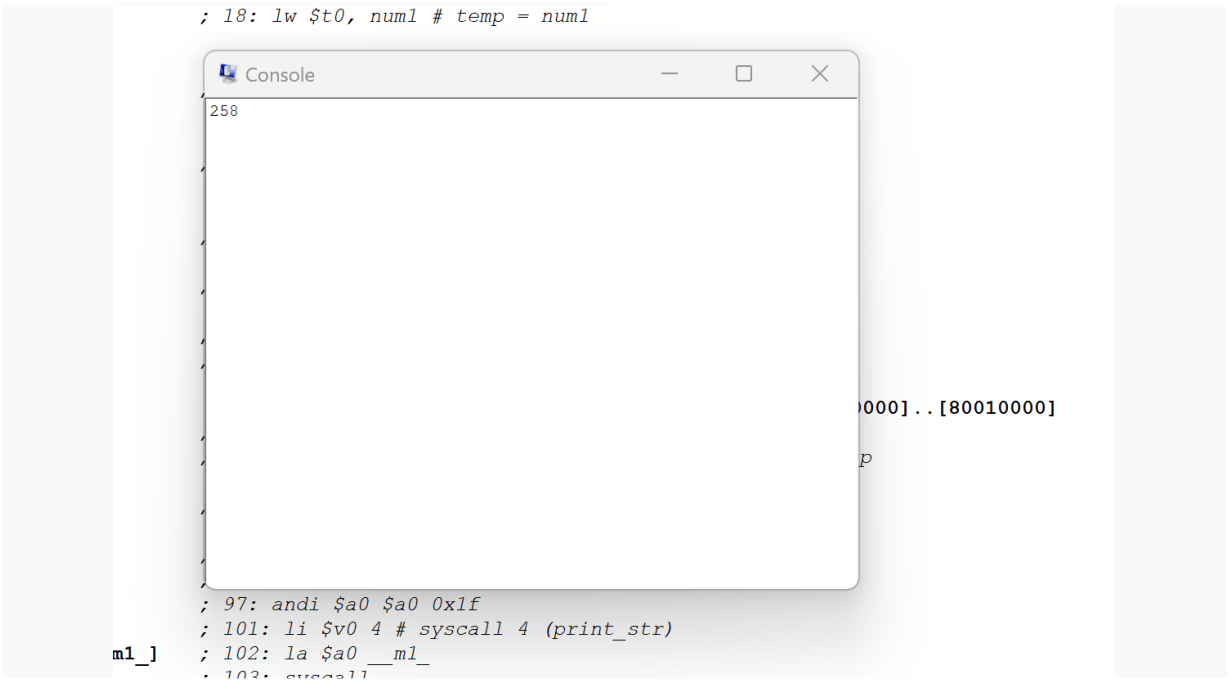
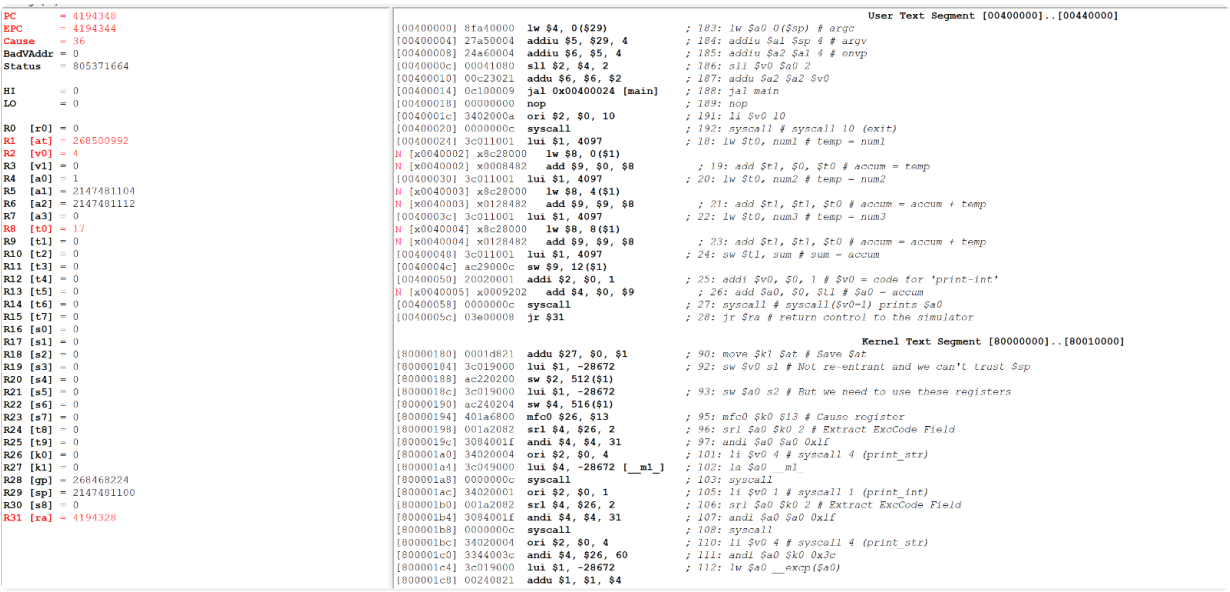
$$lab 5$$ $Manav Bilakhia$

