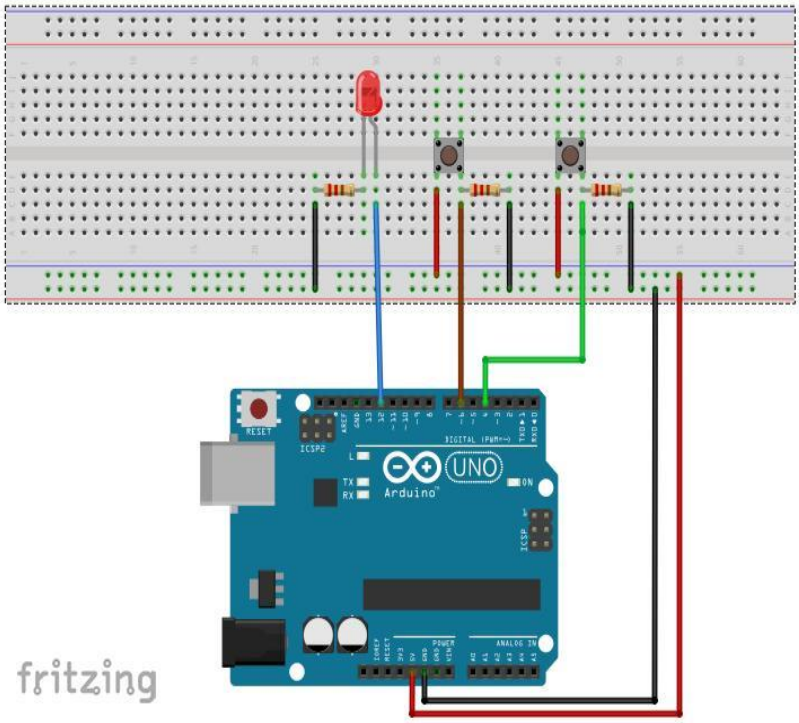
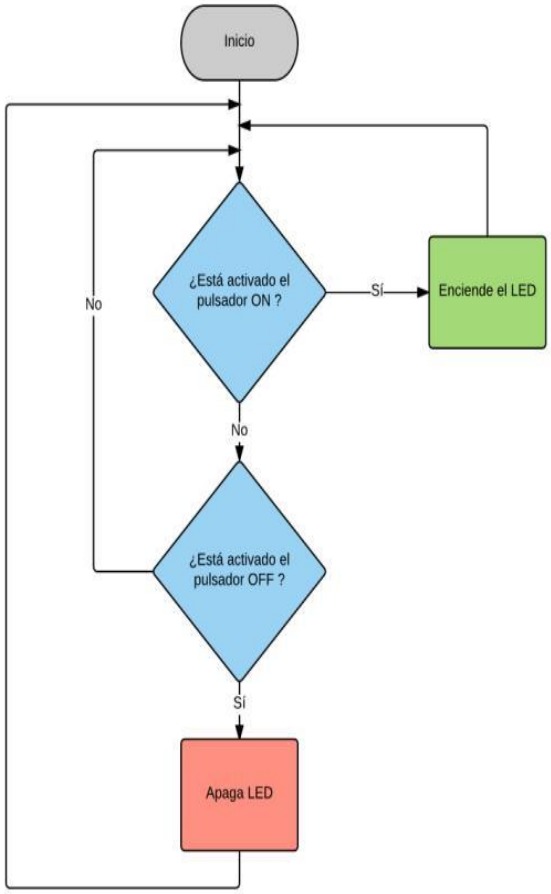
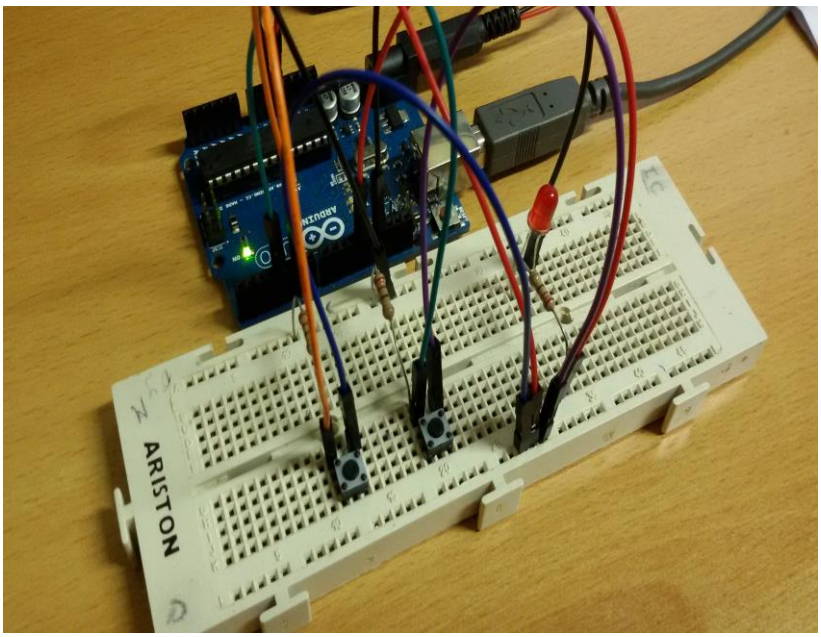
Practice 5 – Activation and deactivation of a LED with two pushbuttons

