# LAB # 5

## MIPS ASSEMBLY LANGUAGE ARITHMETIC

**OPERATIONS**

**OBJECTIVE**

Performing Arithmetic and String functions in MIPS.

**Program#1:**

**PRINTING NAME IN MIPS**

**# Objective: Printing name in MIPS # Input: Saving name.**

**# Output: Printing Name.**

**################### Data segment ###################**

**.data**

**prompt: .asciiz ”Ali\n”**

**################### Code segment ###################**

**.text**

**.globl main main:**

**Li $v0,4**

**La $a0,myMessage Syscall**

**Li $v0,10 syscall**

**Program#2:**

**ADDING NUMBERS**

**# Objective: Adding Numbers in MIPS # Input: Two numbers.**

**# Output: Printing Sum.**

**################### Data segment ###################**

**.data**

**A1: .word 10**

**A2: .word 10**

**################### Code segment ###################**

**.text**

**lw $t0,A1($zero) lw $t1,A2($zero) add $t2,$t0,$t1 li $v0,1**

**add $a0,$zero,$t2 syscall**

**Program#3:**

**Sum of Three Integers**

**# Objective: Computes the sum of three integers. # Input: Requests three numbers.**

**# Output: Outputs the sum.**

**################### Data segment ###################**

**.data**

**prompt: .asciiz "Please enter three numbers: \n" sum\_msg: .asciiz "The sum is: "**

**################### Code segment ###################**

**.text**

**.globl main main:**

**la $a0,prompt # display prompt string li $v0,4 syscall**

**li $v0,5 # read 1st integer into $t0 syscall move $t0,$v0**

**li $v0,5 # read 2nd integer into $t1 syscall move $t1,$v0**

**li $v0,5 # read 3rd integer into $t2 syscall move $t2,$v0**

**addu $t0,$t0,$t1 # accumulate the sum addu $t0,$t0,$t2 la $a0,sum\_msg**

**# write sum message li $v0,4 syscall**

**move $a0,$t0 # output sum li $v0,1**

**syscall**

**li $v0,10 syscall**

**# exit**

**LAB TASK**

**Task 1**: Write the same program with small variation i.e. this time the program will ask for 3 integers twice and displays the result for each addition separately;

Output will look like as follows:

Enter 3 integers for 1st addition 2

2

2

Enter 3 integers for 2nd addition 3

3

3

The sum of 1st addition is 6 The sum of 2nd addition is 9

**Task 2:** Write an assembly program that Multiply two number within the range of 10.

**Task 3:** Write an assembly program that Divide two number within the range of 10.

Task 4: Write an assembly program that Read and Print Hello world.

Task 5: Write an assembly program that add two number within the range of 10. Task 6: Write an assembly program that subtract two number within the range of 10.