**COMPUTER ARCHITECT LAB WEEK 6**

Hồ Anh Tài – 1810490

**1)**

.data

out\_string: .ascii "\n result: \n"

msg\_simple: .asciiz "simple sum is: "

msg\_nl: .asciiz "\n"

list: .word 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

size: .word 10

.text:

main:

lw $s0,size

la $s1,list

subi $s2, $s0, 1

jal sumsimple

la $a0,msg\_simple

move $a1,$v0

jal showsum

li $a0,0

jal sumrecurs1

move $s4,$v0

li $v0,10

syscall

sumsimple:

move $t0,$s0

move $t1,$s1

li $v0,0

j sumsimple\_test

sumsimple\_loop:

lw $t2,0($t1)

add $v0,$v0,$t2

addi $t1,$t1,4

subi $t0,$t0,1

sumsimple\_test:

bgtz $t0,sumsimple\_loop

jr $ra

sumrecurs1:

subiu $sp,$sp,8

sw $ra,0($sp)

sw $a0,4($sp)

blt $a0,$s2,sumrecurs1\_call

li $v0,0

j sumrecurs1\_done

sumrecurs1\_call:

addi $a0,$a0,1

jal sumrecurs1

lw $a0,4($sp)

sumrecurs1\_done:

sll $t2,$a0,2

add $t2,$s1,$t2

lw $t2,0($t2)

add $v0,$t2,$v0

lw $ra,0($sp)

lw $a0,4($sp)

addiu $sp,$sp,8

jr $ra

showsum:

li $v0,4

syscall

move $a0,$a1

li $v0,1

syscall

la $a0,msg\_nl

li $v0,4

syscall

jr $ra

**2)**

.data

array: .word 1 45 10 72 94 10 17 22 28 40

myarr: .asciiz "1 45 10 72 94 10 17 22 28 40\n"

out: .asciiz "Maximum element: "

size: .word 10

.text

main:

la $s1, array

lw $s0, size

add $t0, $zero, $s0

li $t5, 0

lw $t5, 0($s1)

la $a0, myarr

li $v0, 4

syscall

li $v0, 4

la $a0, out

syscall

jal maximum

blt $t2, $t5, fact1

sub $t5, $t5, $t5

add $t5, $0, $t2

add $a0, $0, $t5

li $v0, 1

syscall

li $v0, 10

syscall

fact1:

add $a0, $0, $t5

li $v0, 1

syscall

li $v0, 10

syscall

maximum:

addi $sp, $sp, -12

sw $ra, 8($sp)

sw $s1, 4($sp)

sw $t0, 0($sp)

bne $t0, 1, end

lw $t2, 0($s1)

addi $sp, $sp, 12

jr $ra

end:

addi $t0, $t0, -1

addi $s1, $s1, 4

jal maximum

lw $ra, 8($sp)

lw $s1, 4($sp)

lw $t0, 0($sp)

addi $sp, $sp, 12

lw $t4, 0($s1)

blt $t4, $t5, fact

sub $t5, $t5, $t5

add $t5, $zero, $t4

fact: jr $ra