Practical Report - 6 IE1024 - Computer Organization and Architecture

1st year 2nd semester – 2024

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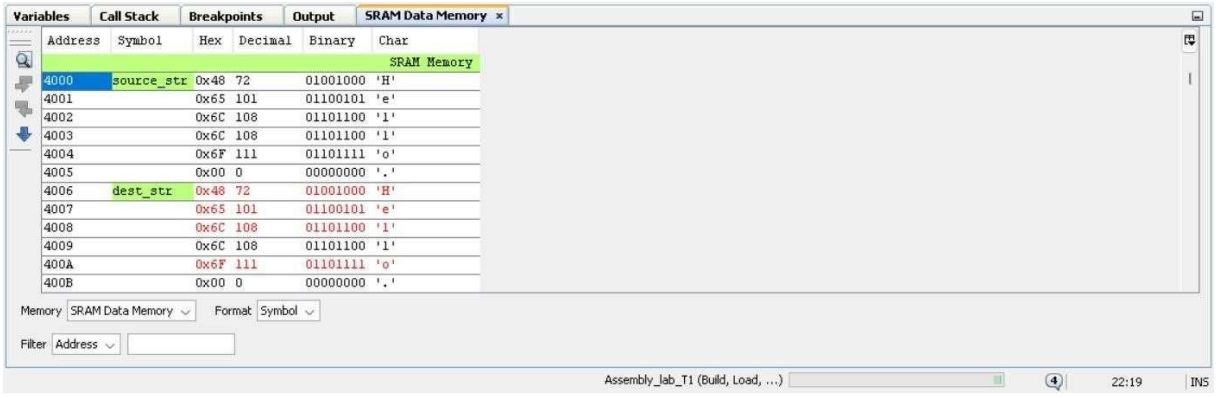
Task-01

```
Asm Source | History

1   .data
2   .global __do_copy_data
3
4   source_str: .byte 'H', 'e', 'l', 'l', 'o', 0x00
5   dest_str: .byte 'W', 'o', 'r', 'l', 'd', 0x00
6
7   .text
8   .global main
9
10  main:
11      ldi ZH, hi8(source_str)
12      ldi ZL, lo8(source_str)
13
14      ldi YH, hi8(dest_str)
15      ldi YL, lo8(dest_str)
16
17  copy_loop:
18      ld r16, Z+
19      cp r16, 0x00
20      breq done
21
22      st Y+, r16
23      rjmp copy_loop
24
25  done:
26      rjmp .
27
```



Task-02

```
.data
number: .byte 7  ; Example number (can be modified)

.text
.global main

main:
    ldi ZH, hi8(number)  ; Load high byte of number address into ZH
    ldi ZL, lo8(number)  ; Load low byte of number address into ZL

    ld r16, Z            ; Load the number into r16

    andi r16, 1          ; Mask the least significant bit (check even or odd)
    breq is_even         ; If the zero flag is set, number is even

    ; Odd number case: Multiply by 2
    lsl r16              ; Logical shift left (multiply by 2)
    rjmp store_result    ; Jump to store the result

is_even:
    ; Even number case: Divide by 2
    lsr r16              ; Logical shift right (divide by 2)

store_result:
    st Z, r16            ; Store the result back to memory

    nop                  ; No operation (end of program)
```