5) 258



6)



```
PC        = 4194352
EPC       = 4194348
Cause     = 36
BadVAddr  = 0
Status    = 805371664

HI        = 0
LO        = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 17
R9  [t1] = 17
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

User Text Segment [00400000]..[00440000]

```
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
N [x0040005] x0009202   add $4, $0, $9         ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator
```

Kernel Text Segment [80000000]..[80010000]

```
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```

```
PC        = 4194360
EPC       = 4194356
Cause     = 36
BadVAddr  = 0
Status    = 805371664

HI        = 0
LO        = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = -35
R9  [t1] = 17
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

User Text Segment [00400000]..[00440000]

```
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
N [x0040005] x0009202   add $4, $0, $9         ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator
```

Kernel Text Segment [80000000]..[80010000]

```
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```

```
PC        = 4194336
EPC       = 4194388
Cause     = 36
BadVAddr  = 0
Status    = 805371664

HI        = 0
LO        = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 10
R3  [v1] = 0
R4  [a0] = 258
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 276
R9  [t1] = 258
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

User Text Segment [00400000]..[00440000]

```
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
N [x0040005] x0009202   add $4, $0, $9         ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator
```

Kernel Text Segment [80000000]..[80010000]

```
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```

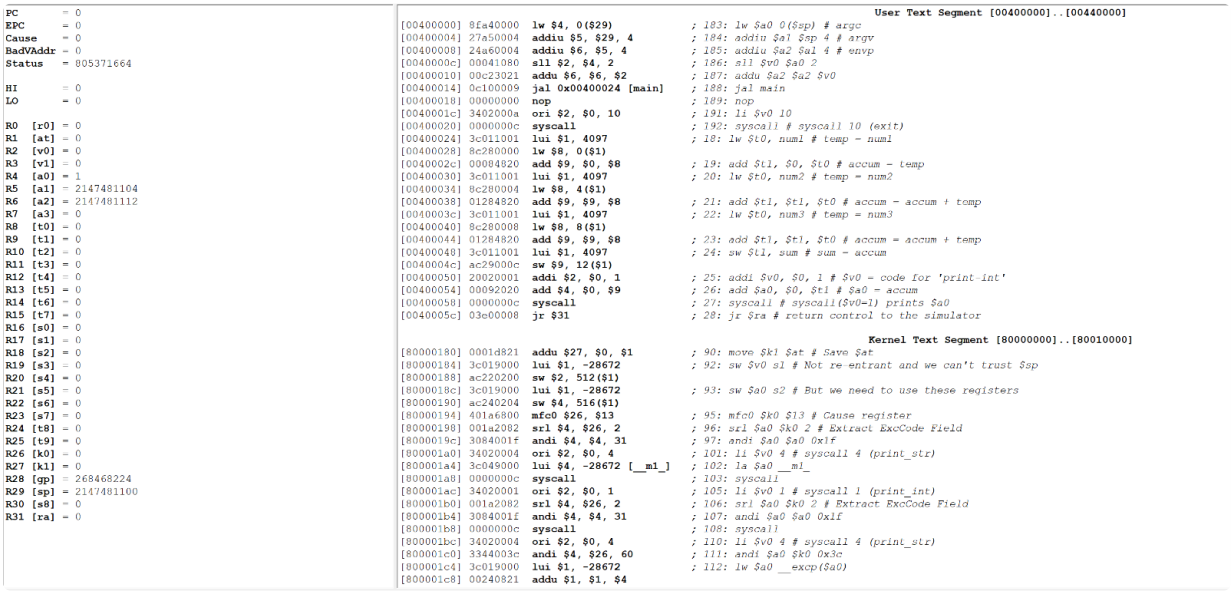
7) new values:

