

## src\main.c

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1
2 // Practice assignment 9, exercise 2
3
4 #include <stdio.h>
5 #include <avr/io.h>
6 #include <util/delay.h>
7
8 #include "usart.h" // lib init
9
10 char get_bit(char bit, char n) // function init, takes 2 arguments and sends back another char
11 {
12     if(n & (1 << bit)) // compare a specific bit in the number's byte to a mask, calculated by
13         // shifting a bit right
14         return 1; // if the bit compared is 1, return 1
15     else return 0; // or not
16 }
17
18 int main(void) {
19     char c,a[8],i; // initiate variables
20
21     uart_init(); // open the communication to the microcontroller
22     io_redirect(); // redirect input and output to the communication
23
24     while(1) //start program loop
25     {
26         printf("Type in a number\n"); // message for user
27         scanf("%hhd", &c); //memorize variable
28
29         for(i=0;i<8;i++) //populate array with all 8 bits of the byte, *backwards* because bits are
30             // counted right to left
31             a[7-i]=get_bit(i,c);
32
33         printf("The array is: "); //msg for user
34
35         for(i=0;i<8;i++)
36             printf("%hhd ",a[i]); // print all 8 bits from the previously-calculated array
37
38         printf("\n"); //end-line symbol, to clean up console
39     }
40     return 0;
41 }
```