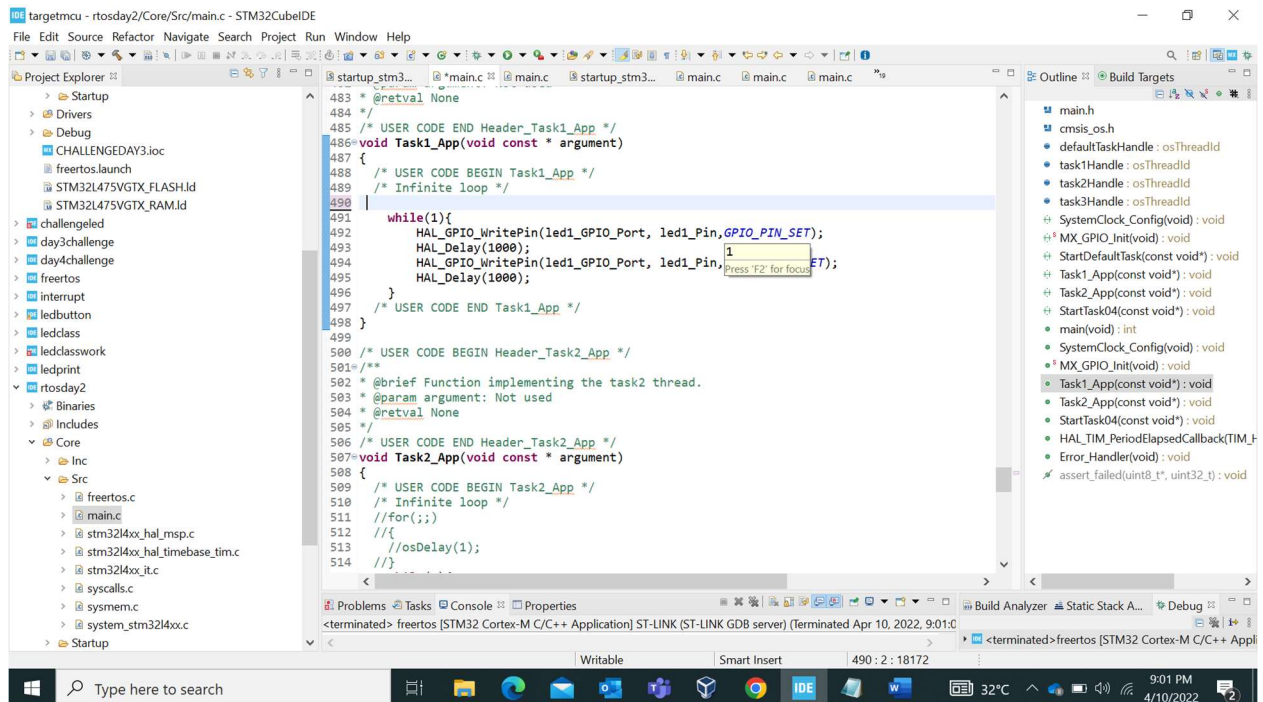


ASSIGNMENT -4

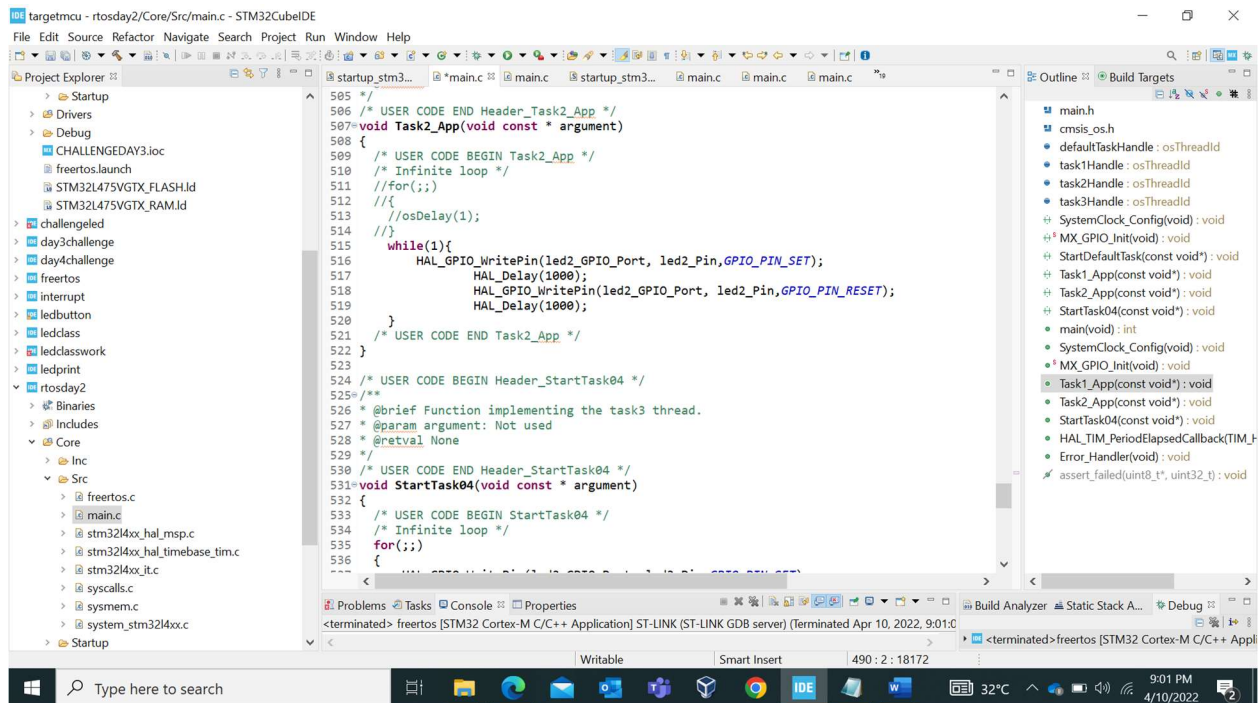
Name: Sharwari Daware

Shift2 Track2

Code for rtos tasks:



```
483 * @retval None
484 */
485 /* USER CODE END Header_Task1_App */
486 void Task1_App(void const * argument)
487 {
488     /* USER CODE BEGIN Task1_App */
489     /* Infinite loop */
490     while(1){
491         HAL_GPIO_WritePin(led1_GPIO_Port, led1_Pin, GPIO_PIN_SET);
492         HAL_Delay(1000);
493         HAL_GPIO_WritePin(led1_GPIO_Port, led1_Pin, GPIO_PIN_RESET);
494         HAL_Delay(1000);
495     }
496     /* USER CODE END Task1_App */
497 }
498
499
500 /* USER CODE BEGIN Header_Task2_App */
501 /**
502  * @brief Function implementing the task2 thread.
503  * @param argument: Not used
504  * @retval None
505  */
506 void Task2_App(void const * argument)
507 {
508     /* USER CODE BEGIN Task2_App */
509     /* Infinite loop */
510     for(;;)
511     {
512         /*osDelay(1);
513         */
514     }
```



