```c
/*
 * asynchronous_sw_send.c
 *
 * Created: 3/18/2021 4:31:07 PM
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 */

#define BAUD_RATE 4800UL                                                    //  baud rate.
#define F_CPU 4000000UL                                                     // 4 MHz clock.
#include <avr/io.h>
#include <util/delay.h>

void USART_sw_write(char);                                                  //  declaration for write function.

int main(void)
{
    while (1)
    {
        USART_sw_write("A");                                                //  write character.
        _delay_ms(1);                                                       //  delay 1 ms.
    }
}

void USART_sw_write(char c) {
    PORTB.DIRSET = PIN0_bm;                                                 //  set PB0 as output.
    uint8_t d;                                                              //  bit time.
    if (BAUD_RATE == 4800L) {
        d = 48;
    } else if (BAUD_RATE == 9600L) {
        d = 99;
    } else if (BAUD_RATE == 19200L) {
        d = 201;
    } else return 0x00;

    uint8_t data = (uint8_t) c;

    PORTB_OUT = 0x00 | PIN0_bm;                                             //  send start bit.
    _delay_us(d);                                                           //  delay for bit time.

    uint8_t i;
```

```
41      for (i = 0; i < 8; ++i) {
42          PORTB_OUT = data | PIN0_bm;                                    //  ↵
              send lsb of data.
43          data >>= data;                                                 //  ↵
              shift data right.
44          _delay_us(d);                                                  //  ↵
              delay for bit time.
45      }
46
47      PORTB_OUT = PIN0_bm;                                               //  ↵
          send end bit.
48      _delay_us(d);                                                      //  ↵
          delay for bit time.
49  }
50
51
```