num1: .word 10

num2: .word -100

num3: .word 1000

Before:



```
PC       = 0
EPC      = 0
Cause    = 0
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 0
R2  [v0] = 0
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 0
R9  [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 0
```

```
                                    User Text Segment [00400000]..[00440000]
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
[00400028] 8c280000  lw $8, 0($1)
[0040002c] 00084820  add $9, $0, $8          ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
[00400034] 8c280004  lw $8, 4($1)
[00400038] 01284820  add $9, $9, $8          ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
[00400040] 8c280008  lw $8, 8($1)
[00400044] 01284820  add $9, $9, $8          ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print int'
[00400054] 00092020  add $4, $0, $9          ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator

                                    Kernel Text Segment [80000000]..[80010000]
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
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[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
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[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```
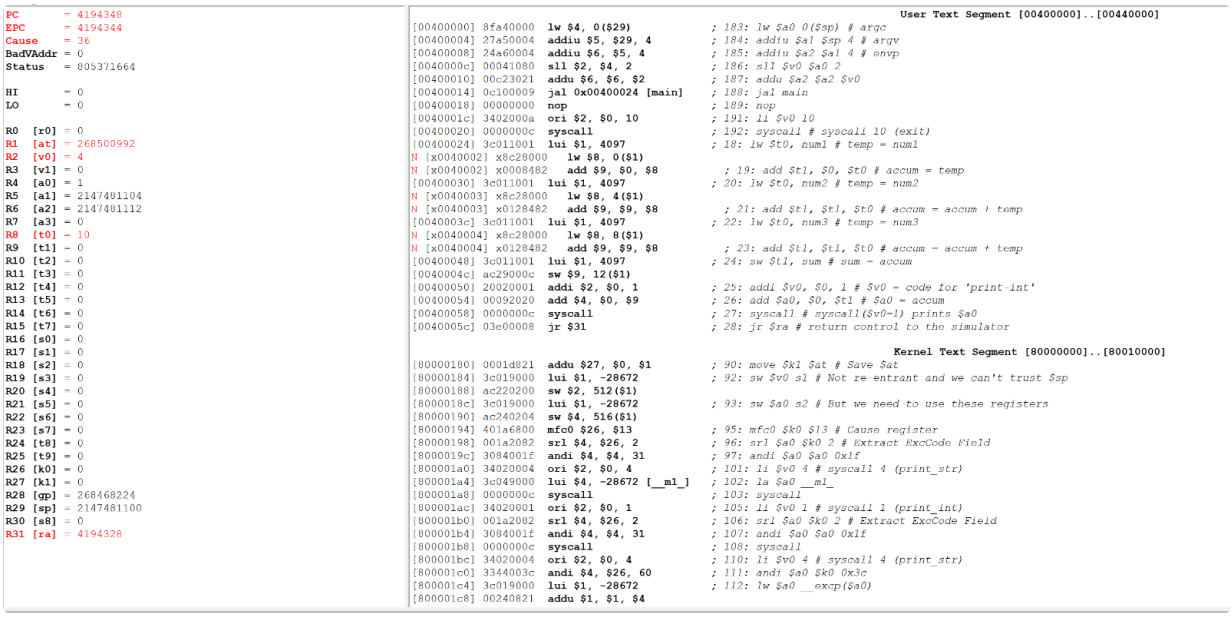
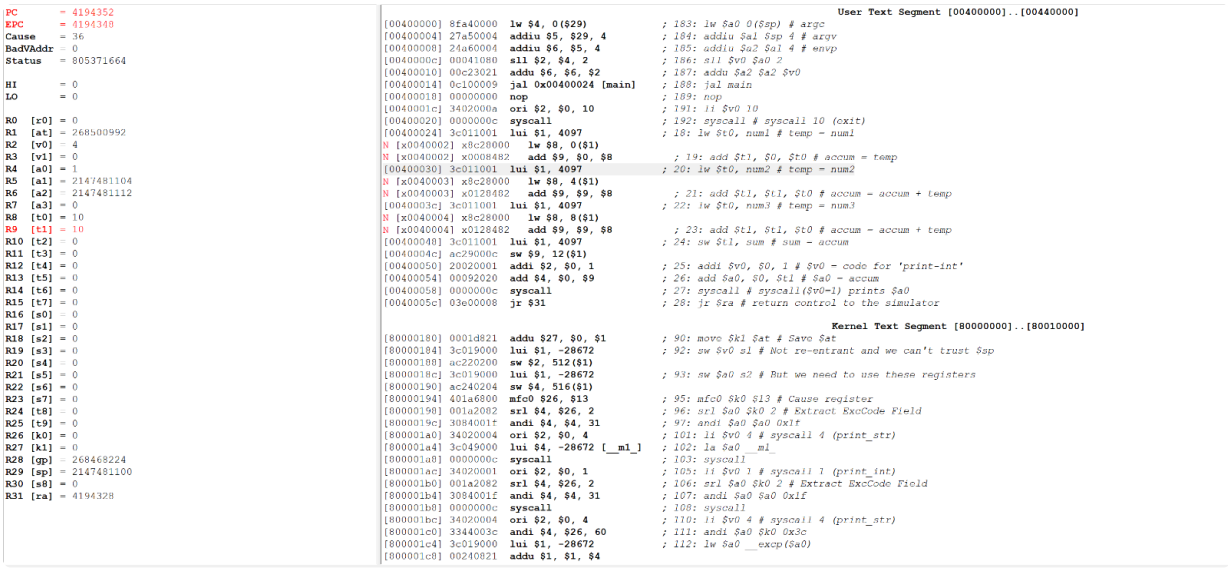

During:



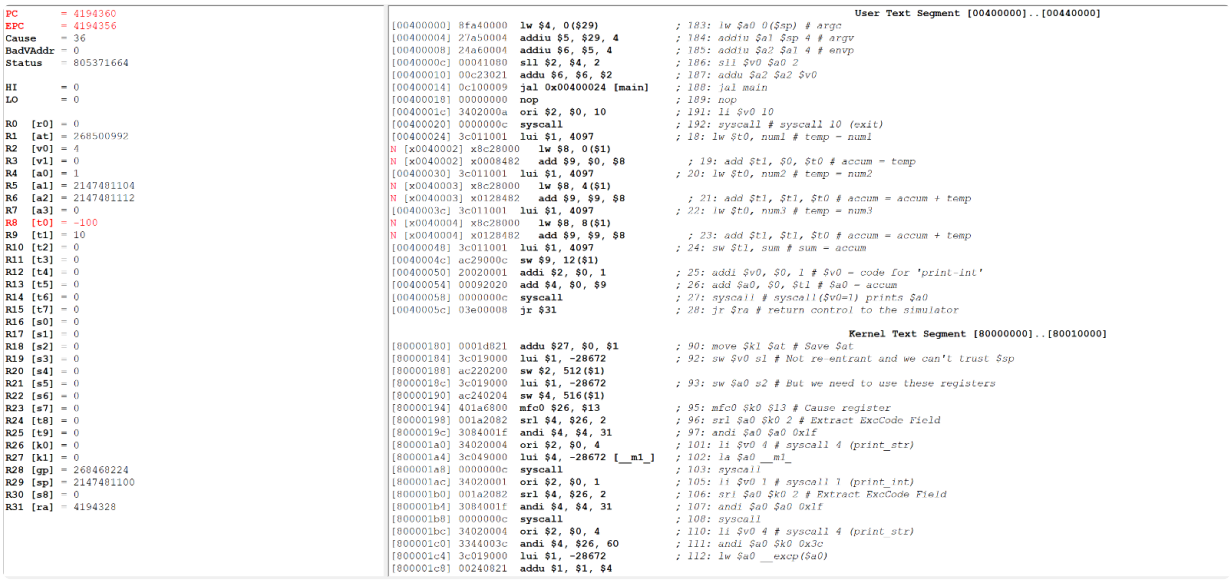
```
PC       = 4194348
EPC      = 4194344
Cause    = 36
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 10
R9  [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

```
                                    User Text Segment [00400000]..[00440000]
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print int'
[00400054] 00092020  add $4, $0, $9          ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator

                                    Kernel Text Segment [80000000]..[80010000]
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```



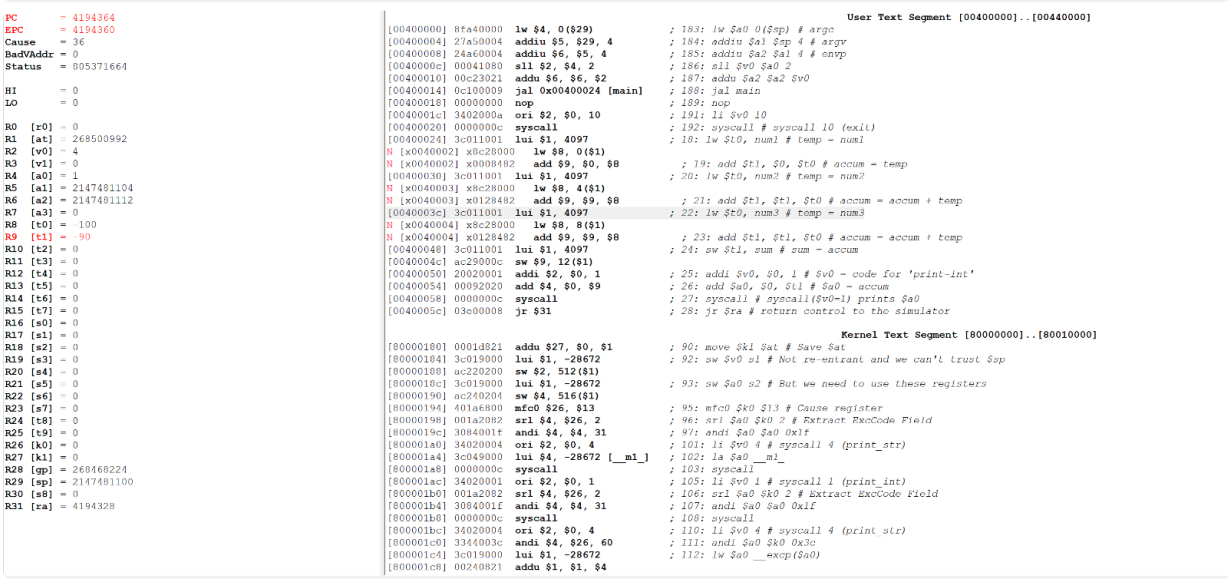
```
PC       = 4194352
EPC      = 4194340
Cause    = 36
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 10
R9  [t1] = 10
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

```
                                    User Text Segment [00400000]..[00440000]
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
[00400054] 00092020  add $4, $0, $9          ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator

                                    Kernel Text Segment [80000000]..[80010000]
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```



