

Programa 9:

EditExecute

mips1.asm

mips2.asm

mips3.asm

mips4.asm

```

1  .text
2  .globl main
3  main:
4  # x3 = x1 + x2
5  # x1 = $s1
6  # x2 = $s2
7  # x3 = $s3
8  # x4 = $s4
9  # soma = $s5
10 addi $t0, $zero, 0x1001
11 sll $t0, $t0, 16
12 lw $s1, 0($t0)      # armazenar x1 em $s1
13 lw $s2, 4($t0)      # armazenar x2 em $s2
14 add $t1, $s1, $s2    # t1 = x1+x2
15 lw $s3, 8($t0)      # armazenar x3 em $s3
16 add $t1, $t1, $s3    # t1 = x1+x2+x3
17 lw $s4, 12($t0)     # armazenar x4 em $s4
18 add $t1, $t1, $s4    # t1 = x4+x3+x2+x1
19 sw $t1, 16($t0)     # guardar soma
20
21
22
23
24 .data
25 x1: .word 15
26 x2: .word 25
27 x3: .word 13
28 x4: .word 17
29 soma: .word -1
30

```

Registers

Coproc 1

Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	70
\$t2	10	0
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	0
\$s1	17	15
\$s2	18	25
\$s3	19	13
\$s4	20	17
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$s8	24	0
\$s9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
pc		4194344
hi		0
lo		0

EditExecute

Text Segment

Bkpt	Address	Code	Basic	Source
<input type="checkbox"/>	0x00400000	0x20081001	addi \$0,\$0,0x97	10: addi \$t0, \$zero, 0x1001
<input type="checkbox"/>	0x00400004	0x00084400	sll \$0,\$0,16	11: sll \$t0, \$t0, 16
<input type="checkbox"/>	0x00400008	0x8d110000	lw \$17,0(\$0)	12: lw \$s1, 0(\$t0) # armazenar x1 em \$s1
<input type="checkbox"/>	0x0040000c	0x8d120004	lw \$18,4(\$0)	13: lw \$s2, 4(\$t0) # armazenar x2 em \$s2
<input type="checkbox"/>	0x00400010	0x02324820	add \$9,\$17,\$18	14: add \$t1, \$s1, \$s2 # t1 = x1+x2
<input type="checkbox"/>	0x00400014	0x8d130008	lw \$19,8(\$0)	15: lw \$s3, 8(\$t0) # armazenar x3 em \$s3
<input type="checkbox"/>	0x00400018	0x01334820	add \$9,\$9,\$19	16: add \$t1, \$t1, \$s3 # t1 = x1+x2+x3
<input type="checkbox"/>	0x0040001c	0x8d14000c	lw \$20,12(\$0)	17: lw \$s4, 12(\$t0) # armazenar x4 em \$s4
<input type="checkbox"/>	0x00400020	0x01344820	add \$9,\$9,\$20	18: add \$t1, \$t1, \$s4 # t1 = x4+x3+x2+x1
<input type="checkbox"/>	0x00400024	0xad090010	sw \$9,16(\$0)	19: sw \$t1, 16(\$t0) # guardar soma

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)
0x10010000	15	25	13	17	70
0x10010020	0	0	0	0	0
0x10010040	0	0	0	0	0
0x10010060	0	0	0	0	0
0x10010080	0	0	0	0	0
0x100100a0	0	0	0	0	0
0x100100c0	0	0	0	0	0
0x100100e0	0	0	0	0	0
0x10010100	0	0	0	0	0
0x10010120	0	0	0	0	0
0x10010140	0	0	0	0	0
0x10010160	0	0	0	0	0
0x10010180	0	0	0	0	0
0x100101a0	0	0	0	0	0

0x10010000 (.data)

☒ Hexadecimal Addresses
 ☐ Hexadecimal V

Registers

Coproc 1

Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	70
\$t2	10	0
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	0
\$s1	17	15
\$s2	18	25
\$s3	19	13
\$s4	20	17
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$s8	24	0
\$s9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
pc		4194344
hi		0
lo		0

