src\main.c

```c
1  // Practice assignment 9, exercise 1
2
3  #include <stdio.h>
4  #include <avr/io.h>
5  #include <util/delay.h>
6
7  //library init
8
9  int main(void) {
10
11
12    DDRC = 0xF0; // set data direction for port C pins, 0-3 as input (i.e. the buttons)
13    PORTC = 0x3F; // set pull-up resistor for port C
14    DDRD = 0xFF; // set data direction for port D, all output
15    PORTD= 0x00; // set output for port D (none)
16
17    while(1) { // start program loop
18      if(!(PINC & 1)) //read pin A0/PC0 by AND'ing it to mask 0x01. (as the Arduino is set to use
   pull-up resistors on the buttons, the default state of the buttons is high, and therefore we
   need to flip its result in the if statement)
19      {
20        PORTD ^= (1 << PIND4); //set pin with XOR and a mask to turn LED on
21        _delay_ms(250); // dealy
22        PORTD ^= (1 << PIND4); //set LED off
23        PORTD ^= (1 << PIND5); // do that again
24        _delay_ms(250);
25        PORTD ^= (1 << PIND5);
26        PORTD ^= (1 << PIND6);
27        _delay_ms(250);
28        PORTD ^= (1 << PIND6);
29        PORTD ^= (1 << PIND7);
30        _delay_ms(250);
31        PORTD ^= (1 << PIND7);
32      }
33      else if(!((PINC >> 1) & 1)) //same thing, but for a different button and with a different
   delay
34      {
35        PORTD ^= (1 << PIND4);
36        _delay_ms(500);
37        PORTD ^= (1 << PIND4);
38        PORTD ^= (1 << PIND5);
39        _delay_ms(500);
40        PORTD ^= (1 << PIND5);
41        PORTD ^= (1 << PIND6);
42        _delay_ms(500);
43        PORTD ^= (1 << PIND6);
44        PORTD ^= (1 << PIND7);
45        _delay_ms(500);
```

```c
46          PORTD ^= (1 << PIND7);
47        }
48        else if(!((PINC >> 2) & 1)) //same thing, again
49        {
50          PORTD ^= (1 << PIND4);
51          _delay_ms(1000);
52          PORTD ^= (1 << PIND4);
53          PORTD ^= (1 << PIND5);
54          _delay_ms(1000);
55          PORTD ^= (1 << PIND5);
56          PORTD ^= (1 << PIND6);
57          _delay_ms(1000);
58          PORTD ^= (1 << PIND6);
59          PORTD ^= (1 << PIND7);
60          _delay_ms(1000);
61          PORTD ^= (1 << PIND7);
62        }
63        else if(!((PINC >> 3) & 1)) //same thing, different delay
64        {
65          PORTD ^= (1 << PIND4);
66          _delay_ms(1500);
67          PORTD ^= (1 << PIND4);
68          PORTD ^= (1 << PIND5);
69          _delay_ms(1500);
70          PORTD ^= (1 << PIND5);
71          PORTD ^= (1 << PIND6);
72          _delay_ms(1500);
73          PORTD ^= (1 << PIND6);
74          PORTD ^= (1 << PIND7);
75          _delay_ms(1500);
76          PORTD ^= (1 << PIND7);
77        }
78        else // default state (no buttons)
79        {
80          PORTD ^= (1 << PIND4);
81          _delay_ms(500);
82          PORTD ^= (1 << PIND4);
83          PORTD ^= (1 << PIND5);
84          _delay_ms(500);
85          PORTD ^= (1 << PIND5);
86          PORTD ^= (1 << PIND6);
87          _delay_ms(500);
88          PORTD ^= (1 << PIND6);
89          PORTD ^= (1 << PIND7);
90          _delay_ms(500);
91          PORTD ^= (1 << PIND7);
92        }
93      }
94    return 0;
95 }
```

96