Main Task 1

* **edit the code provided to make the other two LEDS blink?**

#include "mbed.h"

DigitalOut ledGreen(LED1);

DigitalOut ledBlue(LED2);

DigitalOut ledRed(LED3);

void blinkLEDs() {

ledGreen = !ledGreen;

ledBlue = !ledBlue;

ledRed = !ledRed;

}

int main() {

while (true) {

blinkLEDs();

wait\_us(500000);

}

}

--------------------------------------------------------------------------------------

2- **Write a function that makes each LED blink in sequence: LED1 blinks first, then LED2, and finally LED3. Each LED should stay on for 500 ms, then off for 500 ms before the next LED blinks.**

#include "mbed.h"

// LED definitions

DigitalOut led1(LED1);

DigitalOut led2(LED2);

DigitalOut led3(LED3);

// Function to blink one LED

void blinkLED(DigitalOut &led) {

led = 1;

wait\_us(500000);

led = 0;

wait\_us(500000);

}

int main() {

while (true) {

blinkLED(led1);

blinkLED(led2);

blinkLED(led3);

}

}

--------------------------------------------------------------------------------------

**Modify your code from Question 2 to make all three LEDs blink simultaneously. Each LED should turn on for 300 ms and then off for 300 ms in sync.**

#include "mbed.h"

// LED definitions

DigitalOut led1(LED1);

DigitalOut led2(LED2);

DigitalOut led3(LED3);

void blinkAllLEDs() {

led1 = 1;

led2 = 1;

led3 = 1;

wait\_us(300000);

led1 = 0;

led2 = 0;

led3 = 0;

wait\_us(300000);

}

int main() {

while (true) {

blinkAllLEDs();

}

}

--------------------------------------------------------------------------------------

**Write code to create a pattern where:**

**• LED1 turns on for 200 ms, then off.**

**• LED2 turns on after LED1 turns off, staying on for 400 ms.**

**• LED3 turns on after LED2 turns off, staying on for 600 ms.**

**After LED3 turns off, the sequence should repeat indefinitely.**

#include "mbed.h"

// Define the LEDs

DigitalOut led1(LED1);

DigitalOut led2(LED2);

DigitalOut led3(LED3);

// Function to manage the LED sequence

void ledPattern() {

// Turn LED1 ON for 200 ms

led1 = 1;

thread\_sleep\_for(200); // Wait for 200

led1 = 0;

// Turn LED2 ON for 400 ms

led2 = 1;

thread\_sleep\_for(400); // Wait for 400

// Turn LED3 ON for 600 ms

led3 = 1;

thread\_sleep\_for(600); // Wait for 600

led3 = 0;

}

int main() {

while (true) {

ledPattern(); // Run the LED sequence indefinitely

}

}

--------------------------------------------------------------------------------------

**5- Create a function where all three LEDs blink together for five times (200 ms on, 200 ms off for each blink). After five blinks, LED1 stays on continuously, while LED2 and LED3 remain off.**

#include "mbed.h"

// Define the three LEDs

DigitalOut led1(LED1);

DigitalOut led2(LED2);

DigitalOut led3(LED3);

// Function to blink all LEDs together for a given number of times

void blinkAllTogether(int times) {

for (int i = 0; i < times; i++) {

// Turn all LEDs ON

led1 = 1;

led2 = 1;

led3 = 1;

thread\_sleep\_for(200); // Wait for 200

// Turn all LEDs OFF

led1 = 0;

led2 = 0;

led3 = 0;

thread\_sleep\_for(200); // Wait for 200

}

}

int main() {

// Phase 1: Blink all LEDs 5 times

blinkAllTogether(5);

// Phase 2: Keep LED1 ON and LED2, LED3 OFF

led1 = 1;

led2 = 0;

led3 = 0;

// Infinite loop to hold the final state

while (true) {

// Nothing else to do here, holding final state

}

}

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