

STM32 FreeRTOS laboratory 1

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1. **Create an STM32 project from scratch.**

Note: Do not use any templates from the FreeRTOS container.

Reminder: You must create a user account to download the FreeRTOS middleware.

2. **Implement three tasks to blink LEDs** at different time intervals: **200 ms**, **500 ms**, and **1000 ms**.

3. **Define a global volatile variable** to track and visualize the task execution timeline (timing diagram).

4. **Use step-by-step debugging and SWV (Serial Wire Viewer)** to observe how the timing diagram evolves.

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5. **Create two additional tasks using dummy loops** to introduce delays. Visualize the timing behavior using the global `volatile` variable and SWV.
6. **Refactor the delay tasks using `vTaskDelay()`** and compare the resulting timing diagram with the previous version.
7. **Write Example010 for the STM32**, demonstrating task scheduling and timing diagram visualization.
8. **Implement a blocking-mode serial input task** that allows the user to dynamically update the blinking period of one LED via the serial console.