Materials

- Arduino Uno
- Active Buzzer
- LED
- 1x 220 Ohm Resistor
- 1x 100 Ohm Resistor

Background & Set-Up:

Morse code is a character encoding scheme used in telecommunication that encodes text characters as standardized sequences of two different signal durations called dots and dashes. Morse code is named for Samuel F. B. Morse, an inventor of the telegraph. There is additional information about the rules and characters you should support in the "special notes" section of this assignment. For more information on Morse Code:

https://en.wikipedia.org/wiki/Morse_code

You will need to set up an active buzzer with a 100 ohm series resistor to help reduce the volume and an LED with a 220 ohm series resistor to limit the current. These two components will be used to illustrate the dots and dashes of the message that was input.

You will set up the Arduino to communicate with your computer using the Arduino's serial port bus that communicates over the USB connection. Use the Arduino-PC Serial Comms starter code on github to see how to set up the connection. To send a message to your Arduino from your PC, open the serial port monitor (Tools->Serial Port Monitor). Double-check to make sure the settings match your parameters you set up in your program.

Goal:

We to create a program that outputs implements Morse code for the input message provided on the serial port. You will output the dots and dashes to both an active buzzer (auditory signal) and an LED (visual signal) to talk in code. You can even build a receiver if you want to interpret the code your transmitter is outputting!

Special Notes:

Below are all the rules and the characters that you should support in your Morse Code Transmitter program.

* 1. The length of a dot is one unit.
* 2. A dash is three units.
* 3. The space between parts of the same letter is one unit.
* 4. The space between letters is three units.
* 5. The space between words is seven units.
**** One time unit should be around 200 ms (seemed to work for me)

Category	Character	Code
Letters	A, a	·-
Letters	B, b	-··· ·
Letters	C, c	-·-·
Letters	D, d	-··
Letters	E, e	·
Letters	F, f	··-·
Letters	G, g	--·
Letters	H, h	····
Letters	I, i	··
Letters	J, j	·---
Letters	K, k	-·-
Letters	L, l	·-··
Letters	M, m	--
Letters	N, n	-·
Letters	O, o	---
Letters	P, p	·--·
Letters	Q, q	--·-

Category	Character	Code
Letters	R, r	·–·
Letters	S, s	···
Letters	T, t	–
Letters	U, u	··–
Letters	V, v	···–
Letters	W, w	·––
Letters	X, x	–··–
Letters	Y, y	–·––
Letters	Z, z	––··
Numbers	0	–––––
Numbers	1	·––––
Numbers	2	··–––
Numbers	3	···––
Numbers	4	····–
Numbers	5	·····
Numbers	6	–····
Numbers	7	––···
Numbers	8	–––··
Numbers	9	––––·
Punctuation	Period [.]	·–·–·–
Punctuation	Comma [,]	––··––
Punctuation	Question Mark [?]	··––··
Punctuation	Apostrophe [']	·––––·
Punctuation	Exclamation Point [!]	–·–·––
Punctuation	Slash/Fraction Bar [/]	–··–·
Punctuation	Parenthesis (Open)	–·––·
Punctuation	Parenthesis (Close)	–·––·–
Punctuation	Ampersand [&]	·–···
Punctuation	Colon [:]	–––···
Punctuation	Semicolon [;]	–·–·–·
Punctuation	Double Dash [=]	–···–
Punctuation	Plus sign [+]	·–·–·
Punctuation	Hyphen, Minus Sign [-]	–····–
Punctuation	Underscore [_]	··––·–
Punctuation	Quotation mark ["]	·–··–·
Punctuation	Dollar sign [$]	···–··–
Punctuation	At Sign [@]	·––·–·