Relatório do Laboratório 04

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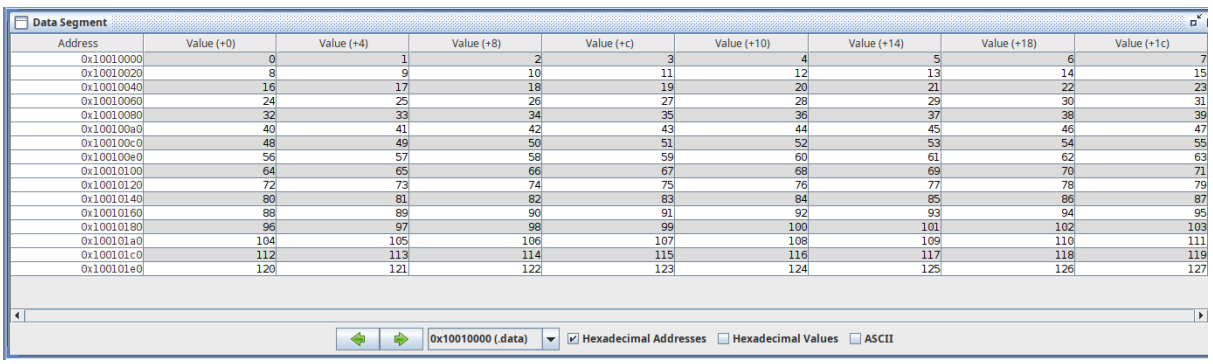
Disciplina: Organização de Computadores I

Questão 1

```
1   .data
2           matrix: .space  1024            # 4 * 16 * 16
3   .text
4   main:
5           li      $t0, 0                  # Row counter
6           li      $t2, 0                  # Value counter
7   preenche_linha:
8           beq     $t0, 16, EXIT
9           move    $a0, $t0
10          li      $t1, 0                  # Column counter
11          move    $a1, $t1
12          move    $a2, $t2
13          jal     preenche_dado_loop
14          move    $t2, $v0
15          addi    $t0, $t0, 1
16          j       preenche_linha
17  preenche_dado_loop:
18          bge     $a1, 16, EXIT_LOOP
19          mul     $t4, $a0, 64            # Row * 16 * 4 (word size)
20          mul     $t5, $a1, 4             # Column * 4 (word size)
21          add     $s0, $t4, $t5           # Matrix index
22          sw      $a2, matrix($s0)
23          addi    $a2, $a2, 1
24          addi    $a1, $a1, 1
25          j       preenche_dado_loop
26  EXIT_LOOP:
27          move    $v0, $a2
28          li      $a0, 0
29          li      $a1, 0
30          li      $a2, 0
31          jr      $ra
32  EXIT:
33          nop
```



Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0	1	2	3	4	5	6	7
0x10010020	8	9	10	11	12	13	14	15
0x10010040	16	17	18	19	20	21	22	23
0x10010060	24	25	26	27	28	29	30	31
0x10010080	32	33	34	35	36	37	38	39
0x100100a0	40	41	42	43	44	45	46	47
0x100100c0	48	49	50	51	52	53	54	55
0x100100e0	56	57	58	59	60	61	62	63
0x10010100	64	65	66	67	68	69	70	71
0x10010120	72	73	74	75	76	77	78	79
0x10010140	80	81	82	83	84	85	86	87
0x10010160	88	89	90	91	92	93	94	95
0x10010180	96	97	98	99	100	101	102	103
0x100101a0	104	105	106	107	108	109	110	111
0x100101c0	112	113	114	115	116	117	118	119
0x100101e0	120	121	122	123	124	125	126	127

0x10010000 (.data) Hexadecimal Addresses Hexadecimal Values ASCII

Questão 2

```
1   .data
2           matrix: .space  1024            # 4 * 16 * 16
3   .text
4   main:
5           li      $t0, 0                  # Row counter
6           li      $t2, 0                  # Value counter
7   preenche_linha:
8           beq     $t0, 16, EXIT
9           move    $a0, $t0
10          li      $t1, 0                  # Column counter
11          move    $a1, $t1
12          move    $a2, $t2
13          jal     preenche_dado_loop
14          move    $t2, $v0
15          addi    $t0, $t0, 1
16          j       preenche_linha
17  preenche_dado_loop:
18          bge     $a1, 16, EXIT_LOOP
19          mul     $t4, $a0, 4             # Row * 4 (word size)
20          mul     $t5, $a1, 64            # Column * 16 * 4 (word size)
21          add     $s0, $t4, $t5           # Matrix index
22          sw      $a2, matrix($s0)
23          addi    $a2, $a2, 1
24          addi    $a1, $a1, 1
25          j       preenche_dado_loop
26  EXIT_LOOP:
27          move    $v0, $a2
28          li      $a0, 0
29          li      $a1, 0
30          li      $a2, 0
31          jr      $ra
32  EXIT:
33          nop
```

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	0	16	32	48	64	80	96	112
0x10010020	128	144	160	176	192	208	224	240
0x10010040	1	17	33	49	65	81	97	113
0x10010060	129	145	161	177	193	209	225	241
0x10010080	2	18	34	50	66	82	98	114
0x100100a0	130	146	162	178	194	210	226	242
0x100100c0	3	19	35	51	67	83	99	115
0x100100e0	131	147	163	179	195	211	227	243
0x10010100	4	20	36	52	68	84	100	116
0x10010120	132	148	164	180	196	212	228	244
0x10010140	5	21	37	53	69	85	101	117
0x10010160	133	149	165	181	197	213	229	245
0x10010180	6	22	38	54	70	86	102	118
0x100101a0	134	150	166	182	198	214	230	246
0x100101c0	7	23	39	55	71	87	103	119
0x100101e0	135	151	167	183	199	215	231	247

0x10010000 (.data) ☑ Hexadecimal Addresses ☐ Hexadecimal Values ☐ ASCII