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/*
|_____
| Date:                2019-10-22
|_____
| Author:
|   Student name 1:    Einar van de Velde
|   Student name 2:    Abdulla Mehdi
|_____
| Lab number:          6.
| Title:               Task 2.
|_____
| Other information:
| Changes in program:
|   File Created (2019-10-22)
|   Program is runnable (2019-10-22)
|   Modified: Change(*) Method to take boolean
|             doTransmit, it is now functional
|             with task4. (2019-10-23)
|_____ */

```

```

#include<avr/io.h>
#define F_CPU 1843435UL
#include<util/delay.h>

```

```

#include<stdio.h>
#include<string.h>

```

```

#define MS 5000

```

```

Change(char arr1[], char arr2[], char displayStr[], bool
doTransmit);
void Transmit(unsigned char data);
int CheckSum(char arr[]);
void Display(char arr[]);

```

```

void main(void) {
    UBRRL = 25;
    UCSRB = 0x08;

    DDRB = 0xff;
    PORTB = 0x00;

```

```

    char line1[] = "\rA00001Computer Science, 2019  Computer
Technology";
    char line2[] = "\rB00001Assignment #6";
    char line3[] = "\rA00001Computer Technology      Assignment
#6";
    char line4[] = "\rB00001Einar van de Velde & Abdulla
Mehdi";
    char line5[] = "\rA00001Assignment #6          Einar van
de Velde & Abdulla Mehdi";
    char line6[] = "\rB00001Computer Science, 2019";

```

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        char line7[] = "\rA00001Einar van de Velde & Abdulla Mehdi
Computer Science, 2019";
        char line8[] = "\rB00001Computer Technology";

        char displayStr[] = "\rZD0013C\n";
        char result[1000];

        while(1) {
            Change(line1, result, displayStr, true);
            Change(line2, result, displayStr, true);
            _delay_ms(MS);

            Change(line3, result, displayStr, true);
            Change(line4, result, displayStr, true);
            _delay_ms(MS);

            Change(line5, result, displayStr, true);
            Change(line6, result, displayStr, true);
            _delay_ms(MS);

            Change(line7, result, displayStr, true);
            Change(line8, result, displayStr, true);
            _delay_ms(MS);
        }
    }

void Change(char arr1[], char arr2[], char displayStr[], bool
doTransmit) {
    sprintf(arr2, "%s%2X", arr1, CheckSum(arr1));
    Display(arr2);
    if(doTransmit) { Transmit(0x0A); }
    Display(displayStr);
}

void Transmit(unsigned char data) {
    while ( !( UCSR0A & (1<<UDRE0)) );
    UDR0 = data;
}

void Display(char arr[]) {
    int i = 0;
    int length = strlen(arr);

    while(i < length) {
        char data = arr[i];
        Transmit(data);
        i++;
    }
}

int CheckSum(char arr[]) {
    int temp = 0;
    int length = strlen(arr);
    int i = 0;

```

```
while(i < length) {  
    temp += arr[i];  
    i++;  
}  
  
temp = temp % 256;  
Transmit('temp');  
return temp;  
}
```