Project I

Digital Systems and Microprocessors

Degree in Biomedical Engineering

Objetive

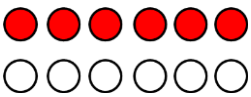
The general objective of this first project is to demonstrate the use and skill using the Arduino System, and the management of input and output ports, timers, variables and counters.

Description:

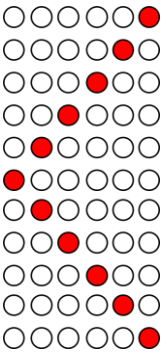
Connect 6 LEDs to 6 pins of a digital input/output port on the Arduino development board. The LEDs must be arranged and mounted on the breadboard, in addition, cables and six (220 ohm) resistors that are included in the individual kit must be used to connect each LED to the corresponding pin on the digital input/output port.

Write code in the Arduino IDE that allows you to do the following:

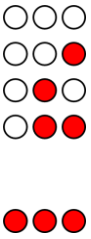
1. Turn the 6 LEDs on and off every second as shown below (10 %)



2. Perform the following sequence, repeating indefinitely. The delay between each sequence will be 200 ms (20%)



3. With the 3 LEDs, simulate a 3-bit counter, which counts and restarts again. The delay between each binary code is 1 s (30 %).



4. Using the previous point, include a push button in the system and have the counter increment the count each time you push the button. The program starts with the counter at position 000, and when it reaches count 111, the counter must be reset (40 %).

The project has a maximum score of 10. 5% of the course grade

For the delivery of the project, a document. ZIP must be done and it should contain:

- **File .ino with the corresponding codes.**
- **A pdf document explaining the four points of the project, (Commented codes of the project, illustrations, justifications, and conclusions).**
- **Representative flowchart of the programs.**
- **The name of the file will be surname_name**