

Computer Organization and Architecture

Post-Lab Report

Lab 02



Group Members Name & Reg #:	<u>Muhammad Haris Irfan</u> (FA18-BCE-090)
Class	Computer Organization and Architecture CPE343(BCE-5B)
Instructor's Name	Dr. Adeel Israr

POST LAB

Question:

Write the Total Marks program with separate strings for each input by using loop which runs four times. So, there should only be two syscalls inside the loop.

Solution:

I am attaching my commented code below,

```
#Title : Lab2Postlab.                               Filename: Postlab Lab2.asm
#Author: Muhammad Haris Irfan.                       Date: 26-09-20
#Roll Number: FA18-BCE-090                           Description: Two syscalls in the loop
#Registers: $t1, $t2, $t3,$t4, $v0, $a0
##### Data Segment #####
.data
msg1: .asciiz "Enter marks out of 25 (Q/A): "
msg2: .asciiz "Enter the marks out of 10 (Sessional 1): "
msg3: .asciiz "Enter the marks out of 15 (Sessional 2): "
msg4: .asciiz "Enter the marks out of 50 (Terminal): "
msg5: .asciiz "Result : "

##### Code Segment #####
.text
main:

li $t1, 0 # temp var counter for loop

li $t2, 4 # exit condition
li $t4,0
#####loop#####
Loop:
    beq $t1,0, first
    beq $t1,1, second
    beq $t1,2, third
    beq $t1,3, fourth
first:
    la $a0,msg1 #load
    j here
second:
    la $a0,msg2 #load
    j here
third:
    la $a0,msg3 #load
    j here
fourth:
    la $a0,msg4 #load
    j here
```

```

here:
    li $v0,4    #output
    syscall

    li $v0,5      #read integer
    syscall
    move $t3, $v0
    add $t4, $t3, $t4    #adding total

    add $t1, $t1, 1 #increment counter

    bne $t2, $t1, Loop    #if t1 is not equal to t2 then goto loop

#####loop end#####

la $a0,msg5 #load
li $v0,4
syscall #output

li $v0,1 #integer output
move $a0,$t4
syscall

li $v0,10 #loads the service that exits
syscall

```

The result for this program is shown below,

E:\Documents\CodeBlocks\MIPS\Lab2Postlab.asm - MARS 4.4

File Edit Run Settings Tools Help

Run speed at max (no interaction)

Mars Messages Run I/O

```

Enter marks out of 25 (Q/A): 20
Enter the marks out of 10 (Sessional 1): 10
Enter the marks out of 15 (Sessional 2): 15
Enter the marks out of 50 (Terminal): 50
Result : 95
-- program is finished running --

