

第四次理论作业

一、MIPS程序1

```
.data
    BUF:      .space 16
    prompt:   .asciiz "Input 16 Numbers:\n"
    modified_data: .asciiz "\nCorrected Numbers:\n"

.text
.globl main

main:
    li $v0, 4
    la $a0, prompt
    syscall

    la $a0, BUF
    li $t1, 0

input_loop:
    li $v0, 5
    syscall
    sb $v0, 0($a0)

    addi $a0, $a0, 1
    addi $t1, $t1, 1

    beq $t1, 16, process_data
    j input_loop

process_data:
    la $a0, BUF
    li $t1, 0

loop:
    add $t3, $a0, $t2
    lb $t4, 0($t3)
```

```
li $t5, 0
beq $t1, 0, sub_two
beq $t1, 2, sub_two
beq $t1, 6, sub_two
beq $t1, 11, sub_two
beq $t1, 15, sub_two
j add_three
```

sub_two:

```
subi $t5, $t4, 2
j modify_loop
```

add_three:

```
addi $t5, $t4, 3
```

modify_loop:

```
sb $t5, 0($t3)
```

```
addi $t2, $t1, 1
addi $t1, $t1, 1
bne $t1, 16, loop
```

```
li $v0, 4
la $a0, modified_data
syscall
la $t0, BUF
li $t1, 0
```

print_loop:

```
lb $t6, 0($t0)
li $v0, 1
move $a0, $t6
syscall
```

```
li $v0, 11
li $a0, 32
syscall
```

```
addi $t0, $t0, 1
addi $t1, $t1, 1
```

```
beq $t1, 16, end_program
```

```
j print_loop

end_program:
    li $v0, 10
    syscall
```

二、MIPS程序2

```
.data
    prompt: .ascii"Input 1 Number:\n"
    verify: .ascii"\n10 Times:\n"

.text
.globl main

main:
    li $v0, 4
    la $a0, prompt
    syscall

    li $v0, 5
    syscall
    move $s1, $v0

    sll $t0, $s1, 1
    sll $t1, $t0, 2
    add $s1, $t0, $t1

    li $v0, 4
    la $a0, verify
    syscall

    li $v0, 1
    move $a0, $s1
    syscall
```