```
PC       = 4194360
EPC      = 4194356
Cause    = 36
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = -100
R9  [t1] = 10
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

```
                                    User Text Segment [00400000]..[00440000]
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
[00400054] 00092020  add $4, $0, $9          ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator

                                    Kernel Text Segment [80000000]..[80010000]
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```



```
PC       = 4194364
EPC      = 4194360
Cause    = 36
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 4
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = -100
R9  [t1] = -90
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
R28 [gp] = 268468224
R29 [sp] = 2147481100
R30 [s8] = 0
R31 [ra] = 4194328
```

```
                                    User Text Segment [00400000]..[00440000]
[00400000] 8fa40000  lw $4, 0($29)           ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004  addiu $5, $29, 4        ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004  addiu $6, $5, 4         ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080  sll $2, $4, 2           ; 186: sll $v0 $a0 2
[00400010] 00c23021  addu $6, $6, $2         ; 187: addu $a2 $a2 $v0
[00400014] 0c100009  jal 0x00400024 [main]   ; 188: jal main
[00400018] 00000000  nop                     ; 189: nop
[0040001c] 3402000a  ori $2, $0, 10          ; 191: li $v0 10
[00400020] 0000000c  syscall                 ; 192: syscall # syscall 10 (exit)
[00400024] 3c011001  lui $1, 4097            ; 18: lw $t0, num1 # temp = num1
N [x0040002] x8c28000   lw $8, 0($1)
N [x0040002] x0008482   add $9, $0, $8         ; 19: add $t1, $0, $t0 # accum = temp
[00400030] 3c011001  lui $1, 4097            ; 20: lw $t0, num2 # temp = num2
N [x0040003] x8c28000   lw $8, 4($1)
N [x0040003] x0128482   add $9, $9, $8         ; 21: add $t1, $t1, $t0 # accum = accum + temp
[0040003c] 3c011001  lui $1, 4097            ; 22: lw $t0, num3 # temp = num3
N [x0040004] x8c28000   lw $8, 8($1)
N [x0040004] x0128482   add $9, $9, $8         ; 23: add $t1, $t1, $t0 # accum = accum + temp
[00400048] 3c011001  lui $1, 4097            ; 24: sw $t1, sum # sum = accum
[0040004c] ac29000c  sw $9, 12($1)
[00400050] 20020001  addi $2, $0, 1          ; 25: addi $v0, $0, 1 # $v0 = code for 'print-int'
[00400054] 00092020  add $4, $0, $9          ; 26: add $a0, $0, $t1 # $a0 = accum
[00400058] 0000000c  syscall                 ; 27: syscall # syscall($v0=1) prints $a0
[0040005c] 03e00008  jr $31                  ; 28: jr $ra # return control to the simulator