Programa 10:

EditExecute

mips1.asm mips2.asm mips3.asm mips4.asm

```
1 .text
2 .globl main
3 main:
4 # y = 127x - 65z + 1
5 # x = $s0
6 # z = $s1
7 # y = $s2
8 addi $t0, $0, 0x1001
9 sll $t0, $t0, 16 # t0 = 0x10010000
10 lw $t1, 0($t0) # t1 = x
11 sll $t2, $t1, 7 # t2 = 128x
12 sub $t2, $t2, $t1 # t2 = 127x
13 lw $t3, 4($t0) # t3 = z
14 sll $t4, $t3, 6 # t4 = 64z
15 add $t4, $t4, $t3 # t4 = 65z
16 sub $t5, $t2, $t4 # t5 = t2 - t4 = 127x - 65z
17 addi $t5, $t5, 1 # t5 = t5 + 1 = 127x - 65z + 1
18 sw $t5, 8($t0) # guardar y
19
20 .data
21 x: .word 5
22 z: .word 7
23 y: .word 0 # esse valor deverá ser sobrescrito após a execução do programa.
24
```

RegistersCoproc 1Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	5
\$t2	10	635
\$t3	11	7
\$t4	12	455
\$t5	13	181
\$t6	14	0
\$t7	15	0
\$a0	16	0
\$a1	17	0
\$a2	18	0
\$a3	19	0
\$a4	20	0
\$a5	21	0
\$a6	22	0
\$a7	23	0
\$t8	24	0
\$t9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
\$pc		4194348
\$hi		0
\$lo		0

EditExecute

Text Segment

Bkpt	Address	Code	Basic	Source
	0x00400000	0x20081001	addi \$8,\$0,4097	8: addi \$t0, \$0, 0x1001
	0x00400004	0x00084400	sll \$8,\$8,16	9: sll \$t0, \$t0, 16 # t0 = 0x10010000
	0x00400008	0x8d090000	lw \$9,0(\$8)	10: lw \$t1, 0(\$t0) # t1 = x
	0x0040000c	0x000951c0	sll \$10,\$9,7	11: sll \$t2, \$t1, 7 # t2 = 128x
	0x00400010	0x01495022	sub \$10,\$10,\$9	12: sub \$t2, \$t2, \$t1 # t2 = 127x
	0x00400014	0x8d0b0004	lw \$11,4(\$8)	13: lw \$t3, 4(\$t0) # t3 = z
	0x00400018	0x000b6180	sll \$12,\$11,6	14: sll \$t4, \$t3, 6 # t4 = 64z
	0x0040001c	0x018b6020	add \$12,\$12,\$11	15: add \$t4, \$t4, \$t3 # t4 = 65z
	0x00400020	0x014c6822	sub \$13,\$10,\$12	16: sub \$t5, \$t2, \$t4 # t5 = t2 - t4 = 127x - 65z
	0x00400024	0x21ad0001	addi \$13,\$13,1	17: addi \$t5, \$t5, 1 # t5 = t5 + 1 = 127x - 65z + 1
	0x00400028	0xad0d0008	sw \$13,8(\$8)	18: sw \$t5, 8(\$t0) # guardar y

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)
0x10010000	5	7	181	0	0
0x10010020	0	0	0	0	0
0x10010040	0	0	0	0	0
0x10010060	0	0	0	0	0
0x10010080	0	0	0	0	0
0x100100a0	0	0	0	0	0
0x100100c0	0	0	0	0	0
0x100100e0	0	0	0	0	0
0x10010100	0	0	0	0	0
0x10010120	0	0	0	0	0
0x10010140	0	0	0	0	0
0x10010160	0	0	0	0	0
0x10010180	0	0	0	0	0
0x100101a0	0	0	0	0	0

RegistersCoproc 1Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	5
\$t2	10	635
\$t3	11	7
\$t4	12	455
\$t5	13	181
\$t6	14	0
\$t7	15	0
\$a0	16	0
\$a1	17	0
\$a2	18	0
\$a3	19	0
\$a4	20	0
\$a5	21	0
\$a6	22	0
\$a7	23	0
\$t8	24	0
\$t9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
\$pc		4194348
\$hi		0
\$lo		0