```

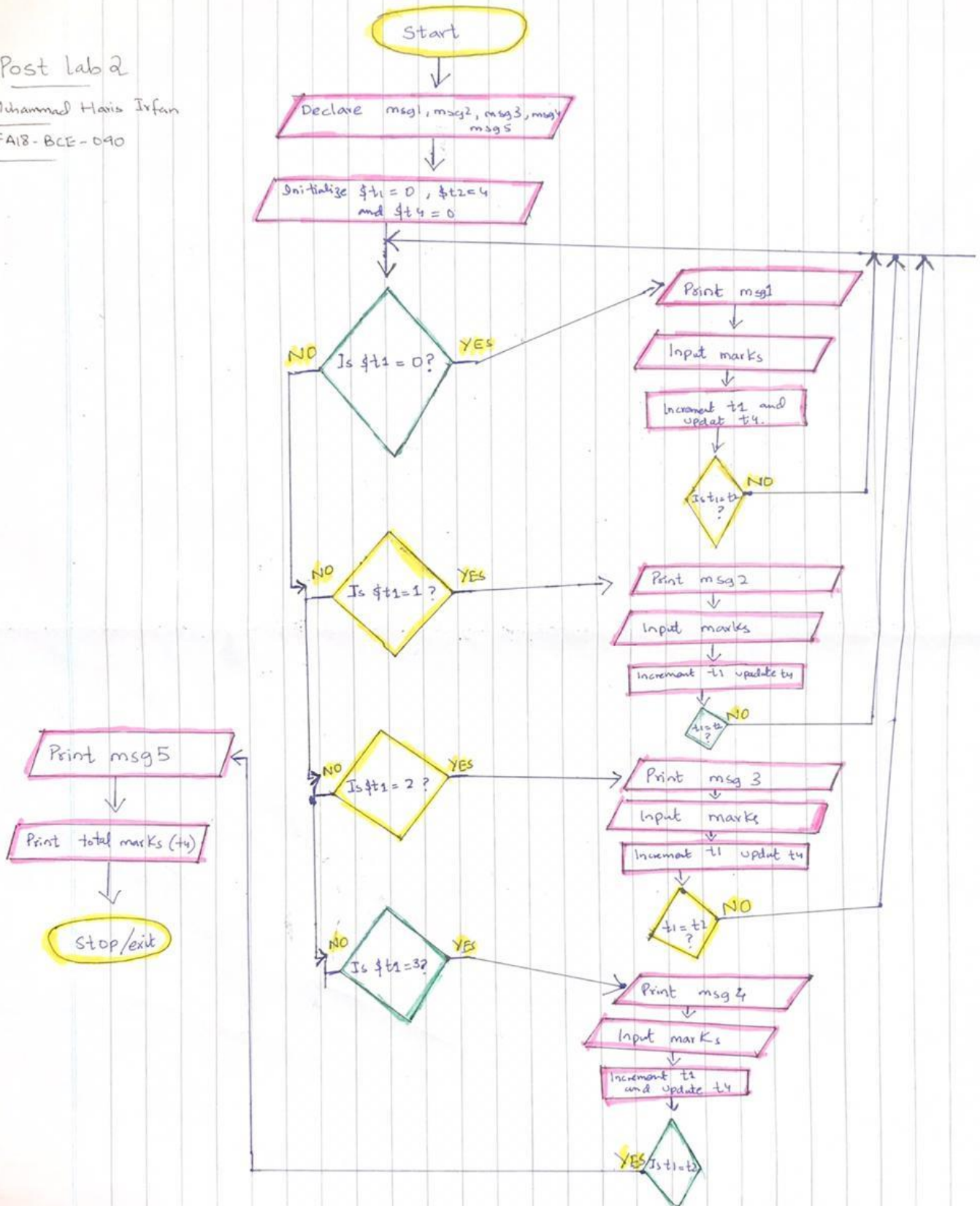
Clear

Registers		Coproc 1	Coproc 0
Name	Number	Value	
\$zero	0	0x00000000	
\$at	1	0x10010000	
\$v0	2	0x0000000a	
\$v1	3	0x00000000	
\$a0	4	0x0000005f	
\$a1	5	0x00000000	
\$a2	6	0x00000000	
\$a3	7	0x00000000	
\$t0	8	0x00000000	
\$t1	9	0x00000004	
\$t2	10	0x00000004	
\$t3	11	0x00000032	
\$t4	12	0x0000005f	
\$t5	13	0x00000000	
\$t6	14	0x00000000	
\$t7	15	0x00000000	
\$s0	16	0x00000000	
\$s1	17	0x00000000	
\$s2	18	0x00000000	
\$s3	19	0x00000000	
\$s4	20	0x00000000	
\$s5	21	0x00000000	
\$s6	22	0x00000000	
\$s7	23	0x00000000	
\$s8	24	0x00000000	
\$t9	25	0x00000000	
\$k0	26	0x00000000	
\$k1	27	0x00000000	
\$gp	28	0x10008000	
\$sp	29	0x7ffffffc	
\$fp	30	0x00000000	
\$ra	31	0x00000000	
pc		0x004000a0	
hi		0x00000000	
lo		0x00000000	

Flow chart of the task:

Post Lab 2

Muhammad Haris Irfan
FA18-BCE-090



Critical Analysis/ Conclusion:

In This lab, we learnt about printing Strings using Syscall, Conditional execution of Loops and If-Else Statements. We also implemented these commands in Different tasks. Moreover, we also made handwritten Flowcharts for each task, depicting the working of our code.

_____THE END_____