                                    Kernel Text Segment [80000000]..[80010000]
[80000180] 0001d821  addu $27, $0, $1        ; 90: move $k1 $at # Save $at
[80000184] 3c019000  lui $1, -28672          ; 92: sw $v0 s1 # Not re-entrant and we can't trust $sp
[80000188] ac220200  sw $2, 512($1)
[8000018c] 3c019000  lui $1, -28672          ; 93: sw $a0 s2 # But we need to use these registers
[80000190] ac240204  sw $4, 516($1)
[80000194] 401a6800  mfc0 $26, $13           ; 95: mfc0 $k0 $13 # Cause register
[80000198] 001a2082  srl $4, $26, 2          ; 96: srl $a0 $k0 2 # Extract ExcCode Field
[8000019c] 3084001f  andi $4, $4, 31         ; 97: andi $a0 $a0 0x1f
[800001a0] 34020004  ori $2, $0, 4           ; 101: li $v0 4 # syscall 4 (print_str)
[800001a4] 3c049000  lui $4, -28672 [__m1_]  ; 102: la $a0 __m1_
[800001a8] 0000000c  syscall                 ; 103: syscall
[800001ac] 34020001  ori $2, $0, 1           ; 105: li $v0 1 # syscall 1 (print_int)
[800001b0] 001a2082  srl $4, $26, 2          ; 106: srl $a0 $k0 2 # Extract ExcCode Field
[800001b4] 3084001f  andi $4, $4, 31         ; 107: andi $a0 $a0 0x1f
[800001b8] 0000000c  syscall                 ; 108: syscall
[800001bc] 34020004  ori $2, $0, 4           ; 110: li $v0 4 # syscall 4 (print_str)
[800001c0] 3344003c  andi $4, $26, 60        ; 111: andi $a0 $k0 0x3c
[800001c4] 3c019000  lui $1, -28672          ; 112: lw $a0 __excp($a0)
[800001c8] 00240821  addu $1, $1, $4
```

After:

```
; 192: syscall # syscall 10 (exit)
; 18: lw $t0, num1 # temp = num1
; 97: andi $a0 $a0 0x1f
; 101: li $v0 4 # syscall 4 (print_str)
; 102: la $a0   m1
```

Console