Code for timer interrupt:

```
void HAL_TIM_PeriodElapsedCallback(TIM_HandleTypeDef *htim)
{
    if(htim->Instance==TIM2){
        HAL_GPIO_WritePin(led1_GPIO_Port, led1_Pin,GPIO_PIN_SET);
        HAL_Delay(1000);
        HAL_GPIO_WritePin(led1_GPIO_Port,
led1_Pin,GPIO_PIN_RESET);
        HAL_Delay(1000);
    }

    if(htim->Instance==TIM3){
        HAL_GPIO_WritePin(led2_GPIO_Port, led2_Pin,GPIO_PIN_SET);
        HAL_Delay(1000);
        HAL_GPIO_WritePin(led2_GPIO_Port,
led2_Pin,GPIO_PIN_RESET);
        HAL_Delay(1000);
    }

    if(htim->Instance==TIM4){
        HAL_GPIO_WritePin(led3_GPIO_Port, led3_Pin,GPIO_PIN_SET);
        HAL_Delay(1000);
        HAL_GPIO_WritePin(led3_GPIO_Port,
led3_Pin,GPIO_PIN_RESET);
        HAL_Delay(1000);
    }
}
```

```

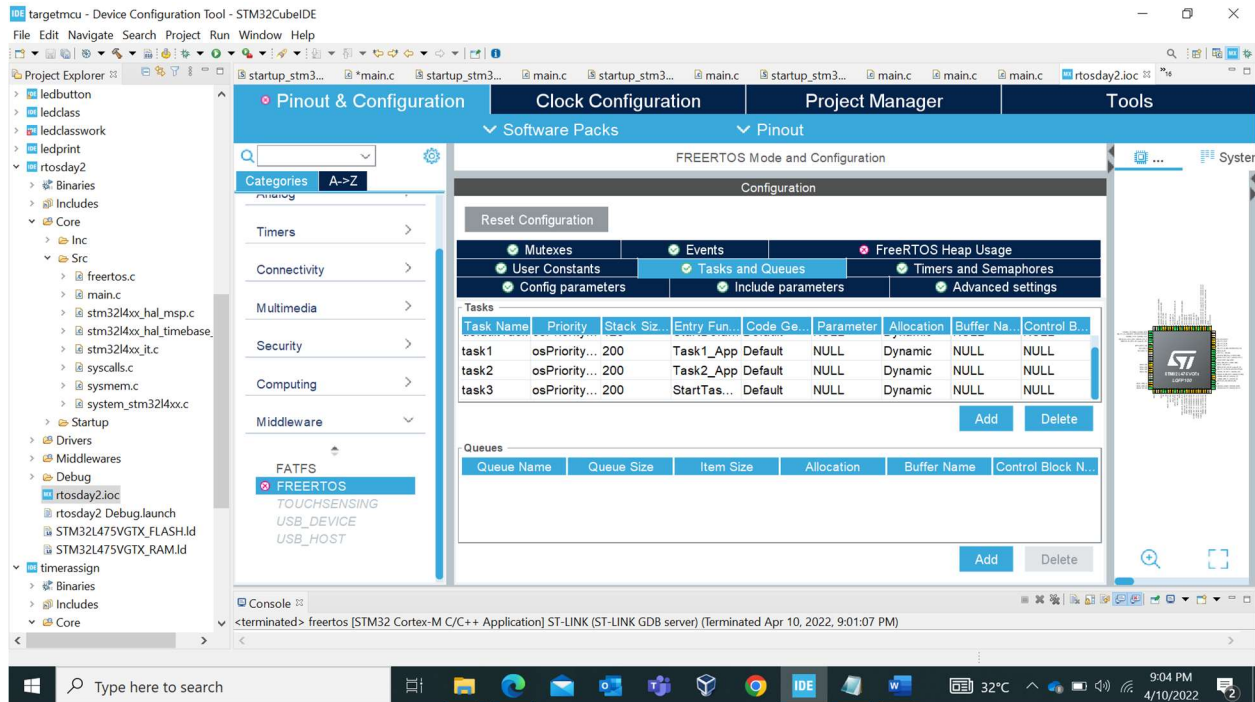
else{

    __NOP();

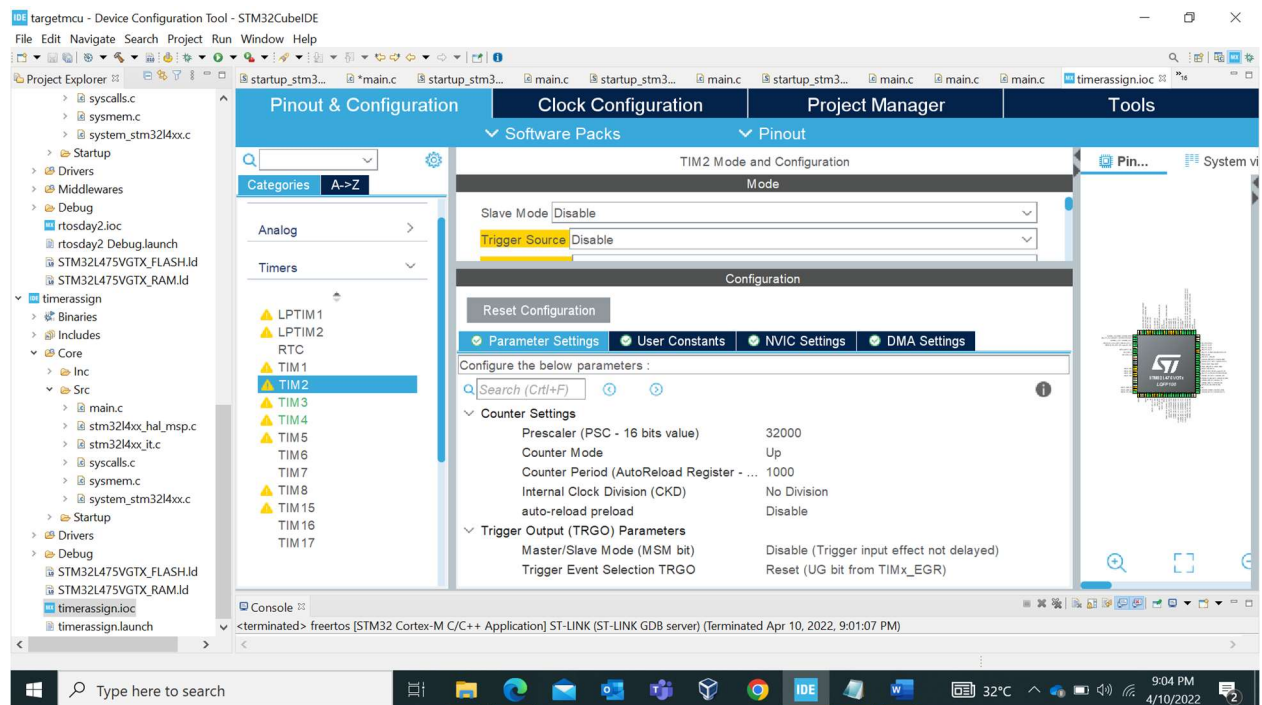
}
}

