BÁO CÁO THỰC HÀNH TUẦN 5

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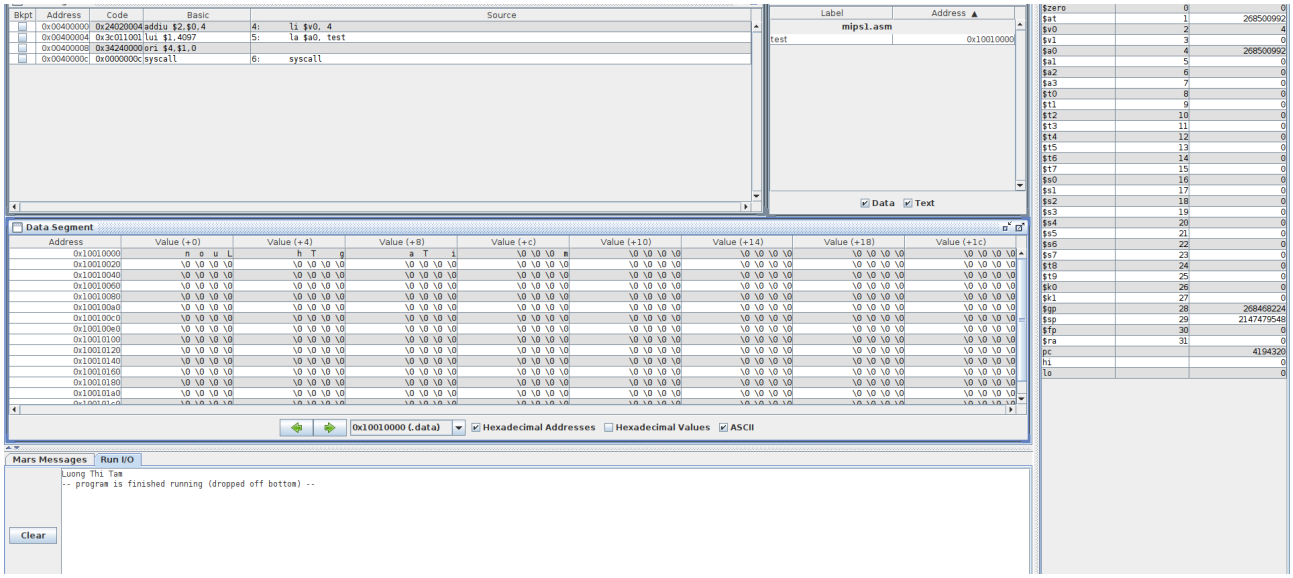
Bài 1:

*Code:

```
.data
test: .asciiz "Hello World"
.text
     li $v0, 4
     la $a0, test
     syscall
```

*Kết quả chạy:



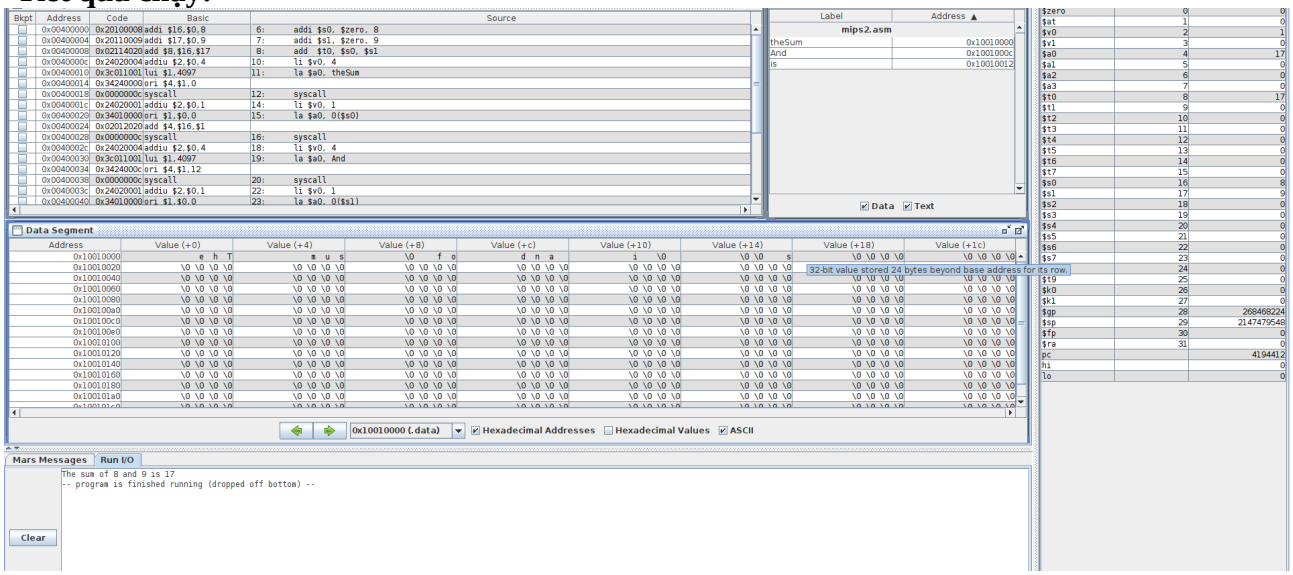
Hàm v0 = 4 → in ra chuỗi ký tự.

