"Glory, glory to old Georgia..."
for computer programmers

M. Covington - ENGR 4250 - Fall 2005

The tune:

Pitch (frequency):

D	E flat	F	G	A	B flat	C	D
293.7 Hz	311.1 Hz	349.2 Hz	392.0 Hz	440.0 Hz	466.2 Hz	523.3 Hz	587.3 Hz

Note: Sharps and flats recur every octave.

 is normally written as:

Pitch is rigidly standardized, but the tune will still sound right if all frequencies are multiplied by any constant.
Thus, it does not matter if the clock speed of your CPU is slightly off.

In the early 1700s. J. S. Bach promoted a standard that allows shifting any tune up or down by any integer multiple of $2^{(1/12)}$.

Today this system is universally used, and we refer to the shifting as "playing in a different key."

Duration (time value):

The proportional length of each note relative to the others is very important;
the absolute duration (tempo) is not standardized at all and is largely up to the performer.

Whole note
2000 ms

Half note
1000 ms

Quarter note
500 ms

Eighth note
250 ms

Sixteenth note
125 ms

A dot after any note makes it 1.5x longer.

Thus is 1500 ms.

With most songs, it is desirable to pause between notes.
I suggest subtracting the last 50 ms from the length
of each note and replacing it with silence.

This parameter (50 ms) is very variable.
Musicians call the music "legato" ("tied together") when it is zero
and "staccato" when it is large.