```

Configuration for RTOS:



Configuration for timers:



Memory related information for rtos tasks:

The screenshot shows the STM32CubeIDE interface with the 'Memory Browser' window open. The 'Memory Regions' tab is selected, displaying a table of memory regions. The 'Memory Details' tab is also visible, showing the details for the 'FLASH' region.

Name	Run address ...	Load address (...)	Size
FLASH	0x08000000	0x08000000	1024 KB
> .isr_vector	0x08000000	0x08000000	392 B
> .text	0x08000190	0x08000190	16.08 KB
> .rodata	0x080041e4	0x080041e4	312 B
> .preinit_array	0x0800431c	0x0800431c	0 B
> .init_array	0x0800431c	0x0800431c	4 B
> .fini_array	0x08004320	0x08004320	4 B
> .data	0x20000000	0x08004324	116 B
RAM2	0x10000000		32 KB

The 'Memory Details' tab for the 'FLASH' region shows the following information:

- Register: IDR
- Address: 0x48000010
- Value: 0xabffffff

Memory related information for timer interrupt:

workspace_1.7.0 - Timer_assign4/Core/Src/main.c - STM32CubeIDE

File Edit Source Refactor Navigate Search Project Run Window Help

Debug Project Explorer

Timer_assign4 [STM32 Cortex-M C/C++ Application]

Timer_assign4.elf [cores: 0]

Thread #1 [main] 1 [core: 0] (Running)

arm-none-eabi-gdb (8.3.1.20191211)

ST-LINK (ST-LINK GDB server)

main.c Timer_assign4.ioc startup_stm32l475vgtx.s

```

76  /* MCU Configuration-----
77
78  /* Reset of all peripherals, Initializes the Flash interface and the Syste
79  HAL_Init();
80
81  /* USER CODE BEGIN Init */
82
83  /* USER CODE END Init */
84