```
910
```

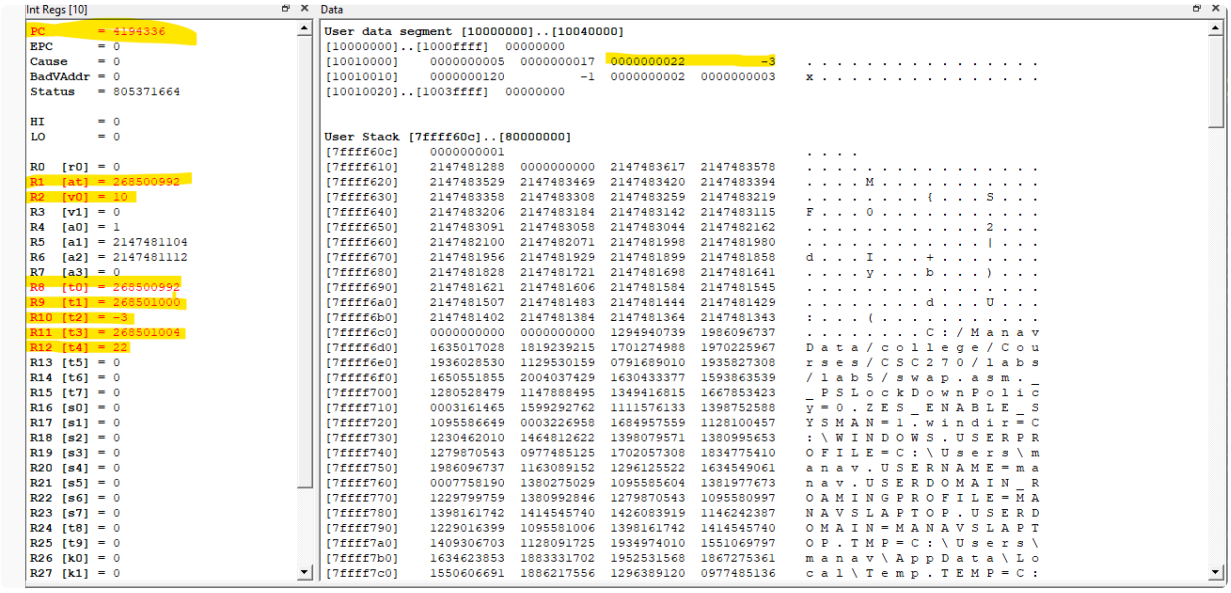
8) Swap:

Before

```
PC       = 0
EPC      = 0
Cause    = 0
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 0
R2  [v0] = 0
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 0
R9  [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
```

```
User data segment [10000000]..[10040000]
[10000000]..[1000ffff]  00000000
[10010000]    0000000005  0000000017          -3  0000000022    . . . . . .
[10010010]    0000000120          -1  0000000002  0000000003    x . . . . . .
[10010020]..[1003ffff]  00000000

User Stack [7ffff60c]..[80000000]
[7ffff60c]    0000000001                                        . . . .
[7ffff610]    2147481288  0000000000  2147483617  2147483578    . . . . . .
[7ffff620]    2147483529  2147483469  2147483420  2147483394    . . . . M . . . . . .
[7ffff630]    2147483358  2147483308  2147483259  2147483219    . . . . . { . . . S . . .
[7ffff640]    2147483206  2147483184  2147483142  2147483115    F . . . 0 . . . . . .
[7ffff650]    2147483091  2147483058  2147483044  2147482162    . . . . . 2 . . .
[7ffff660]    2147482100  2147482071  2147481998  2147481980    . . . . . | . . .
[7ffff670]    2147481956  2147481929  2147481899  2147481858    d . . . I . . . + . . . . . .
[7ffff680]    2147481828  2147481721  2147481698  2147481641    . . . . y . . . b . . . ) . . .
[7ffff690]    2147481621  2147481606  2147481584  2147481545    . . . . . .
[7ffff6a0]    2147481507  2147481483  2147481444  2147481429    . . . . . d . . . U . . .
[7ffff6b0]    2147481402  2147481384  2147481364  2147481343    : . . . ( . . . . . .
[7ffff6c0]    0000000000  0000000000  1294940739  1986096737    . . . . . C : / M a n a v
[7ffff6d0]    1635017028  1819239215  1701274988  1970225967    D a t a / c o l l e g e / C o u
[7ffff6e0]    1936028530  1129530159  0791689010  1935827308    r s e s / C S C 2 7 0 / l a b s
[7ffff6f0]    1650551855  2004037429  1630433377  1593863539    / l a b 5 / s w a p . a s m . _
[7ffff700]    1280528479  1147888495  1349416815  1667853423    _ P S L o c k D o w n P o l i c
[7ffff710]    0003161465  1599292762  1111576133  1398752588    y = 0 . Z E S _ E N A B L E _ S
[7ffff720]    1095586649  0003226958  1684957559  1128100457    Y S M A N = 1 . w i n d i r = C
[7ffff730]    1230462010  1464812622  1398079571  1380995653    : \ W I N D O W S . U S E R P R
[7ffff740]    1279870543  0977485125  1702057308  1834775410    O F I L E = C : \ U s e r s \ m
[7ffff750]    1986096737  1163089152  1296125522  1634549061    a n a v . U S E R N A M E = m a
[7ffff760]    0007758190  1380275029  1095585604  1381977673    n a v . U S E R D O M A I N _ R
[7ffff770]    1229799759  1380992846  1279870543  1095580997    O A M I N G P R O F I L E = M A
[7ffff780]    1398161742  1414545740  1426083919  1146242387    N A V S L A P T O P . U S E R D
[7ffff790]    1229016399  1095581006  1398161742  1414545740    O M A I N = M A N A V S L A P T
[7ffff7a0]    1409306703  1128091725  1934974010  1551069797    O P . T M P = C : \ U s e r s \
[7ffff7b0]    1634623853  1883331702  1952531568  1867275361    m a n a v \ A p p D a t a \ L o
[7ffff7c0]    1550606691  1886217556  1296389120  0977485136    c a l \ T e m p . T E M P = C :
```

After



Int Regs [10]

