CS1022 Exercise Set #4
Lab Exercise: Game Clock

Working with your lab partner ...

A *game clock* is sometimes used in two-player games, such as Chess or Scrabble®, to limit the aggregate amount of time that each player can use to make all of their moves in a game. Each player begins with a timer that counts down from an initial value towards zero while they take their turn in the game. When a player ends their turn, they press a button, causing their timer to be paused and their opponent's timer to resume counting down. If a player's timer reaches zero, they forfeit the game.

The template project on Blackboard contains the code for the Timer example discussed in lectures. Using this as a starting point, extend the program to implement the GameClock described above.

Refer to the Button example on Blackboard to see how pin P2.10 can be configured to raise an IRQ exception when the button connected to the pin is pressed. The Button example also shows how you can write an IRQ handler to handle the IRQ exception each time it is raised.

Hint: Maintain two counters in memory to record the remaining time for each player. Initialise each counter to 30 (30 seconds). Every second, decrement the counter for the current player. Use a further variable (also stored in memory) to record which is the current player. Change the current player every time the button is pressed.

Your program should take some action when either player's counter reaches zero. You might light up the LED or make a sound using the on-board buzzer (see the Buzz example).

No submission is required for this exercise. You will be graded on attendance and active participation during the lab.)