```

Console Problems Executables Memory Browser Debugger Console Memory SWV ITM Data

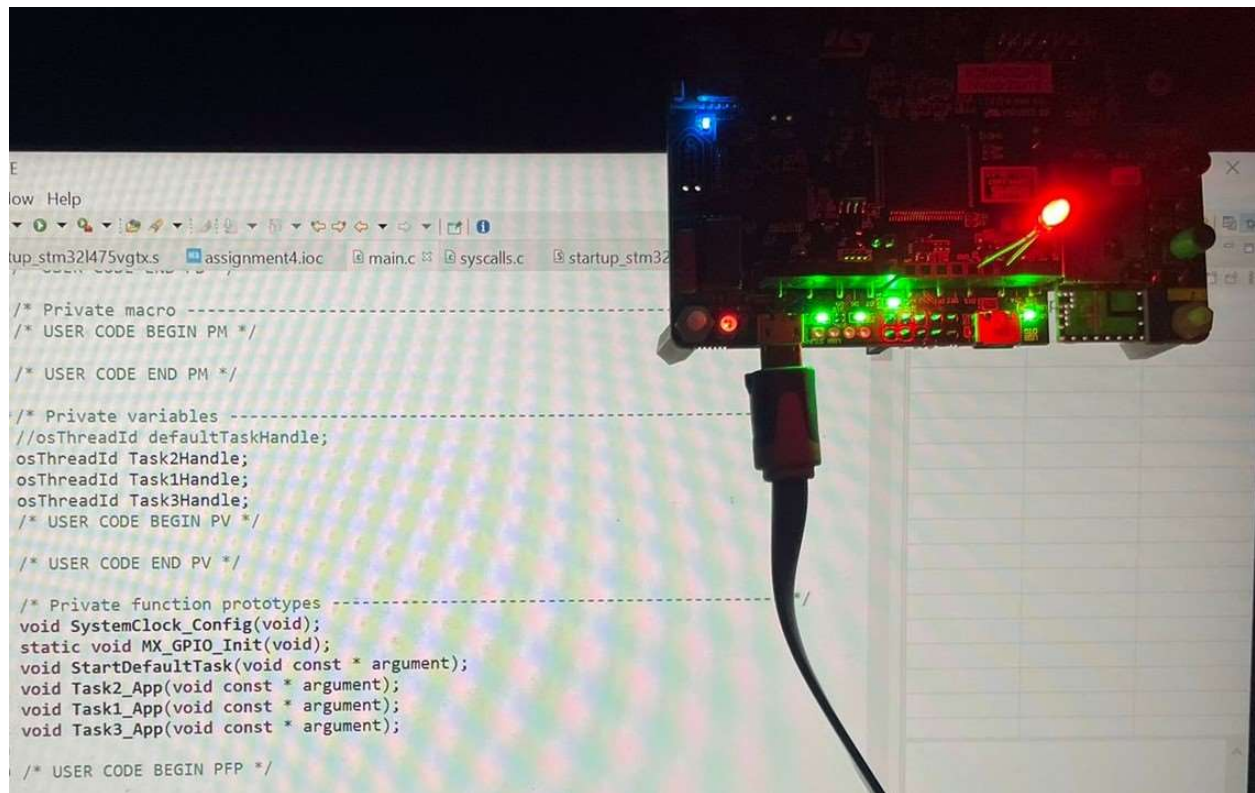
Timer_assign4.elf - /Timer_assign4/Debug - Apr 10, 2022, 6:20:56 PM

Memory Regions Memory Details

Search

Name	Run address ...	Load address (...)	Size
FLASH	0x08000000		1024 KB
.isr_vector	0x08000000	0x08000000	392 B
.text	0x08000188	0x08000188	10.01 KB
.rodata	0x08002990	0x08002990	64 B
.preinit_array	0x080029d0	0x080029d0	0 B
.init_array	0x080029d0	0x080029d0	4 B
.fini_array	0x080029d4	0x080029d4	4 B
.data	0x20000000	0x080029d8	12 B
RAM2	0x10000000		32 KB
RAM	0x20000000		96 KB
.data	0x20000000	0x080029d8	12 B
.bss	0x2000000c		260 B
.user_heap_stack	0x20000110		1.5 KB

OUTPUT:



Output

https://drive.google.com/file/d/1mrR_Ec9A8F2b91qZhReLATWi06HWeBTk/view?usp=sharing