Practical Exercise 1: Control of Lights and Gauge

This exercise requires the use of the PROCESSING software. The objective is to design a sketch that includes four Light Emitting Diodes (LEDs) aligned horizontally, with a gauge bar positioned directly beneath them.

Functional Requirements:

- LEDs: The LEDs should all display a default colour at the start of the application. When a left-click is applied to any LED, its colour should change to a specified colour (colour1), while the other LEDs remain at the default colour. If a right-click is applied to an LED, its colour should change again (colour2), with the other LEDs still displaying the default colour. Each LED should have a label above it that displays the current colour of the corresponding LED. The choice of colours is yours.
- Gauge Bar: The gauge bar should increase or decrease horizontally in response to the right or left arrow key on your keyboard, respectively. A label should be displayed just below the gauge bar, indicating the percentage level of the bar. The gauge bar should increase or decrease by 1% increments, starting from 0%, and should not exceed 100% or fall below 0%.

Dimensional Requirements:

- The distance between the left side of the canvas and the first LED, as well as between the last LED and the right side of the canvas, should be 50px.
- Each LED should have a height and width of 50px and should be distanced from the others by 50px.
- The labels above the LEDs should be distanced by 20px, and the same distance should be maintained between the top of the canvas and the labels.
- The label below the gauge bar should be distanced by 20px, and the same distance should be maintained from the bottom side of the canvas. It should start at the same position as the gauge bar on the x-axis.
- The gauge bar should be positioned 30px below the LEDs and should extend from the left border of the first LED to the right border of the last LED. The width of the gauge bar should be 20px.
- All labels should have a font size of 20px.

Screenshots

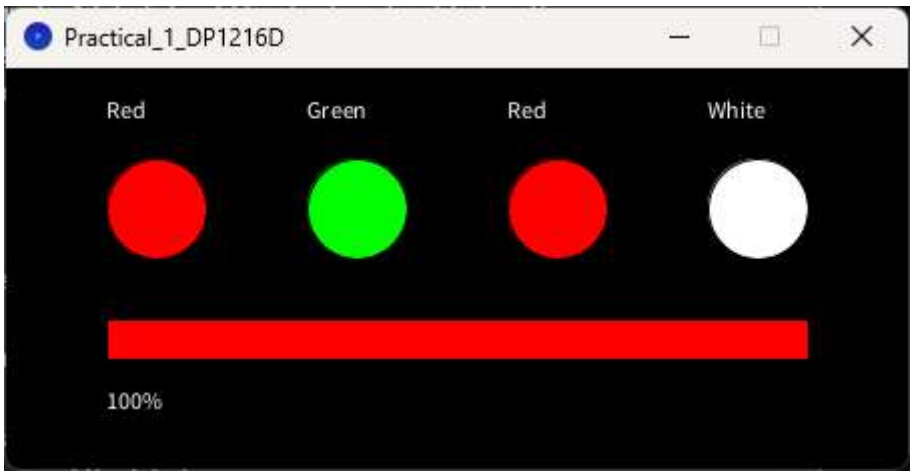

Figure 1 – Screenshot of practical one with gauge at 100%

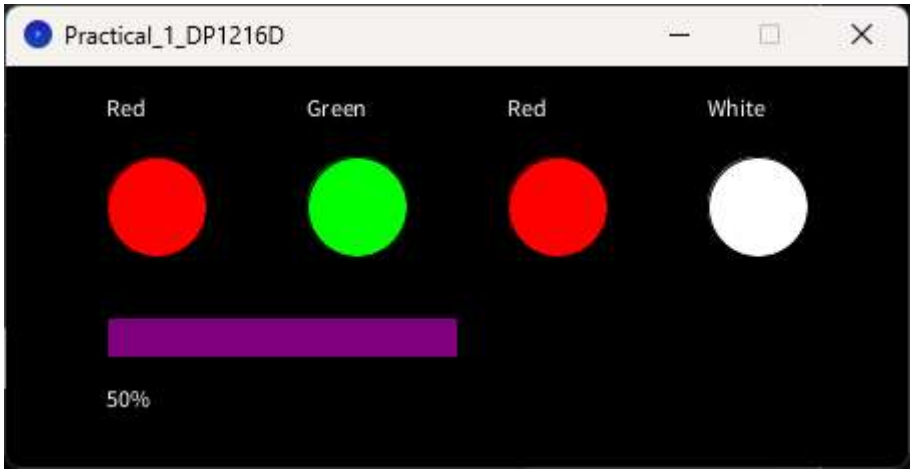

Figure 2 – Screenshot of practical one with gauge at 50%

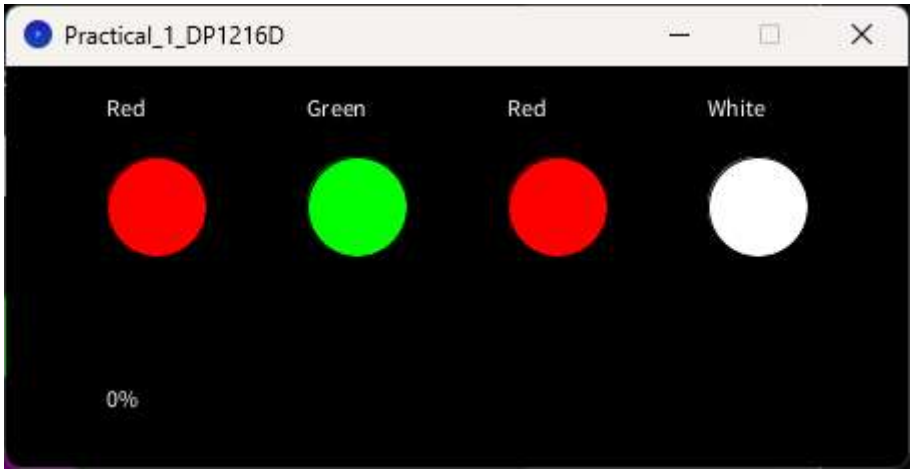

Figure 3 – Screenshot of practical one with gauge at 0%

Rubric

Criterion	1 (Poor)	2 (Fair)	3 (Good)	4 (Very Good)	5 (Excellent)	
LED Implementation	LEDs not implemented or not functioning	LEDs implemented but not functioning as expected	LEDs implemented and mostly functioning as expected	LEDs implemented and functioning as expected with minor issues	LEDs implemented and functioning perfectly as expected	
Gauge Bar Implementation	Gauge bar not implemented or not functioning	Gauge bar implemented but not functioning as expected	Gauge bar implemented and mostly functioning as expected	Gauge bar implemented and functioning as expected with minor issues	Gauge bar implemented and functioning perfectly as expected	
Mouse Interaction	No mouse interaction or not functioning	Mouse interaction implemented but not functioning as expected	Mouse interaction implemented and mostly functioning as expected	Mouse interaction implemented and functioning as expected with minor issues	Mouse interaction implemented and functioning perfectly as expected	
Keyboard Interaction	No keyboard interaction or not functioning	Keyboard interaction implemented but not functioning as expected	Keyboard interaction implemented and mostly functioning as expected	Keyboard interaction implemented and functioning as expected with minor issues	Keyboard interaction implemented and functioning perfectly as expected	
Code Quality	Code is unreadable or unorganized	Code is somewhat readable and organized	Code is readable and organized with minor issues	Code is very readable and well organized with minor issues	Code is extremely readable and well organized	
Total						