Lab 1: Jan Bartoň

Link to your `Digital-electronics-2` GitHub repository:

https://github.com/xbarto0c/Digital-electronics-2

Blink example

1. What is the meaning of the following binary operators in C?
   - `|` - operátor logického součtu (or)
   - `&` - operátor logického součinu (and)
   - `^` - operátor exkluzivního logického součtu (xor)
   - `~` - operátor negace (not)
   - `<<` - operátor bitového posuvu doleva
   - `>>` - operátor bitového posuvu doprava
2. Complete truth table with operators: `|`, `&`, `^`, `~`

b	a	b or a	b and a	b xor a	not b
0	0	0	0	0	1
0	1	1	0	1	1
1	0	1	0	1	0

b	a	b or a	b and a	b xor a	not b
1	1	1	1	0	0

Morse code

1. Listing of C code with syntax highlighting which repeats one "dot" and one "comma" on a LED:

```
#define LED_GREEN   PB5
#define SHORT_DELAY 1000
#ifndef F_CPU
# define F_CPU 16000000
#endif
#include <util/delay.h>
#include <avr/io.h>

int main(void)
{
    // Set pin as output in Data Direction Register
    // DDRB = DDRB or 0010 0000
    DDRB = DDRB | (1<<LED_GREEN);

    // Set pin LOW in Data Register (LED off)
    // PORTB = PORTB and 1101 1111
    PORTB = PORTB & ~(1<<LED_GREEN);

    // definice datového typu bool, tj. proměnná obsahující buď hodnotu '1' - pra
    typedef int bool;
    #define true 1
    #define false 0
    bool odd_run = true;

    // Infinite loop
    while (1)
    {
        // Pause several milliseconds
        if(odd_run) // pokud cyklem probíhá po (2n+1)-té (lichý počet iterací), b
                {
                        _delay_ms(500);
                        odd_run = !odd_run;
                }
                else
                {
                        _delay_ms(1000);
                        odd_run = !odd_run;
                }

        // Invert LED in Data Register
        // PORTB = PORTB xor 0010 0000
        PORTB = PORTB ^ (1<<LED_GREEN);
    }
```

```
    // Will never reach this
    return 0;
}
```

2. Scheme of Morse code application, i.e. connection of AVR device, LED, resistor, and supply voltage. The image can be drawn on a computer or by hand. Always name all components and their values!