Lab 3: Martin Kousal

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

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

Data types in C

1. Complete table.

Data type	Number of bits	Range	Description
`uint8_t`	8	0, 1, ..., 255	Unsigned 8-bit integer
`int8_t`	8	-127, ..., +127	Signed 8-bit integer
`uint16_t`	16	0, ..., 65535	Unsigned 16-bit integer
`int16_t`	16	-32767, ..., +32767	Signed 16-bit integer
`float`	32	-3.4e+38, ..., 3.4e+38	Single-precision floating-point
`void`	-	-	No value

GPIO library

1. In your words, describe the difference between the declaration and the definition of the function in C.
    - Function declaration - declaration provides basic information about our new function like return type, parameters and name.
    - Function definition - definition provides us all the details of function, mainly what it does. In function definition, there is all the logic of the function.
2. Part of the C code listing with syntax highlighting, which toggles LEDs only if push button is pressed. Otherwise, the value of the LEDs does not change. Use function from your GPIO library. Let the push button is connected to port D:

```
// Configure Push button at port D and enable internal pull-up resistor
GPIO_config_input_pullup(&DDRD, BUTTON);
// Infinite loop
while (1)
{
  if (GPIO_read(&PIND, BUTTON) == 0){
     _delay_ms(BLINK_DELAY);
     GPIO_toggle(&PORTB, LED_GREEN);
     GPIO_toggle(&PORTC, LED_SECOND);
  }
}
```

Traffic light

1. Scheme of traffic light application with one red/yellow/green light for cars and one red/green light for pedestrians. Connect AVR device, LEDs, resistors, one push button (for pedestrians), and supply voltage. The image can be drawn on a computer or by hand. Always name all components and their values!