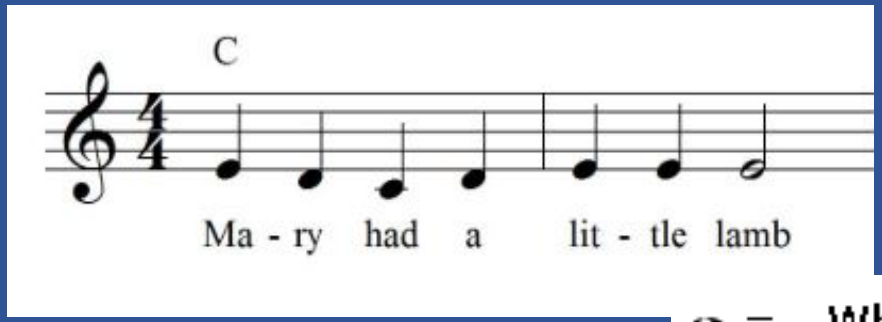
Play multiple notes

```
SoundPlayer player = new SoundPlayer("d:\\temp\\wav\\10A4.wav");
player.Play();
System.Threading.Thread.Sleep(800);
player = new SoundPlayer("d:\\temp\\wav\\08G4.wav");
player.Play();
System.Threading.Thread.Sleep(400);
player = new SoundPlayer("d:\\temp\\wav\\06F4.wav");
player.Play();
System.Threading.Thread.Sleep(800);
player = new SoundPlayer("d:\\temp\\wav\\08G4.wav");
player.Play();
System.Threading.Thread.Sleep(600);
player = new SoundPlayer("d:\\temp\\wav\\10A4.wav");
player.Play();
System.Threading.Thread.Sleep(600);
player = new SoundPlayer("d:\\temp\\wav\\10A4.wav");
player.Play();
System.Threading.Thread.Sleep(600);
player = new SoundPlayer("d:\\temp\\wav\\10A4.wav");
player.Play();
System.Threading.Thread.Sleep(600);
```

Play using Array

```
// play chromatic scale
// use array and List to shorten code
string[] wavArray = {
    "01C4","02Db4","03D4","04Eb4",
    "05E4","06F4","07Gb4","08G4",
    "09Ab4","10A4","11Bb4","12B4","13C5"
};
List<SoundPlayer> playList = new List<SoundPlayer>();
// Create play list
foreach (string wa in wavArray)
    playList.Add(new SoundPlayer("d:\\temp\\" + wa + ".wav"));
// Play play list
foreach (SoundPlayer pl in playList)
    pl.PlaySync();
```

Music Note Symbols



 = **Whole note**: looks like a donut

 = **Half note**: we add a stem (vertical line) to the donut. The stem can go up or down. Look at any piece of music for examples.

 = **Quarter note**: we fill in the whole make it solid and keep the stem.

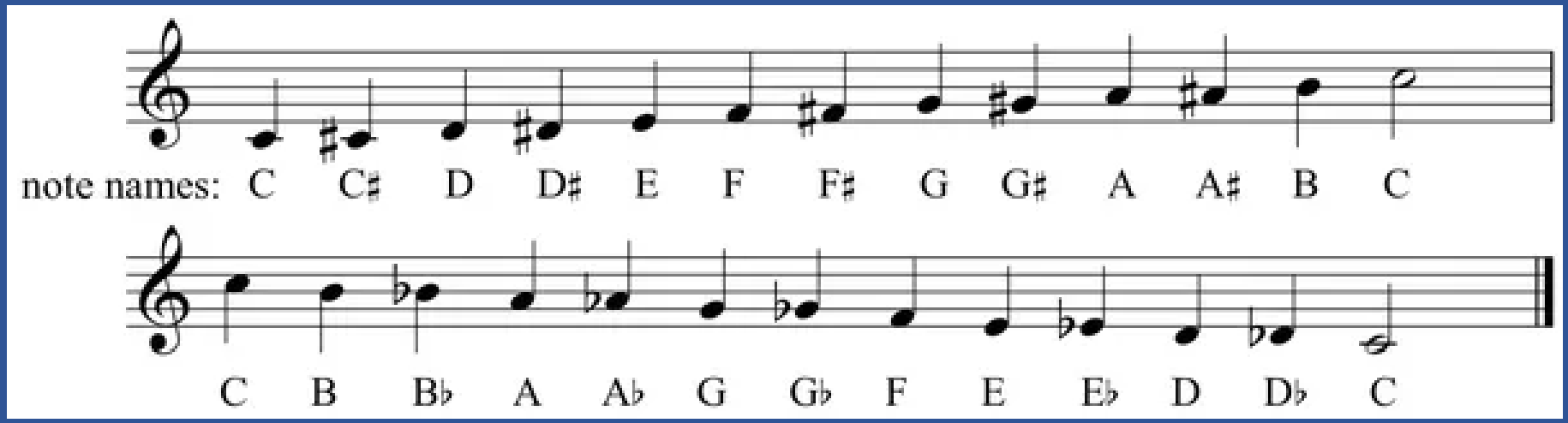
 = **Eighth note**: we add a flag to the stem.

