Xavier Marti Llull Grup 52 EC LAB

Activitat 2.A: Operacions lògiques i desplaçaments

```
li $t0, 0x01
sllv $t0, $t0, $s0
addiu $t0, $t0, -1
xor $s1, $s1, $t0
```

Activitat 2.B: Sentències if-then-else

```
.data

result: .word 0
num: .byte '7'

.text
.globl main

main:
        la $t0, num
        lb $t0, 0($t0)
        la $t1, result

        li $t2, 'a'
        blt $t0, $t2, if
        li $t2, 'z'
        ble $t0, $t2, end

if:     li $t2, 'A'
        blt $t0, $t2, if2
        li $t2, 'Z'
        ble $t0, $t2, end

if2:    li $t2, '0'
        blt $t0, $t2, else

        li $t2, '9'
        bgt $t0, $t2, else

        addiu $t0, $t0, -48
        b end

else:   li $t0, -1

end:    sw $t0, 0($t1)
        jr $ra
```

Activitat 2.C: Calcular el caràcter més freqüent d'un string

```
moda:
        addiu $sp, $sp, -60
        sw $s0, 40($sp)
        sw $s1, 44($sp)
        sw $s2, 48($sp)
        sw $s3, 52 ($sp)
        sw $ra, 56($sp)

        li $t0, 0
        li $t1, 10
        move $t2, $sp
for:    beq $t0, $t1, fi
        sw $zero, 0($t2)
        addiu $t2, $t2, 4
        addiu $t0, $t0, 1
        b for

fi:     move $s0, $a0
        move $s1, $a1

        li $s2, 0
        li $s3, '0'

for2:   beq $s2, $s1, fi2
        move $a0, $sp
        addu $a1, $s0, $s2
        lb $a1, 0($a1)
        addiu $a1, $a1, -48
        addiu $a2, $s3, -48
        jal update
        addiu $s3, $v0, '0'
        addiu $s2, $s2, 1
        b for2

fi2:    move $v0, $s3

        lw $s0, 40($sp)
        lw $s1, 44($sp)
        lw $s2, 48($sp)
        lw $s3, 52($sp)
        lw $ra, 56($sp)
        addiu $sp, $sp, 60
        jr $ra

update:
        addiu $sp, $sp, -16
        sw $s0, 0($sp)
        sw $s1, 4($sp)
        sw $s2, 8($sp)
        sw $ra, 12($sp)

        move $s0, $a0
        move $s1, $a1
        move $s2, $a2

        jal nofares
        sll $t0, $s1, 2
        addu $t0, $s0, $t0
        lw $t1, 0($t0)
        addiu $t1, $t1, 1
        sw $t1, 0($t0)

        sll $t2, $s2, 2
        addu $t2, $s0, $t2
        lw $t2, 0($t2)

        ble $t1, $t2, else
        move $v0, $s1
        b fi3

else:   move $v0, $s2
fi3:    lw $s0, 0($sp)
        lw $s1, 4($sp)
        lw $s2, 8($sp)
        lw $ra, 12($sp)
        addiu $sp, $sp, 16
        jr $ra
```

Activitat 2.D: (Opcional) Depuració de codi erroni en assemblador.

lb $t0, 0($t0) ens sobra perquè carrega una adreça de memòria que no existeix.
move $a1, $s1 hauria de carregar $s0 per comptes de $s1 perquè *pfrasein és a $s0.
sb $v0, 0($s0) ha de carregar $s1 per comptes de $s0 *prfraseout és a $s1.