

Q1. Write a Program(GPIO_A1) and Configure Pins PD13 , PD14 to LED3, LED4 Respectively & Toggle the LED's connected to them , also configure SWD Feature?

Q2. Write a Program(GPIO_A2) and Configure Pins PD12 to LED1 & Set the LED's connected to the PIN for 500ms and Reset for 500ms , also configure SWD Feature?

Q3. Write a Program(GPIO_A3) and Configure Pins

(Switch)PA0 to GPIO_Input ,

(LED) PD12 to GPIO_Output,

Action: Toggle the LED's when Switch is Pressed , also configure SWD Feature?

Q4. Write a Interrupt Driven Program(GPIO_A4) and Configure Pins

(Switch)PA0 to GPIO_EXTI0 ,

(LED) PD12 to GPIO_Output,

NVIC GUI --> Enable EXTI line0 Interrupt

Action: Toggle the LED's when Switch is Pressed , also configure SWD Feature?

Q5 Write a Interrupt Driven Program(TIM_INT_A5) and Configure Pins

Action: Toggle the LED's when Timer time Elapsed or Timer Expire , also configure SWD Feature?

Q6 Write a Program(TIM_PWM_A6) to Learn Pulse Width Modulation and Configure Peripherals TIMER4 (TIM4).

Action: Control the Brightness of LED , also configure SWD Feature?

Q7.1 Write a Program(TIM_OC_A7_1) to Learn Timer Output Compare and Configure Peripherals TIMER4 (TIM4)

Action: Control the Motion Sequence of LED , also configure SWD Feature?

Q7.2 Write a Program(TIM_OC_A7_2) to Learn Timer Output Compare in Interrupt Mode and Configure Peripherals TIMER4 (TIM4)

Action: Control the Toggling Frequency of each LED at different rate, also configure SWD Feature?

Q8 Write a Program(TIM_IC_A8) to Learn Timer Input Capture Mode and Configure Peripherals TIMER2 (TIM2)

Action: Capture the Timing of Button Pressed and Display the same in STM Studio, also configure SWD Feature?

Q9 Write a Program(ADC_SS_A9) to Learn ADC Single Shot Mode and Configure Peripherals ADC1.

Action : Press the User Switch (PA0) to get Max Value of ADC in Single Shot and Display the same in STM Studio, also configure SWD Feature?

Q10 Write a Program(ADC_CC_A10) to Learn ADC Continuous Conversion Mode and Configure Peripherals ADC1 .

Action : Press the User Switch (PA0) to get Max Value of ADC in Continuous Conversion Mode and Display the same in STM Studio, also configure SWD Feature?

Q11 Write a Interrupt Driven Program(RTC_INT_A11) to Learn Real Time Clock and Configure Pins.

Q12 Write a Interrupt Driven Program(IWDG_A12) to Learn Internal WatchDog Timer and Configure Pins .

Q13 Write a Program(UART_Tx_A13) to Learn Internal UART Transmit Only and Configure Peripherals UART (UART4).

PART 2 Transmit and Receive Both

Q14 Write a Interrupt Driven Program(UART_Echo_A14) to Learn UART RX TX Functionality and Configure Pins.

Part 2 Assignment

Transmit Entire String when user press Enter Key

Q15 Write a Direct Memory Access (DMA) Driven Program(UART_DMA_A15) to Learn UART Functionality via DMA and Configure Pins

Q16 SPI

Q17 I2C

How to handle I2C data buffer transmission/reception between two boards, in polling mode.

Write a I2C Program to Communicate between Two STM32F4 Boards and Send LED_ON Info?

Q18 Write a program for ARM STM32 to make use of onboard accelerometer and implement a tilt sensing functionality toggler rapidly the respective LEDs based on where tilt is happening (X or Y axis).

-In case the device is not having any tilt ,make sure r=that all LEDs are glowing.

-Furthermore,send the accelerometer data and LED state to UART (any) at 9600 Baud rate.

Q19 Implement External Interrupt via User button wherein,once user presses the button the UART should print following to the terminal

“Welcome to UART Terminal :You are connected at [115200@8N1](#)”.

Once done above,read serial data from user via serial terminal and implement the following functionality based on received data:()

Q20 Write a c program to perform following:

a) Using terminal Input Capture to check if button is pressed within three seconds SET the user LEDs in clockwise Direction

(Ex. SET PD12 -> Delay 500ms -> SETPD13 -> Delay ...so on) and if the button is pressed after 3 seconds and pressed after 6 seconds SET the LEDs in Counter-Clockwise Direction

b) If the button is not pressed rest the board after 8 seconds.

(Using watchdog)