```
PC       = 4194336
EPC      = 0
Cause    = 0
BadVAddr = 0
Status   = 805371664

HI       = 0
LO       = 0

R0  [r0] = 0
R1  [at] = 268500992
R2  [v0] = 10
R3  [v1] = 0
R4  [a0] = 1
R5  [a1] = 2147481104
R6  [a2] = 2147481112
R7  [a3] = 0
R8  [t0] = 268500992
R9  [t1] = 268501000
R10 [t2] = -3
R11 [t3] = 268501004
R12 [t4] = 22
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
```

Data

```
User data segment [10000000]..[10040000]
[10000000]..[1000ffff]  00000000
[10010000]    0000000005  0000000017  0000000022          -3    . . . . . .
[10010010]    0000000120          -1  0000000002  0000000003    x . . . . . .
[10010020]..[1003ffff]  00000000


User Stack [7ffff60c]..[80000000]
[7ffff60c]    0000000001                                        . . . .
[7ffff610]    2147481288  0000000000  2147483617  2147483578    . . . . . .
[7ffff620]    2147483529  2147483469  2147483420  2147483394    . . . . M . . . . . . . . .
[7ffff630]    2147483358  2147483308  2147483259  2147483219    . . . . . { . . . S . . .
[7ffff640]    2147483206  2147483184  2147483142  2147483115    F . . . 0 . . . . . . . . .
[7ffff650]    2147483091  2147483058  2147483044  2147482162    . . . . . 2 . . .
[7ffff660]    2147482100  2147482071  2147481998  2147481980    . . . . . | . . .
[7ffff670]    2147481956  2147481929  2147481899  2147481858    d . . . I . . . + . . . . . .
[7ffff680]    2147481828  2147481721  2147481698  2147481641    . . . . y . . . b . . . ) . . .
[7ffff690]    2147481621  2147481606  2147481584  2147481545    . . . . . .
[7ffff6a0]    2147481507  2147481483  2147481444  2147481429    . . . . . d . . . U . . .
[7ffff6b0]    2147481402  2147481384  2147481364  2147481343    : . . . ( . . . . . .
[7ffff6c0]    0000000000  0000000000  1294940739  1986096737    . . . . . C : / M a n a v
[7ffff6d0]    1635017028  1819239215  1701274988  1970225967    D a t a / c o l l e g e / C o u
[7ffff6e0]    1936028530  1129530159  0791689010  1935827308    r s e s / C S C 2 7 0 / l a b s
[7ffff6f0]    1650551855  2004037429  1630433377  1593863539    / l a b 5 / s w a p . a s m . _
[7ffff700]    1280528479  1147888495  1349416815  1667853423    _ P S L o c k D o w n P o l i c
[7ffff710]    0003161465  1599292762  1111576133  1398752588    y = 0 . Z E S _ E N A B L E _ S
[7ffff720]    1095586649  0003226958  1684957559  1128100457    Y S M A N = 1 . w i n d i r = C
[7ffff730]    1230462010  1464812622  1398079571  1380995653    : \ W I N D O W S . U S E R P R
[7ffff740]    1279870543  0977485125  1702057308  1834775410    O F I L E = C : \ U s e r s \ m
[7ffff750]    1986096737  1163089152  1296125522  1634549061    a n a v . U S E R N A M E = m a
[7ffff760]    0007758190  1380275029  1095585604  1381977673    n a v . U S E R D O M A I N _ R
[7ffff770]    1229799759  1380992846  1279870543  1095580997    O A M I N G P R O F I L E = M A
[7ffff780]    1398161742  1414545740  1426083919  1146242387    N A V S L A P T O P . U S E R D
[7ffff790]    1229016399  1095581006  1398161742  1414545740    O M A I N = M A N A V S L A P T
[7ffff7a0]    1409306703  1128091725  1934974010  1551069797    O P . T M P = C : \ U s e r s \
[7ffff7b0]    1634623853  1883331702  1952531568  1867275361    m a n a v \ A p p D a t a \ L o
[7ffff7c0]    1550606691  1886217556  1296389120  0977485136    c a l \ T e m p . T E M P = C :
```