

תרגיל 10 –ארכי' דיגטלית – 2025

מגישים: יצחק בר אור ואלון קורי

צילומי מסך המראים את הקוד:

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1  #-----
2  # Description: Program that sums all the even elements in an given array.
3  # Creator and Editor: Yitzhak Bar or && Alon Cory
4  # Date Created: January 09, 2025
5  # Last Edited: January 14, 2025
6  #-----
7  # Data-code-block
8  #-----
9  data:
10     start_adrs:      .word 0x10000100 # Starting memory address of the array
11     arr_size_adrs:   .word 0x10000000 # Memory address holding the array size
12     sum_even_values_adrs: .word 0x10000004 # Memory address to store the sum of even numbers
13  #-----
14  main:
15     sw $t0, 0x10000000($zero) # store the word in the location of the array size
16     lw $t0, 0x10000000($zero) # $t0 = sizes_of_array (number of elements in the array)
17     lui $t1, 0x1000          # points at 0x10000000 $t1 = starts_adrs (start address of the array)
18     ori $t1, $t1, 0x0100     # $s2 = sum (initialize sum to 0)
19     ori $t2, $0, 0           # $t0 = index (loop counter) if this is contant
20  #-----
21  loop:
22     beq $t0, $0, end_loop     # Exit loop if the index (loop counter) is 0
23     lw $t3, 0($t1)            # Load the current array element into $t3
24     ori $t4, $t3, 1           # Perform bitwise OR with 1 to check if the value is even
25     beq $t4, $t3, skip_add    # If $t4 equals $t3,(current element is odd) skip addition
26     add $t2, $t2, $t3         # Add the even value to the running sum
27  skip_add:
28     addi $t1, $t1, 4          # Move to the next array element (4 bytes forward)
29     addi $t0, $t0, -1         # Decrement the index (loop counter)
30     j loop                   # Jump back to the start of the loop/ repeat the loop
31  #-----
32  end_loop:
33     sw $t2, 0x10000004($zero) # Store the sum at address 0x10000004
```

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