Lab 10: Requirement Description

- **Youtube 影片**

  Link: https://www.youtube.com/watch?v=WTjSkGSoUKI

- **HackMD**

  Link: https://hackmd.io/@Annie910201/SyGsEb8W1e

- **測試(0%)**

  請依照 HackMD 上的指示，測試我們的 UART 線是否能正常運作。請檢查所有可能導致在 Putty 上收到錯誤或無訊息的因素（尤其是 Baud rate）後，再聯絡助教進行線材更換。

- **基本題(70%)**

➢ **題目敘述:**

實作一個測試程式，能夠呈現出你在鍵盤上按下的內容。 Baud rate 應設為 1200。你可以使用 Sample code 中的內容，並修改 setting_hardware/uart.c 中完成 UART_Initialize() 和 MyusartRead() 函數來達成目標。

- **進階題(30%)**

➢ **題目敘述:**

以 UART 與四個燈泡實作 1 簡單裝置，當輸入 0 到 9 的數字時，燈泡會依輸入的數字亮起。

➢ **範例**

1. 輸入 「1」

2. 輸入 「4」

3. 輸入「7」

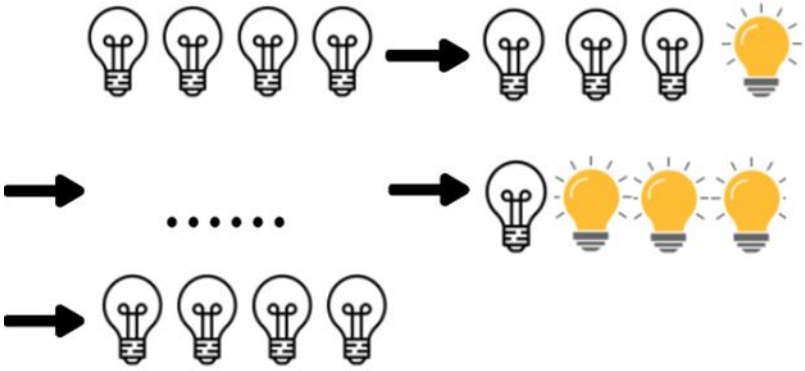
- **加分題(20%)**

➢ **題目敘述:**

以 UART、四個燈泡，與 1 按鈕實作 1 裝置，當輸入 0 到 9 的數字時，燈泡會依輸入的數字而呈現計數範圍不同的環形計數器(範圍為 0 到所輸入數字)，時間間隔固定 0.5 秒，而當按下按鈕時，計數器停止。

➢ **範例:**

輸入「7」



而當按下按鈕時，計數器停止。

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● Introduction:

Video: https://www.youtube.com/watch?v=WTjSkGSoUKI

Hackmd: https://hackmd.io/@Annie910201/SyGsEb8W1e

● Testing(0%):

➢ Description:

Follow the instruction in HackMD to test our UART cable can perfectly function. Please check all the factor (baud rate match especially) that will cause you receive wrong/none message on Putty before you reach out to TAs for cable replacement.

● Basic (70%) :

➢ Description:

Implement your own tester which allows you print what you've key on keyboard. However, in this case, your baud rate should be 1200. You can use Sample Code then complete UART_Initialize() and MyusartRead() functions in setting_hardware/uart.c to achieve that.

● Advance(30%)

➢ Description :

Implement a device using UART and 4 LEDs. Input the number in range 0 to 9, and the bulb will light up according to the number entered

➢ Example

1. Type “1”

2. Type “4”

3. Type “7”

- Bonus(20%)

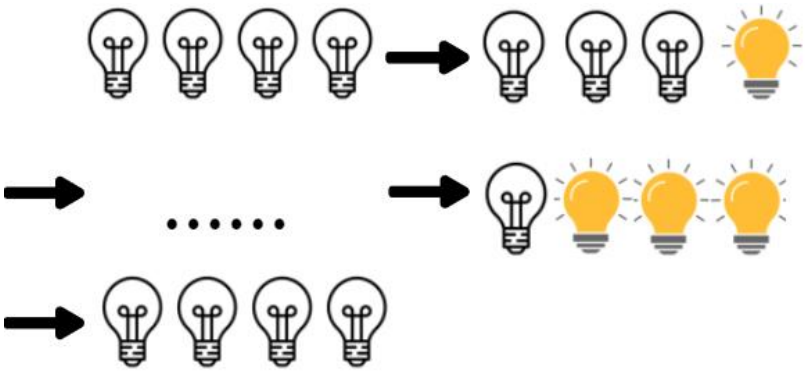
➢ Description:

Implement a device using UART, 4 LEDs, and a button.

Input the number in range 0 to 9, the bulbs will be a cyclic counter, and the range of the counter will be 0 to the number you input, and it will stop when the button pressed, the time interval is 0.5 second

➢ Example

Type “7”



And it will stop when the button pressed.