EG3205 Lab 1 Task 4:

To implement a Nios II “soft” processor, 8192 bytes of on-chip memory was allocated to store program data for the Nios II core and a Parallel I/O microcontroller peripheral was added which controlled an 8-bit port. Clocks of the core, PIO and the memory were connected to synchronise their behaviour. The resets were also connected. The base addresses of the core and the peripherals were changed to ensure there were no address space conflicts with each other or the memory on the chip. An external connection was made to the LED linked to the PIO peripheral, when the superloop code was run this LED blinked.

In the main function, the led update function is initialised (although this is purely for convention as the actual function does nothing, the chosen LED is set in the port header file using bit shifting) and then it is basically implementing a scheduler, where the status of whether the LED is updated (i.e. it is turned on or off) and the LED which is the remains in this state for the duration of approximately 1 second. This is run continuously as this code is written in an infinite while loop.

The LED\_Flash\_Update function is using a bitwise XOR to turn the LED (on a specified port) on/off.

The Loop\_Del function is being used to delay the turning on/off of the LED, using a nested for loop. This means the LED stays in the on state for (approximately) one second before it turns off for one second.