LAB 2

Using STM32F103C8T6 Chip with ARM Cortex-M3 32-Bit Microcontroller

Everything will be written from scratch:

- **main.c**
- **Platform_Types.h**
- **Startup.c and another assembly version (startup.s)**
- **Makefile**
- **linker_script.ld**

```
D:\KS\4.Embedded C\4. Lesson3\Assignment>make
arm-none-eabi-gcc.exe -mcpu=cortex-m3 -gdwarf-2 -mthumb -c  -I .  main.c -o main.o
arm-none-eabi-as.exe  -mcpu=cortex-m3 -gdwarf-2 startup.s -o startup.o
arm-none-eabi-ld.exe  -T linker_script.ld main.o startup.o  -o CortexM3_ToggleLED.elf -Map=CortexM3_ToggleLED.Map
arm-none-eabi-objcopy.exe -O binary CortexM3_ToggleLED.elf CortexM3_ToggleLED.bin
Build is finished ...

D:\KS\4.Embedded C\4. Lesson3\Assignment>ls *.o
main.o  startup.o
```

Symbols in output objects and elf file:

```
D:\KS\4.Embedded C\4. Lesson3\Assignment>arm-none-eabi-nm.exe main.o
00000014 T Bus_Fault_Handler
00000000 R const_variables
0000000c D g_variables
00000004 D GPIOA_CRH
00000008 D GPIOA_ODR
00000003 C gu_var
00000028 T main
00000000 T NMI_Handler
00000000 D RCC_APB2ENR

D:\KS\4.Embedded C\4. Lesson3\Assignment>arm-none-eabi-nm.exe startup.o
         U _E_bss
         U _E_data
         U _E_text
         U _S_bss
         U _S_data
         U _stack_top
00000000 W Bus_Fault_Handler
00000000 T Default_Handler
00000000 W H_Fault_Handler
         U main
00000000 W MM_Fault_Handler
00000000 W NMI_Handler
00000018 T Reset_Handler
00000000 W Usage_Fault_Handler
00000000 D vectors
```

```
D:\KS\4.Embedded C\4. Lesson3\Assignment>arm-none-eabi-nm.exe CortexM3_ToggleLED.elf
20000010 B _E_bss
20000010 D _E_data
0800021c T _E_text
20000010 B _S_bss
20000000 D _S_data
20001010 B _stack_top
08000030 T Bus_Fault_Handler
08000218 T const_variables
08000108 T Default_Handler
2000000c D g_variables
20000004 D GPIOA_CRH
20000008 D GPIOA_ODR
20001010 B gu_var
08000108 W H_Fault_Handler
08000044 T main
08000108 W MM_Fault_Handler
0800001c T NMI_Handler
20000000 D RCC_APB2ENR
08000120 T Reset_Handler
08000108 W Usage_Fault_Handler
08000000 T vectors
```