 = **Sixteenth note**: we add two flags to the stem

Note with duration

```
public enum Duration
{
    WHOLE = 1600,
    HALF = WHOLE / 2,
    QUARTER = HALF / 2,
    EIGHTH = QUARTER / 2,
    SIXTEENTH = EIGHTH / 2,
}
public struct Note
{
    public string noteName;
    public Duration duration;
    public Note(string noteName, Duration duration)
    {
        this.noteName = noteName;
        this.duration = duration;
    }
}
```

Chromatic scale



Define Array of chromatic scale

```
string[] wavArray = {
    "01C4","02Db4","03D4","04Eb4",
    "05E4","06F4","07Gb4","08G4",
    "09Ab4","10A4","11Bb4","12B4","13C5"
};
string[] noteName = {
    "C4", "Db4", "D4", "Eb4",
    "E4", "F4", "Gb4", "G4",
    "Ab4", "A4", "Bb4", "B4", "C5"
};
```

Dictionary of notes

```
// Create note list
List<SoundPlayer> noteList = new List<SoundPlayer>();
foreach (string wa in wavArray)
    noteList.Add(new SoundPlayer("d:\\temp\\" + wa + ".wav"));

// Create dic for all notes
Dictionary<string, SoundPlayer> myDic = new Dictionary<string, SoundPlayer>();
for (int i = 0; i <= wavArray.Length - 1; i++)
    myDic.Add(noteName[i], noteList[i]);
```

