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Controlling RGB LED by PWM using Arduino UNO

This project demonstrates how to control the brightness and color of an **RGB LED** using **Pulse Width Modulation (PWM)** with an **Arduino UNO**. The **red**, **green**, and **blue** pins of the LED are connected to **pins 8, 9, and 10**, respectively.

The Arduino uses analogWrite() to send varying PWM signals to each color channel, blending them to produce:

- **Red**
- **Green**
- **Blue**
- **White**
- **Off (Black)**

Each color is displayed for 500 milliseconds in sequence. This project is ideal for learning the basics of **PWM** and **color mixing** with RGB LEDs.