```c
/* USER CODE BEGIN Header */
/**
 ******************************************************************************
 * @file           : main.c
 * @brief          : Main program body
 ******************************************************************************
 * @attention
 *
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 *
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 * in the root directory of this software component.
 * If no LICENSE file comes with this software, it is provided AS-IS.
 *
 ******************************************************************************
 */
/* USER CODE END Header */
/* Includes ------------------------------------------------------------------*/
#include "main.h"
/* Private includes ----------------------------------------------------------*/
/* USER CODE BEGIN Includes */
/* USER CODE END Includes */
/* Private typedef -----------------------------------------------------------*/
/* USER CODE BEGIN PTD */
/* USER CODE END PTD */
/* Private define ------------------------------------------------------------*/
/* USER CODE BEGIN PD */
/* USER CODE END PD */
/* Private macro -------------------------------------------------------------*/
/* USER CODE BEGIN PM */
/* USER CODE END PM */
/* Private variables ---------------------------------------------------------*/
/* USER CODE BEGIN PV */
/* USER CODE END PV */
/* Private function prototypes -----------------------------------------------*/
void SystemClock_Config(void);
static void MX_GPIO_Init(void);
/* USER CODE BEGIN PFP */
/* USER CODE END PFP */
/* Private user code ---------------------------------------------------------*/
/* USER CODE BEGIN 0 */
/* USER CODE END 0 */
/**
 * @brief  The application entry point.
 * @retval int
 */
int main(void)
{
 /* USER CODE BEGIN 1 */
 /* USER CODE END 1 */
 /* MCU Configuration--------------------------------------------------------*/
```

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/* Reset of all peripherals, Initializes the Flash interface and the Systick. */
HAL_Init();
/* USER CODE BEGIN Init */
/* USER CODE END Init */
/* Configure the system clock */
SystemClock_Config();
/* USER CODE BEGIN SysInit */
/* USER CODE END SysInit */
/* Initialize all configured peripherals */
MX_GPIO_Init();
/* USER CODE BEGIN 2 */
/* USER CODE END 2 */
/* Infinite loop */
/* USER CODE BEGIN WHILE */
while (1)
{
  /* USER CODE END WHILE */
            HAL_GPIO_WritePin(LED_GPIO_Port, LED_Pin, 1);
            HAL_Delay(1000);
            HAL_GPIO_WritePin(LED_GPIO_Port, LED_Pin, 0);
            HAL_Delay(1000);
  /* USER CODE BEGIN 3 */
}
/* USER CODE END 3 */
}
/**
 * @brief System Clock Configuration
 * @retval None
 */
void SystemClock_Config(void)
{
 RCC_OscInitTypeDef RCC_OscInitStruct = {0};
 RCC_ClkInitTypeDef RCC_ClkInitStruct = {0};
 /** Configure the main internal regulator output voltage
 */
 __HAL_RCC_PWR_CLK_ENABLE();
 __HAL_PWR_VOLTAGESCALING_CONFIG(PWR_REGULATOR_VOLTAGE_SCALE2);
 /** Initializes the RCC Oscillators according to the specified parameters
 * in the RCC_OscInitTypeDef structure.
 */
 RCC_OscInitStruct.OscillatorType = RCC_OSCILLATORTYPE_HSI;
 RCC_OscInitStruct.HSIState = RCC_HSI_ON;
 RCC_OscInitStruct.HSICalibrationValue = RCC_HSICALIBRATION_DEFAULT;
 RCC_OscInitStruct.PLL.PLLState = RCC_PLL_ON;
 RCC_OscInitStruct.PLL.PLLSource = RCC_PLLSOURCE_HSI;
 RCC_OscInitStruct.PLL.PLLM = 8;
 RCC_OscInitStruct.PLL.PLLN = 64;
 RCC_OscInitStruct.PLL.PLLP = RCC_PLLP_DIV2;
 RCC_OscInitStruct.PLL.PLLQ = 4;
 if (HAL_RCC_OscConfig(&RCC_OscInitStruct) != HAL_OK)
 {
   Error_Handler();
```

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}
/** Initializes the CPU, AHB and APB buses clocks
*/
RCC_ClkInitStruct.ClockType = RCC_CLOCKTYPE_HCLK|RCC_CLOCKTYPE_SYSCLK
                            |RCC_CLOCKTYPE_PCLK1|RCC_CLOCKTYPE_PCLK2;
RCC_ClkInitStruct.SYSCLKSource = RCC_SYSCLKSOURCE_PLLCLK;
RCC_ClkInitStruct.AHBCLKDivider = RCC_SYSCLK_DIV4;
RCC_ClkInitStruct.APB1CLKDivider = RCC_HCLK_DIV2;
RCC_ClkInitStruct.APB2CLKDivider = RCC_HCLK_DIV1;
if (HAL_RCC_ClockConfig(&RCC_ClkInitStruct, FLASH_LATENCY_0) != HAL_OK)
{
  Error_Handler();
}
}
/**
* @brief GPIO Initialization Function
* @param None
* @retval None
*/
static void MX_GPIO_Init(void)
{
GPIO_InitTypeDef GPIO_InitStruct = {0};
/* USER CODE BEGIN MX_GPIO_Init_1 */
/* USER CODE END MX_GPIO_Init_1 */
/* GPIO Ports Clock Enable */
__HAL_RCC_GPIOA_CLK_ENABLE();
__HAL_RCC_GPIOC_CLK_ENABLE();
/*Configure GPIO pin Output Level */
HAL_GPIO_WritePin(GPIOC, LED_Pin|SOUND_Pin, GPIO_PIN_RESET);
/*Configure GPIO pins : LED_Pin SOUND_Pin */
GPIO_InitStruct.Pin = LED_Pin|SOUND_Pin;
GPIO_InitStruct.Mode = GPIO_MODE_OUTPUT_PP;
GPIO_InitStruct.Pull = GPIO_NOPULL;
GPIO_InitStruct.Speed = GPIO_SPEED_FREQ_LOW;
HAL_GPIO_Init(GPIOC, &GPIO_InitStruct);
/* USER CODE BEGIN MX_GPIO_Init_2 */
/* USER CODE END MX_GPIO_Init_2 */
}
/* USER CODE BEGIN 4 */
/* USER CODE END 4 */
/**
* @brief  This function is executed in case of error occurrence.
* @retval None
*/
void Error_Handler(void)
{
/* USER CODE BEGIN Error_Handler_Debug */
/* User can add his own implementation to report the HAL error return state */
__disable_irq();
while (1)
{
}
```

```
 /* USER CODE END Error_Handler_Debug */
}
#ifdef  USE_FULL_ASSERT
/**
 * @brief  Reports the name of the source file and the source line number
 *         where the assert_param error has occurred.
 * @param  file: pointer to the source file name
 * @param  line: assert_param error line source number
 * @retval None
 */
void assert_failed(uint8_t *file, uint32_t line)
{
 /* USER CODE BEGIN 6 */
 /* User can add his own implementation to report the file name and line number,
    ex: printf("Wrong parameters value: file %s on line %d\r\n", file, line) */
 /* USER CODE END 6 */
}
#endif /* USE_FULL_ASSERT */
```