Bài 2:

*Code:

```
.data
theSum: .asciiz "The sum of "
And:    .asciiz " and "
is:     .asciiz " is "
.text
     addi $s0, $zero, 8 # $s0 = 8
     addi $s1, $zero, 9 # $s1 = 9
     add  $t0, $s0, $s1 #$t0 = $s0 + $s1
     # in ra xau "The sum of "
     li $v0, 4
     la $a0, theSum
     syscall
     # in ra $s0
     li $v0, 1
     la $a0, 0($s0)
     syscall
     # in ra xau " and "
     li $v0, 4
     la $a0, And
     syscall
     # in ra $s1
     li $v0, 1
     la $a0, 0($s1)
     syscall
     # in ra xau " is "
     li $v0, 4
     la $a0, is
     syscall
     # in ra tong $s0 + $s1
     li $v0, 1
     la $a0, 0($t0)
     syscall
```

*Kết quả chạy:

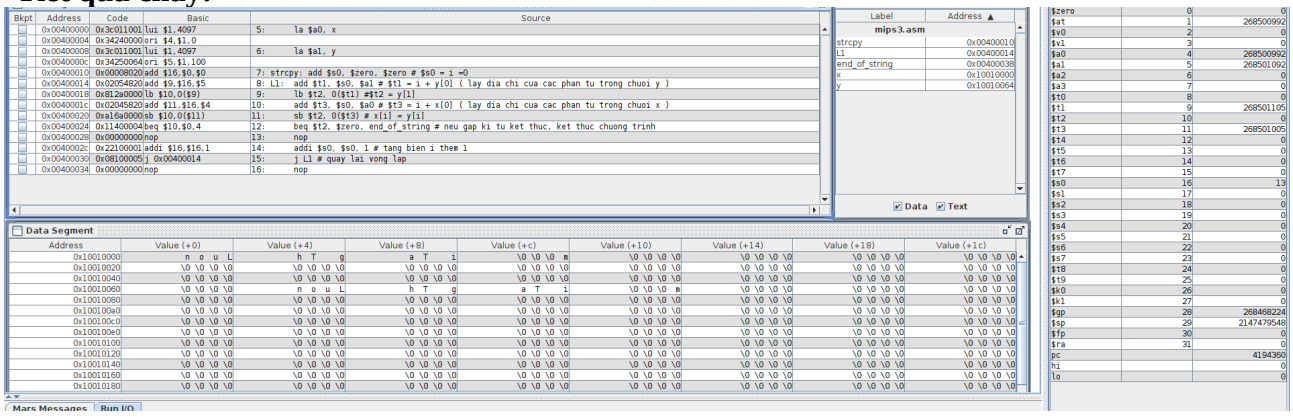


Bài 3:

*Code:

```
.data
x: .space 100
y: .asciiz "Luong Thi Tam"
.text
     la $a0, x
     la $a1, y
strcpy: add $s0, $zero, $zero # $s0 = i =0
L1:  add $t1, $s0, $a1 # $t1 = i + y[0] ( lay dia chi cua cac phan tu trong chuoi y )
     lb $t2, 0($t1) #$t2 = y[1]
     add $t3, $s0, $a0 # $t3 = i + x[0] ( lay dia chi cua cac phan tu trong chuoi x )
     sb $t2, 0($t3) # x[i] = y[i]
     beq $t2, $zero, end_of_string # neu gap ki tu ket thuc, ket thuc chuong trinh
     nop
     addi $s0, $s0, 1 # tang bien i them 1
     j L1 # quay lai vong lap
     nop
end_of_string:
```

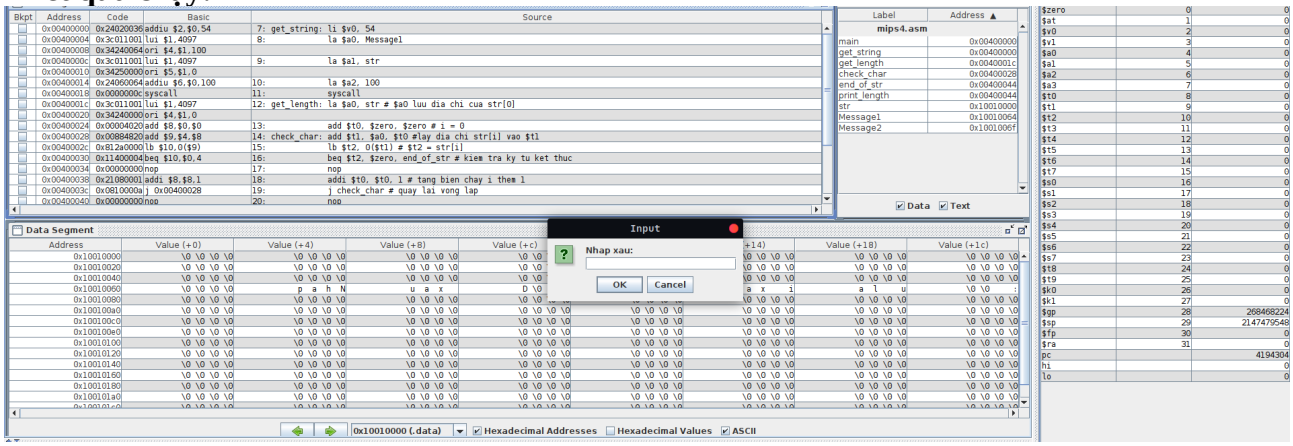
*Kết quả chay:

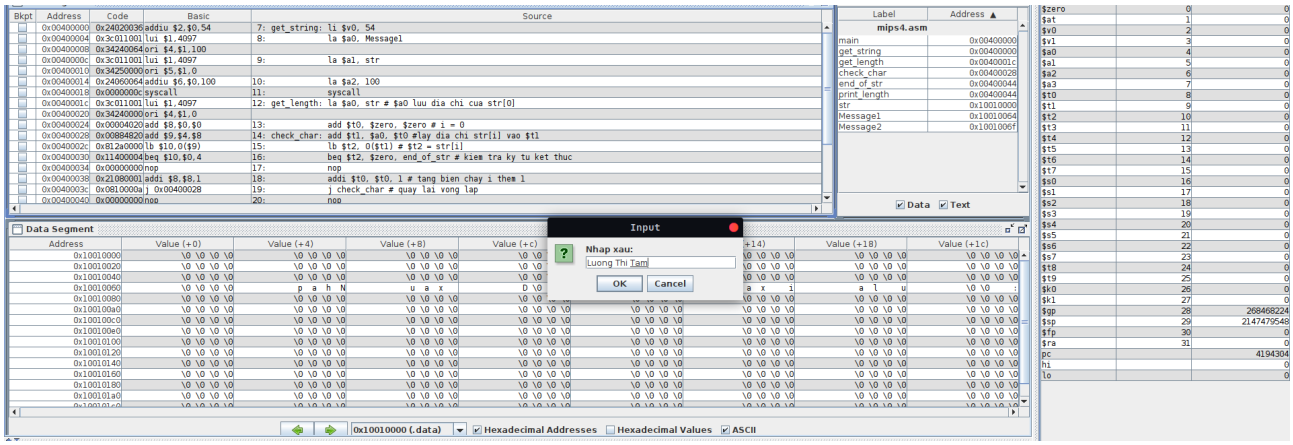


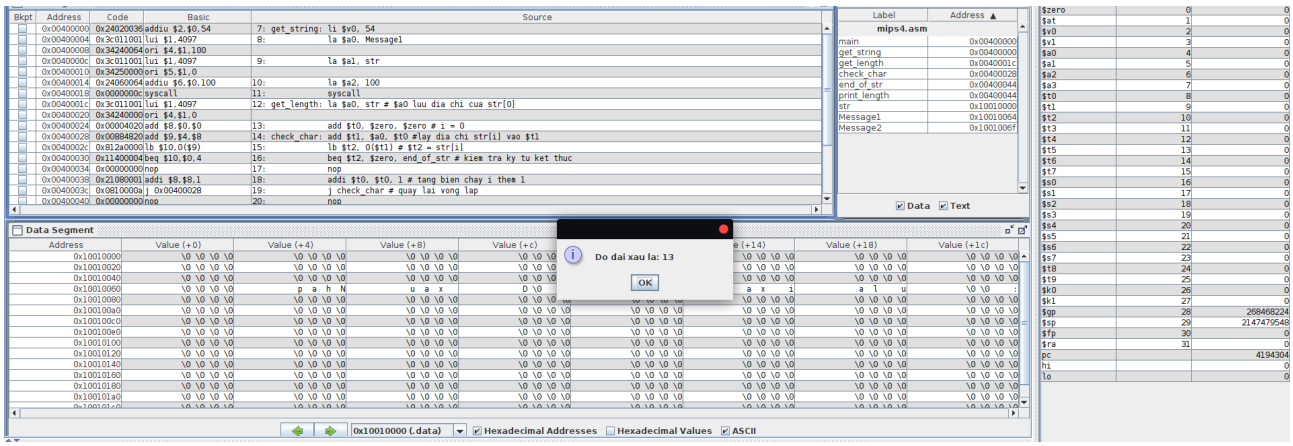
Bài 4:
*Code:

```
.data
str: .space  100
Message1: .asciiz "Nhap xau: "
Message2: .asciiz "Do dai xau la: "
.text
main:
get_string: li $v0, 54
            la $a0, Message1
            la $a1, str
            la $a2, 100
            syscall
get_length: la $a0, str # $a0 luu dia chi cua str[0]
            add $t0, $zero, $zero # i = 0
check_char: add $t1, $a0, $t0 #lay dia chi str[i] vao $t1
            lb $t2, 0($t1) # $t2 = str[i]
            beq $t2, $zero, end_of_str # kiem tra ky tu ket thuc
            nop
            addi $t0, $t0, 1 # tang bien chay i them 1
            j check_char # quay lai vong lap
            nop
end_of_str:
print_length: li $v0, 56
              la $a0, Message2
              addi $t0, $t0, -1
              la $a1, 0($t0)
              syscall
```

*Kết quả chạy:





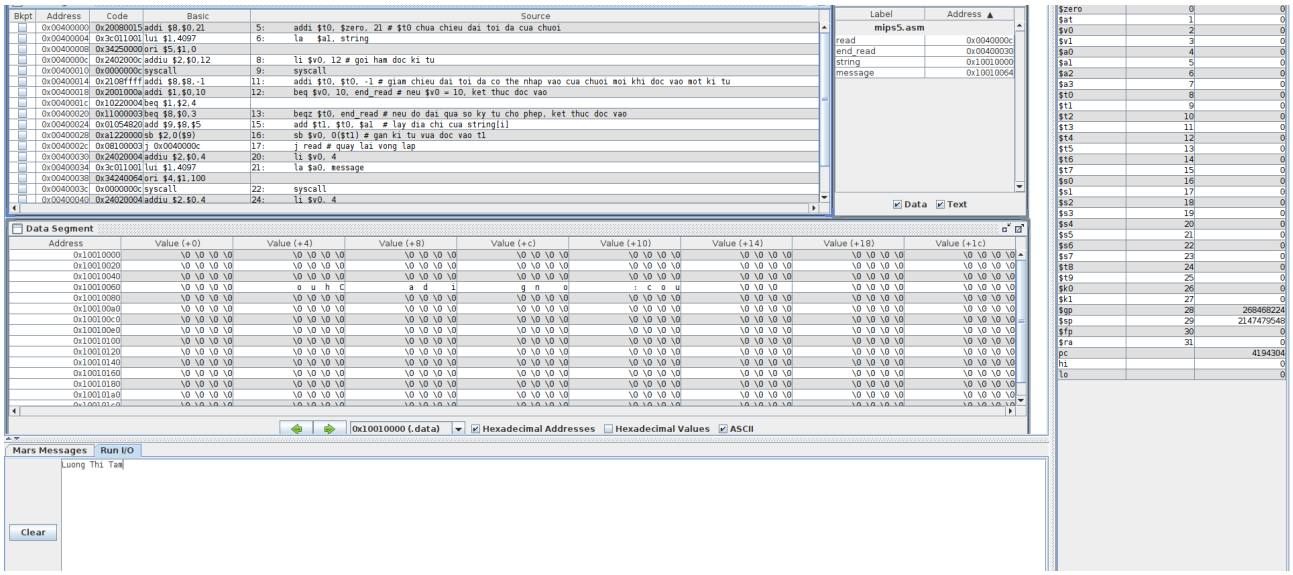


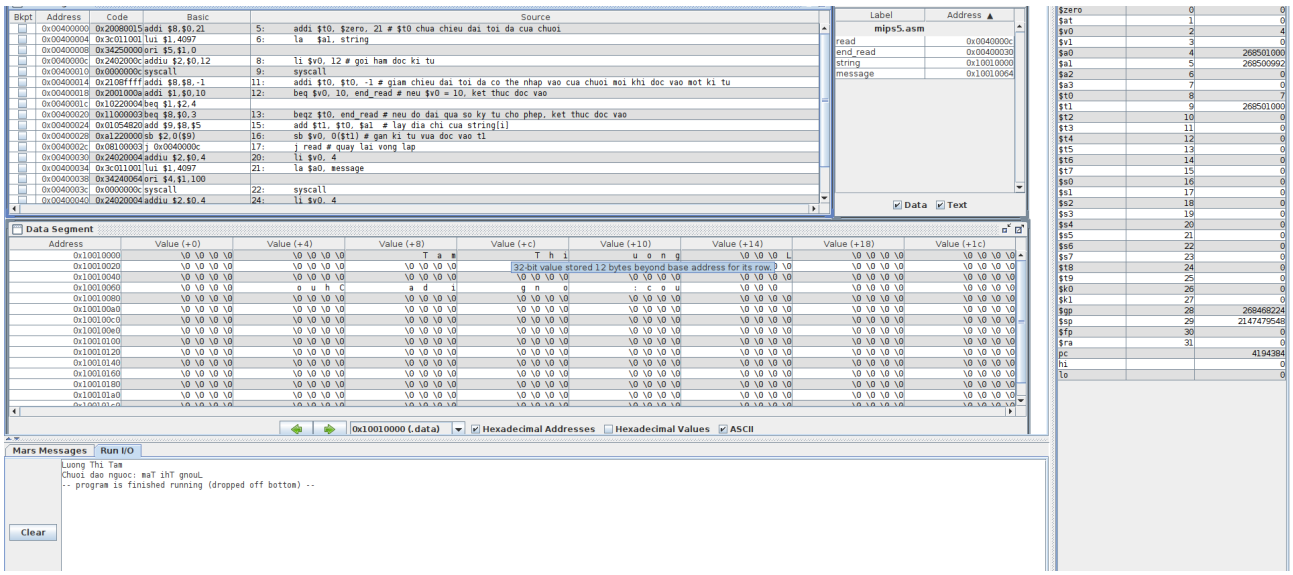
Bài 5:

*Code:

```
.data
string: .space 100
message: .asciiz "Chuoi dao nguoc: "
.text
     addi $t0, $zero, 21 # $t0 chua chieu dai toi da cua chuoi
     la   $a1, string
read:
     li $v0, 12 # goi ham doc ki tu
     syscall

     addi $t0, $t0, -1 # giam chieu dai toi da co the nhap vao cua chuoi moi khi doc vao mot ki tu
     beq $v0, 10, end_read # neu $v0 = 10, ket thuc doc vao
     beqz $t0, end_read # neu do dai qua so ky tu cho phep, ket thuc doc vao

     add $t1, $t0, $a1  # lay dia chi cua string[i]
     sb $v0, 0($t1) # gan ki tu vua doc vao t1
     j read # quay lai vong lap
end_read:
     #in ra thong bao
     li $v0, 4
     la $a0, message
     syscall
     #in ra chuoi nguoc
     li $v0, 4
     la $a0, 0($t1)
     syscall

```

*Kết quả chạy:





Bkpt	Address	Code	Basic		Source
	0x00400000	0x20080015	addi $8,$0,21	5:	addi $t0, $zero, 21 # $t0 chua chieu dai toi da cua chuoi
	0x00400004	0x3c011001	lui $1,4097	6:	la $al, string
	0x00400008	0x34250000	ori $5,$1,0		
	0x0040000c	0x2402000c	addiu $2,$0,12	8:	li $v0, 12 # goi ham doc ki tu
	0x00400010	0x0000000c	syscall	9:	syscall
	0x00400014	0x2108ffff	addi $8,$8,-1	11:	addi $t0, $t0, -1 # giam chieu dai toi da co the nhap vao cua chuoi moi khi doc vao mot ki tu
	0x00400018	0x20010000	addi $1,$0,10	12:	beq $v0, 10, end_read # neu $v0 = 10, ket thuc doc vao
	0x0040001c	0x10220004	beq $1,$2,4		
	0x00400020	0x11000003	beqz $t0,end_read # neu do dai qua so ky tu cho phep, ket thuc doc vao	13:	
	0x00400024	0x01054820	add $9,$8,$5	15:	add $t1, $t0, $al # lay dia chi cua string[i]
	0x00400028	0xa1220000	sb $2,0($9)	16:	sb $v0, 0($t1) # gan ki tu vua doc vao t1
	0x0040002c	0x08100003	j 0x0040000c	17:	j read # quay lai vong lap
	0x00400030	0x24020004	addiu $2,$0,4	20:	li $v0, 4
	0x00400034	0x3c011001	lui $1,4097	21:	la $a0, message
	0x00400038	0x34240064	ori $4,$1,100		
	0x0040003c	0x0000000c	syscall	22:	syscall
	0x00400040	0x24020004	addiu $2,$0,4	24:	li $v0, 4

Label	Address
mips5.asm	
read	0x0040000c
end_read	0x00400030
string	0x10010000
message	0x10010064

Data Text

Data Segment

Address	Value (+0)	Value (+4)	Value (+8)	Value (+c)	Value (+10)	Value (+14)	Value (+18)	Value (+1c)
0x10010000	\0 \0 \0 \0	\0 \0 \0 \0	T a m	T h i	u o n g	\0 \0 \0 L	\0 \0 \0 \0	\0 \0 \0 \0
0x10010020	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	32-bit value stored 12 bytes beyond base address for its row. ? \0			\0 \0 \0 \0	\0 \0 \0 \0
0x10010040	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010060	\0 \0 \0 \0	o u h C	a d i	g n o	· c o u	\0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010080	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x100100a0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x100100c0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x100100e0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010100	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010120	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010140	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010160	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x10010180	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0
0x100101a0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0	\0 \0 \0 \0

0x10010000 (.data) Hexadecimal Addresses Hexadecimal Values ASCII

Mars Messages Run I/O

```
Luong Thi Tam
Chuoi dao nguoc: maT ihT gnouL
-- program is finished running (dropped off bottom) --
```

Clear

$zero	0	0
$at	1	0
$v0	2	4
$v1	3	0
$a0	4	268501000
$a1	5	268500992
$a2	6	0
$a3	7	0
$t0	8	7
$t1	9	268501000
$t2	10	0
$t3	11	0
$t4	12	0
$t5	13	0
$t6	14	0
$t7	15	0
$s0	16	0
$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
$sp	29	2147479548
$fp	30	0
$ra	31	0
pc		4194384
hi		0
lo		0