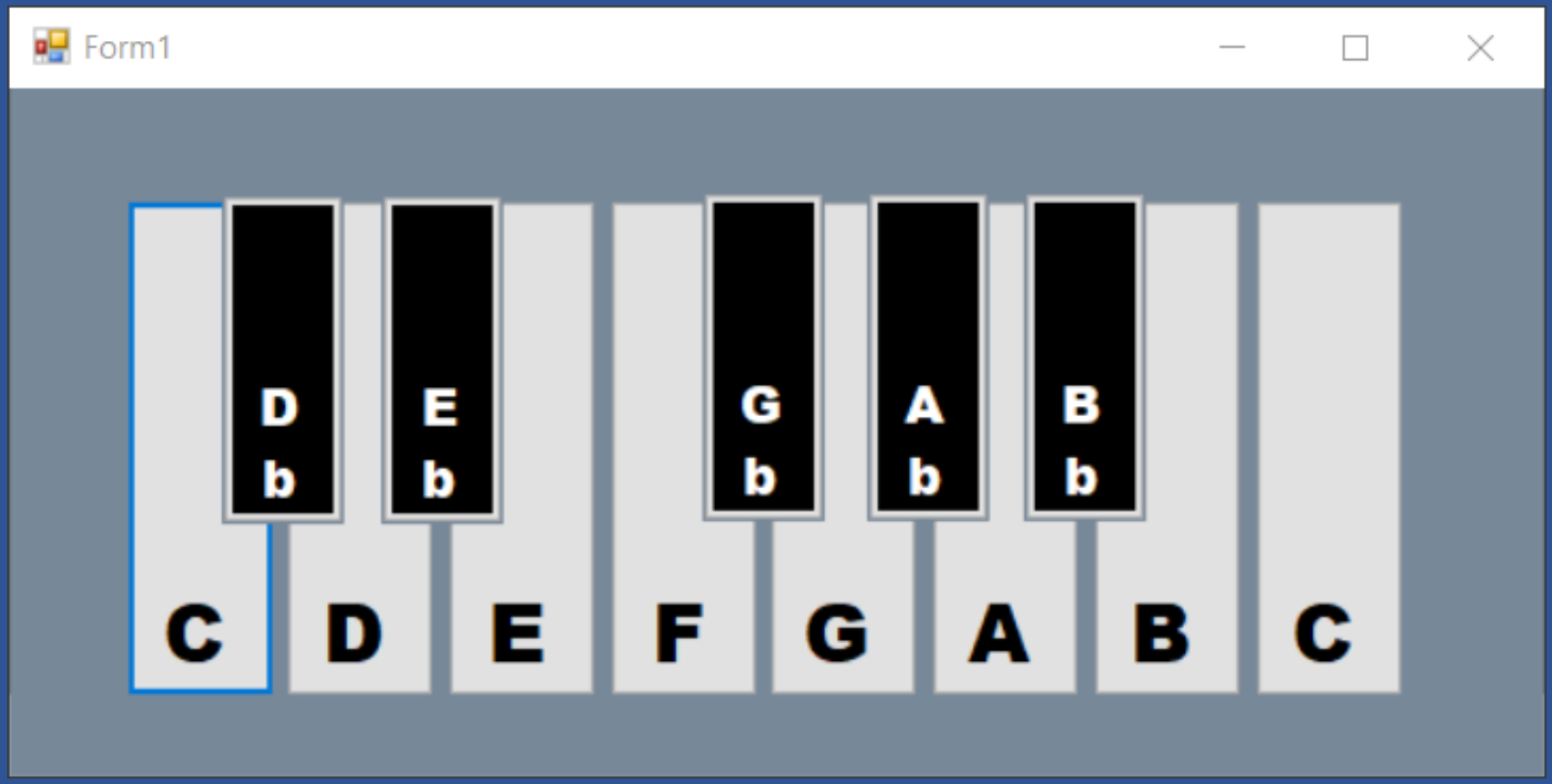
Create note list

```
// First few notes of the song, "Mary Had A Little Lamb".
List<Note> mySong = new List<Note>();
mySong.Add(new Note("B4", Duration.QUARTER));
mySong.Add(new Note("A4", Duration.QUARTER));
mySong.Add(new Note("G4", Duration.QUARTER));
mySong.Add(new Note("A4", Duration.QUARTER));
mySong.Add(new Note("B4", Duration.QUARTER));
mySong.Add(new Note("B4", Duration.QUARTER));
mySong.Add(new Note("B4", Duration.HALF));
mySong.Add(new Note("A4", Duration.QUARTER));
mySong.Add(new Note("A4", Duration.QUARTER));
mySong.Add(new Note("A4", Duration.HALF));
mySong.Add(new Note("B4", Duration.QUARTER));
mySong.Add(new Note("D4", Duration.QUARTER));
mySong.Add(new Note("D4", Duration.HALF));
```

Play song

```
// Play song
foreach (Note n in mySong)
{
    SoundPlayer myPlayer = myDic[n.noteName];
    myPlayer.Play();
    System.Threading.Thread.Sleep(Convert.ToInt32(n.duration));
}
```

Piano



```
1   using System;
2   using System.Media;
3   using System.Windows.Forms;
4
5   namespace _005_Piano
6   {
7       public partial class Form1 : Form
8       {
9           public Form1()...
13
14          private void buttonC4_Click(object sender, EventArgs e)...
19          private void buttonDb_Click(object sender, EventArgs e)...
24          private void buttonD_Click(object sender, EventArgs e)...
29          private void buttonEb_Click(object sender, EventArgs e)...
34          private void buttonE_Click(object sender, EventArgs e)...
39          private void buttonF_Click(object sender, EventArgs e)...
44          private void buttonGb_Click(object sender, EventArgs e)...
49          private void buttonG_Click(object sender, EventArgs e)...
54          private void buttonAb_Click(object sender, EventArgs e)...
59          private void buttonA_Click(object sender, EventArgs e)...
64          private void buttonBb_Click(object sender, EventArgs e)...
69          private void buttonB_Click(object sender, EventArgs e)...
74          private void buttonC5_Click(object sender, EventArgs e)...
79      }
80  }
```