

# Space Invaders

## OUR TEAM

Mariam Mohamed Fotouh

Karim Taha Abdelfatah

Ibrahim Yasser Ibrahim

Aya Abdelmenem Gaber

Mohamed Adel Abdelwahab



# Before starting there are some instructions

The following were the specific system requirements:

- 1) The game must run on a real TM4C123 LaunchPad microcontroller .
- 2)The game must compile in Keil IDE.
- 3) The project may use the Keil simulator, the real Nokia5110 LCD .
- 4) The compilation must occur with the 32k-limit free version of Keil.
- 5) If the real Nokia5110 is used, it must be interfaced to PA7, PA6, PA5, PA3, and PA2.



# **Space invaders game, running on TM4C123GH6PM (TivaC)**

For this project, I designed and built an embedded system, for the game "Space Invaders", using the TM4C123 Launchpad microcontroller and C code.

## **How it work ?**

At the beginning of the game, you choose between two, either play or exit through an external switch. If you exit the game and want to play again, run the program again.

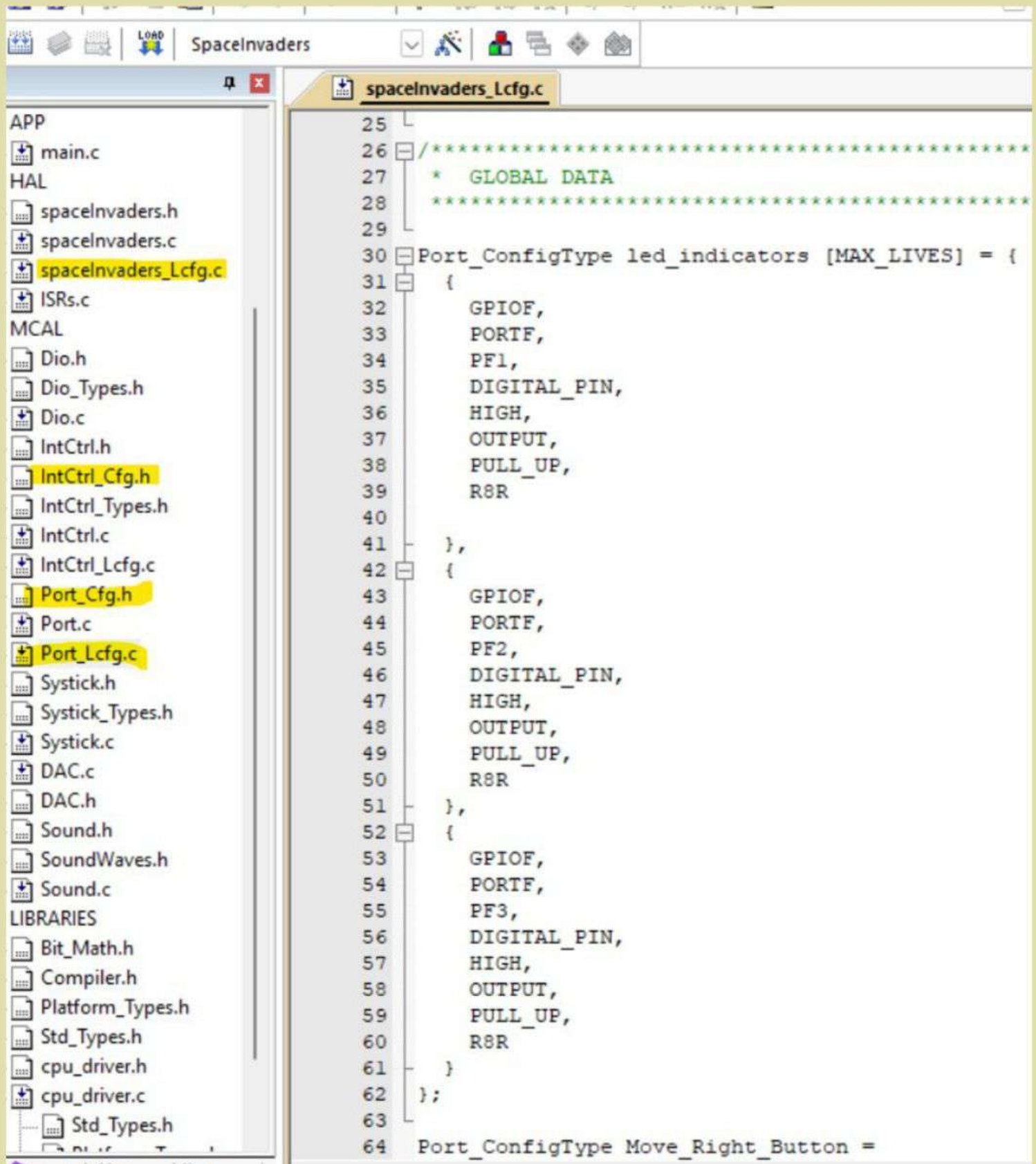
We have a player and enemies,

1- the player has a number of lives, and he is responsible for killing the enemies. When the enemy dies, he scores points that appear at the end of the game. We can also control the number of shots fired by the player.

