

```
;Last Name:
;First Name:
;Stduent number:
; lab6.asm
; Fall, 2019
.include "m2560def.inc"

;SPH, SPL etc are defined in "m2560def.inc"

        ; initialize the stack pointer
.cseg

        ldi r16, 0xFF
        out SPL, r16
        ldi r16, 0x21
        out SPH, r16

        ;example of passing parameter by reference
        ;call subroutine void strcpy(src, dest)
        ;push 1st parameter - src address
        ldi r16, high(src << 1)
        push r16
        ldi r16, low(src <<1)
        push r16

        ;push 2nd parameter - dest address
        ldi r16, high(dest)
        push r16
        ldi r16, low(dest)
        push r16

        call strcpy
        pop ZL
        pop ZH
        pop r16
        pop r16

        ;Write your code here: call subroutine int strlen(string dest)
        ;return value is in r24
        ;push parameter dest, note it is in register Z already (line 31, 32)

        ;Write your code here: call the method strlen

        ;clear the stack and write the result to length in SRAM
        ;Write your code here:

done: jmp done

strcpy:
        push r30
        push r31
        push r29
        push r28
        push r26
        push r27
        push r23 ; hold each character read from program memory
        IN YH, SPH ;SP in Y
        IN YL, SPL
        ldd ZH, Y + 14 ; Z <- src address
        ldd ZL, Y + 13
        ldd XH, Y + 12 ; Y <- dest address
        ldd XL, Y + 11

next_char:
        lpm r23, Z+
        st X+, r23
        tst r23
        brne next_char
        pop r23
        pop r27
        pop r26
        pop r28
        pop r29
        pop r31
        pop r30
        ret

;One parameter - the address of the string, could be in
;data (SRAM) memory. The length of the string is
;going to be stored in r24
strlen:
        ;write your code here

        ret

src: .db "Hello, world!", 0 ; c-string format

.dseg
.org 0x200
dest: .byte 14
length: .byte 1
```