Programa 11:

EditExecute

mips1.asm mips2.asm mips3.asm mips4.asm

```
1 .text
2 .globl main
3 main:
4 # y = x - z + 300000
5 # x = $s0
6 # z = $s1
7 # y = $s2
8 addi $t0, $0, 0x1001
9 sll $t0, $t0, 16 # t0 = 0x10010000
10 lw $s0, 0($t0) # armazenar x em $s0
11 lw $s1, 4($t0) # armazenar z em $s1
12 addi $t2, $0, 0x493e # $t2 = 0x493e
13 sll $t2, $t2, 4 # $t2 = 0x493e0 = 300000
14 sub $t1, $s0, $s1 # t1 = x-z
15 add $s2, $t1, $t2 # y = x-z+300000
16 sw $s2, 8($t0) # guardar resultado em y
17
18 .data
19 x: .word 100000
20 z: .word 200000
21 y: .word 0 # esse valor deverá ser sobrescrito após a execução do programa.
22
```

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	-100000
\$t2	10	300000
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	100000
\$s1	17	200000
\$s2	18	200000
\$s3	19	0
\$s4	20	0
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$s8	24	0
\$s9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
pc		4194340
hi		0
lo		0

EditExecute

Text Segment

Bkpt	Address	Code	Basic	Source
<input type="checkbox"/>	0x00400000	0x20081001	addi \$s, \$0, 4097	8: addi \$t0, \$0, 0x1001
<input type="checkbox"/>	0x00400004	0x00084400	sll \$s, \$s, 16	9: sll \$t0, \$t0, 16 # t0 = 0x10010000
<input type="checkbox"/>	0x00400008	0x8d100000	lw \$l6, 0(\$s)	10: lw \$s0, 0(\$t0) # armazenar x em \$s0
<input type="checkbox"/>	0x0040000c	0x8d110004	lw \$l7, 4(\$s)	11: lw \$s1, 4(\$t0) # armazenar z em \$s1
<input type="checkbox"/>	0x00400010	0x200a493e	addi \$l0, \$0, 18750	12: addi \$t2, \$0, 0x493e # \$t2 = 0x493e
<input type="checkbox"/>	0x00400014	0x000a5100	sll \$l0, \$l0, 4	13: sll \$t2, \$t2, 4 # \$t2 = 0x493e0 = 300000
<input type="checkbox"/>	0x00400018	0x02114822	sub \$s, \$l6, \$l7	14: sub \$t1, \$s0, \$s1 # t1 = x-z
<input type="checkbox"/>	0x0040001c	0x012a9020	add \$l8, \$s, \$l0	15: add \$s2, \$t1, \$t2 # y = x-z+300000
<input type="checkbox"/>	0x00400020	0xad120008	sw \$l8, 8(\$s)	16: sw \$s2, 8(\$t0) # guardar resultado em y

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)
0x10010000	100000	200000	200000	0	0
0x10010020	0	0	0	0	0
0x10010040	0	0	0	0	0
0x10010060	0	0	0	0	0
0x10010080	0	0	0	0	0
0x100100a0	0	0	0	0	0
0x100100c0	0	0	0	0	0
0x100100e0	0	0	0	0	0
0x10010100	0	0	0	0	0
0x10010120	0	0	0	0	0
0x10010140	0	0	0	0	0
0x10010160	0	0	0	0	0
0x10010180	0	0	0	0	0
0x100101a0	0	0	0	0	0

Registers Coproc 1 Coproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	-100000
\$t2	10	300000
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	100000
\$s1	17	200000
\$s2	18	200000
\$s3	19	0
\$s4	20	0
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$s8	24	0
\$s9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$sp	29	2147479548
\$fp	30	0
\$ra	31	0
pc		4194340
hi		0
lo		0

Programa 12:

EditExecute

mips1.asm mips2.asm mips3.asm mips4.asm

```
1 .text
2 .globl main
3 main:
4 # k = $s0
5 addi $t0, $zero, 0x1001
6 sll $t0, $t0, 16
7 addi $t0, $t0, 0x000c # posicao inicial - 0x1001000c
8 lw $t0, 0($t0) # carregar ponteiro 1 - 0x10010008
9 lw $t0, 0($t0) # carregar ponteiro 2 - 0x10010004
10 lw $t0, 0($t0) # carregar ponteiro 3 - 0x10010000
11 lw $s0, 0($t0) # carregar valor -> s0 = x
12 add $s0, $s0, $s0 # k = 2k
13 sw $s0, 0($t0) # armazenar 2k em endereco de x
14
15 .data
16 x: .word 50 # considerando x como 50
17 p1: .word 0x10010000
18 p2: .word 0x10010004
19 p3: .word 0x10010008
20
```

RegistersCoproccoproc 1Coproccoproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	0
\$t2	10	0
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	100
\$s1	17	0
\$s2	18	0
\$s3	19	0
\$s4	20	0
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$t8	24	0
\$t9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$fp	29	2147479546
\$rp	30	0
\$ra	31	0
pc		4194340
hi		0
lo		0

EditExecute

Text Segment

Bkpt	Address	Code	Basic	Source
	0x00400000	0x20081001	addi \$s, \$0, 4097	5: addi \$t0, \$zero, 0x1001
	0x00400004	0x00084400	sll \$s, \$s, 16	6: sll \$t0, \$t0, 16
	0x00400008	0x2108000c	addi \$s, \$s, 12	7: addi \$t0, \$t0, 0x000c # posicao inicial - 0x1001000c
	0x0040000c	0x8d080000	lw \$s, 0(\$s)	8: lw \$t0, 0(\$t0) # carregar ponteiro 1 - 0x10010008
	0x00400010	0x8d080000	lw \$s, 0(\$s)	9: lw \$t0, 0(\$t0) # carregar ponteiro 2 - 0x10010004
	0x00400014	0x8d080000	lw \$s, 0(\$s)	10: lw \$t0, 0(\$t0) # carregar ponteiro 3 - 0x10010000
	0x00400018	0x8d100000	lw \$s, 0(\$s)	11: lw \$s0, 0(\$t0) # carregar valor -> s0 = x
	0x0040001c	0x02108020	add \$s, \$s, \$s	12: add \$s0, \$s0, \$s0 # k = 2k
	0x00400020	0xad100000	sw \$s, 0(\$s)	13: sw \$s0, 0(\$t0) # armazenar 2k em endereco de x

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)
0x10010000	100	268500992	268500996	268501000	0
0x10010020	0	0	0	0	0
0x10010040	0	0	0	0	0
0x10010060	0	0	0	0	0
0x10010080	0	0	0	0	0
0x100100a0	0	0	0	0	0
0x100100c0	0	0	0	0	0
0x100100e0	0	0	0	0	0
0x10010100	0	0	0	0	0
0x10010120	0	0	0	0	0
0x10010140	0	0	0	0	0
0x10010160	0	0	0	0	0
0x10010180	0	0	0	0	0
0x100101a0	0	0	0	0	0

RegistersCoproccoproc 1Coproccoproc 0

Name	Number	Value
\$zero	0	0
\$at	1	0
\$v0	2	0
\$v1	3	0
\$a0	4	0
\$a1	5	0
\$a2	6	0
\$a3	7	0
\$t0	8	268500992
\$t1	9	0
\$t2	10	0
\$t3	11	0
\$t4	12	0
\$t5	13	0
\$t6	14	0
\$t7	15	0
\$s0	16	100
\$s1	17	0
\$s2	18	0
\$s3	19	0
\$s4	20	0
\$s5	21	0
\$s6	22	0
\$s7	23	0
\$t8	24	0
\$t9	25	0
\$k0	26	0
\$k1	27	0
\$gp	28	268468224
\$fp	29	2147479546
\$rp	30	0
\$ra	31	0
pc		4194340
hi		0
lo		0