2- the enemies, it is possible to control the number of their descent, and when the player collides with him, the player dies immediately and uses one of his lives .

# Tools

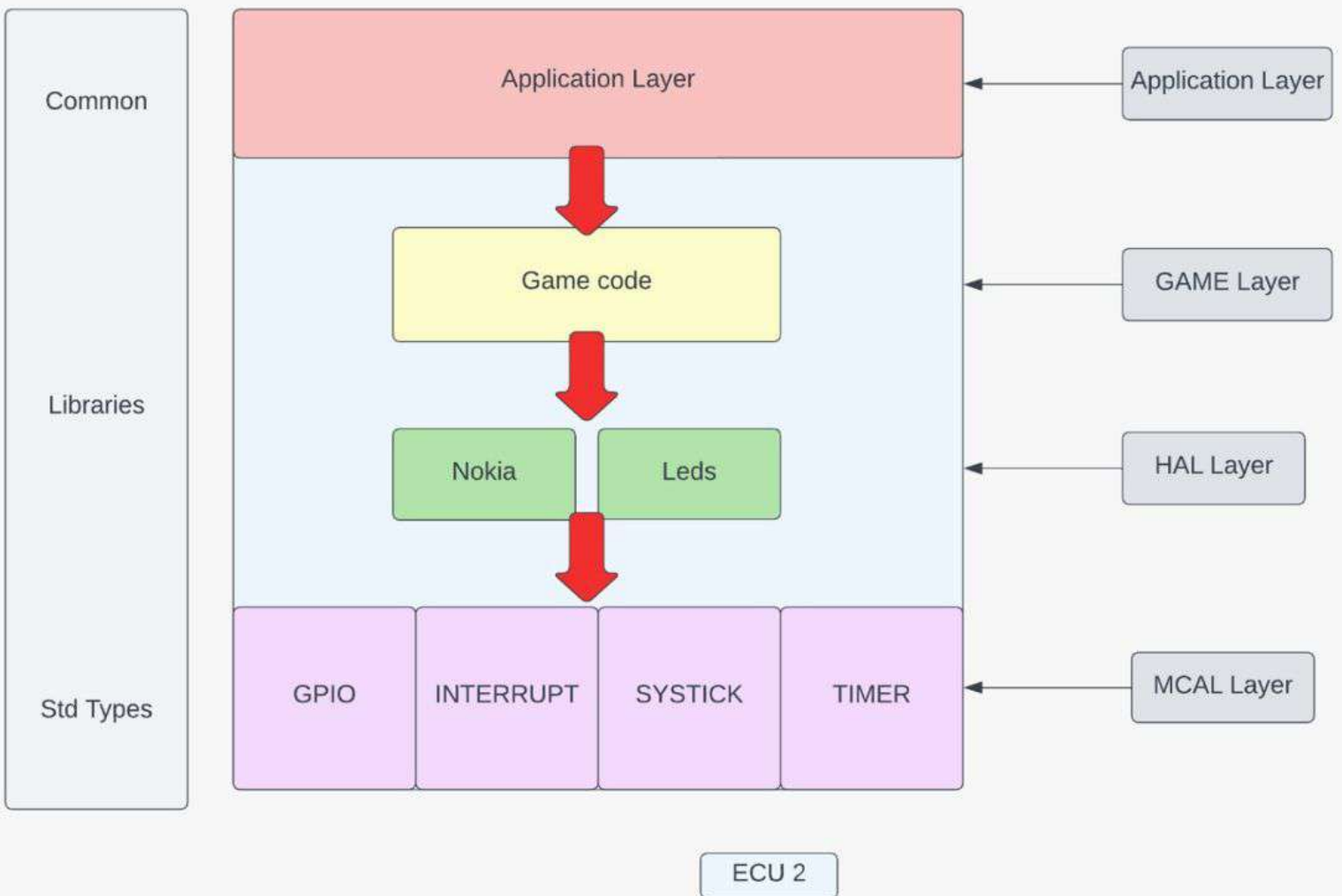
We have a configuration file For everything has interface with it like this :