To carry out this practice we will use a protoboard plate, an LED, three resistors, two pushbuttons and an Arduino board. It involves connecting the positive pole of the LED to the digital 12 pin and the negative to the GND pin through a 220 ohm resistor. At the same time, the terminals of the ON and OFF buttons must be connected to the corresponding digital pin, at 5V and GND, with a resistance of 220 ohms between the corresponding digital pin and GND, as shown in the diagram below.
Once connected, let's think about the steps to be taken to program the Arduino board so that it will turn on when an ON button is turned on and off when the OFF is activated, as long as the first one is deactivated.



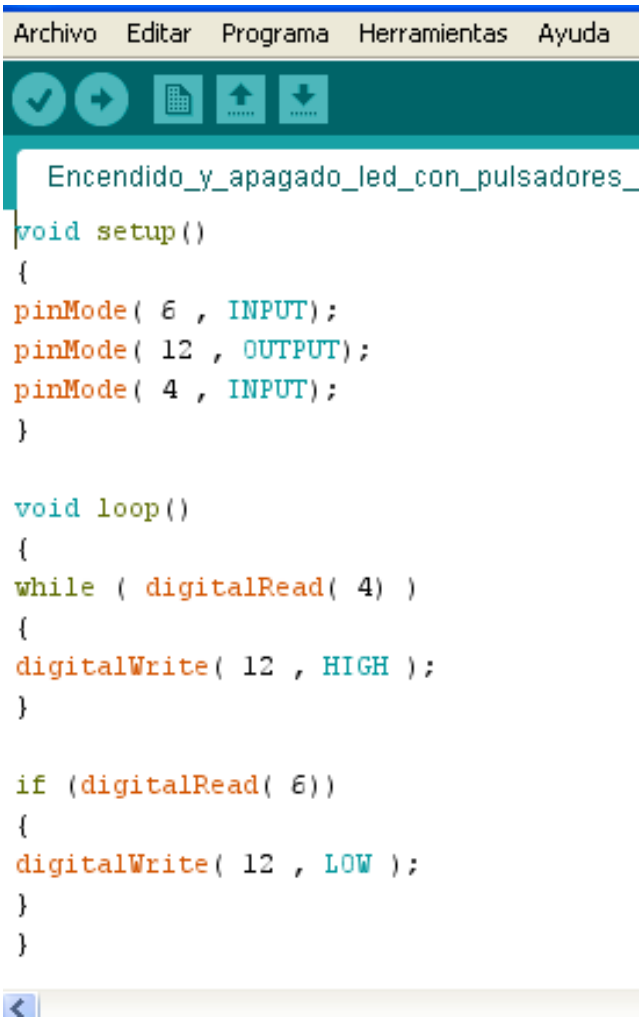
The sequence can be seen in the following flowchart:





The Arduino IDE instructions that will allow us to perform this sequence are the ones that appear in

the image below:



In void setup () let's define two pins:

- Pin 4 and 6 as inputs for pushbuttons.
- The pin 12 as output for the LED.

In void loop () the following actions will happen:

while (digitalRead (4)) This instruction checks the status of the ON button, connected to pin 4. While activated, the following action occurs:

digitalWrite(12, HIGH); Indicates that pin 12 is active and therefore the LED is lit.

If the ON button, ie pin 4, is not activated, it is passed to the following instruction which is another condition:

if (digitalRead (6)) If the pin 6 is activated, ie it receives the signal from the OFF button, the following action is taken:

digitalWrite(12, LOW); Indicates that the LED