Program Specification A

Write an Arduino program that meets the following specification:

* The program controls a red LED on pin 11
* The program controls a green LED on pin 10
* The program reads user input from the Serial console for the LED colour
* If the user types “red” the program blinks the red LED 6 times
* If the user types “green” the program blinks the green LED 4 times

Program Specification B

Write an Arduino program that meets the following specification:

* The program controls a red LED on pin 11
* The program controls a green LED on pin 10
* The program reads user input from the Serial console for the number of times to blink the LED
* If the blink number is less than or equal to 4 the program blinks the red LED the specified number of times
* If the blink number is greater than 4 the program blinks the green LED the specified number of times

Program Specification C

Write an Arduino program that meets the following specification:

* The program controls a red LED on pin 11
* The program controls a green LED on pin 10
* The program reads user input from the Serial console
* If the user types “high” the program blinks the red LED 5 times fast
* If the user types “low” the program blinks the green LED 4 times slow

Instructions:

1. Do as much as you can in the period. (Make sure you get cover basic expectations before trying advanced expectations.)
2. Make sure your program verifies as you work. (But you will not be testing your program on an Arduino board.)
3. Copy and paste your code into a Word document
4. Upload your Word document to your GitHub repository at the end of the period.

Basic Expectations

1. Define the following global constants and variables at the top of tour program:
   1. A constant / variable for the pin number of the red LED
   2. A constant / variable for the pin number of the green LED
   3. An integer variable for the number of times to blink
2. Provide all required initialization code in the “setup ()” block
3. Provide all other code to make your program work in the “loop ()” block or in user defined procedures.
4. Use line comments (e.g. “// This is a comment”) to highlight and explain all of your answers.

Meeting Expectations

1. Use an “if” statement to control the colour of the LED to blink.
2. Use a “for” loop to control the number of times to blink the LED.

Exceeding Expectations

1. Define a procedure that contains a block of code to blink the LED. The procedure must be used (called) from your main program loop.
2. Add a parameter to your procedure for the LED colour. The parameter must be used to blink the right colour.
3. Add a parameter to your procedure for blink times. The parameter must be used to blink the correct number of times.

APPENDIX – CODE EXAMPLES

Code tutorial to blink a LED

<https://www.arduino.cc/en/Tutorial/Blink>

Code tutorials to read numbers from the Serial Console

<https://www.arduino.cc/en/Serial/Read>

<http://www.instructables.com/id/HOW-TO-use-the-ARDUINO-SERIAL-MONITOR/>

Code tutorials to read character strings from the Serial Console

<http://www.toptechboy.com/arduino/lesson-12-simple-and-easy-way-to-read-strings-ints-and-floats-over-arduino-serial-port/>

<https://www.arduino.cc/en/Serial/ReadString>

Documentation for “if” statements

<https://www.arduino.cc/en/Reference/If>

Documentation for “for” loops

<https://www.arduino.cc/en/Reference/For>

Documentation for procedure (function) declaration

<https://www.arduino.cc/en/Reference/FunctionDeclaration>