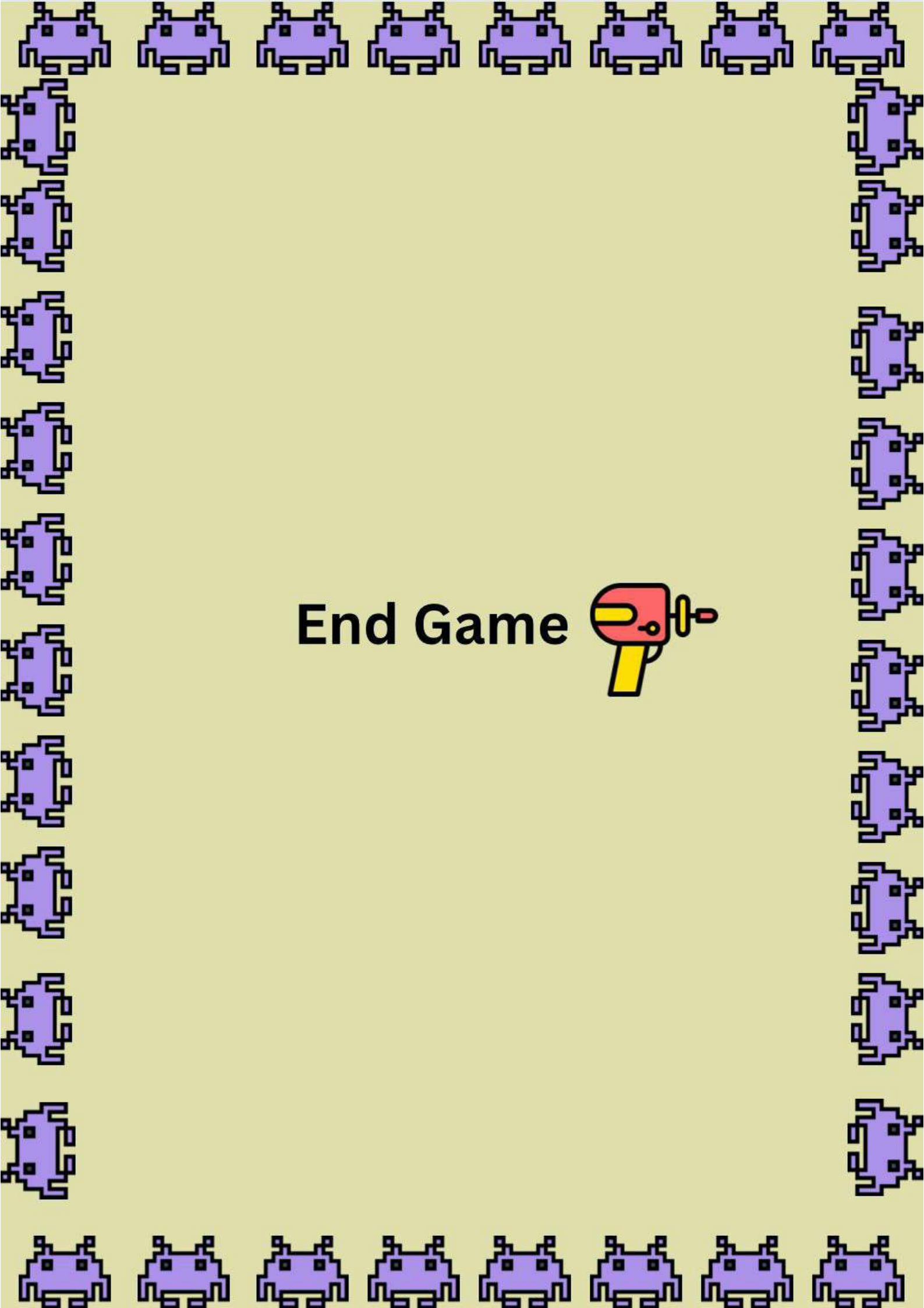


```
25
26 /*****
27  * GLOBAL DATA
28  *****/
29
30 Port_ConfigType led_indicators [MAX_LIVES] = {
31 {
32     GPIOF,
33     PORTF,
34     PF1,
35     DIGITAL_PIN,
36     HIGH,
37     OUTPUT,
38     PULL_UP,
39     R8R
40 },
41 {
42     GPIOF,
43     PORTF,
44     PF2,
45     DIGITAL_PIN,
46     HIGH,
47     OUTPUT,
48     PULL_UP,
49     R8R
50 },
51 {
52     GPIOF,
53     PORTF,
54     PF3,
55     DIGITAL_PIN,
56     HIGH,
57     OUTPUT,
58     PULL_UP,
59     R8R
60 },
61 };
62
63
64 Port_ConfigType Move_Right_Button =
```



# Abstraction layer





End Game

