**CCCN 221 – Computer Architecture**

**LAB#3-4 Task3**

**Task Date: As per BB Submission Date: As per BB**

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**Note: Student must attach the code and the screenshot of the Final output using MIPS or Qtsmpm.**

**Marks:**

|  |  |  |
| --- | --- | --- |
| Exercises | 1 | Total |
| Allocated | 4 | 4 |
| Obtained |  |  |
| **CLO, PLO, SO** | 3.1, V3, S05 |  |

**Q1: Lab Task**

Implement the following assembly program in Mars MIPS that performs the following tasks in sequence:

* Print an introduction that includes: **your name** and a short description of the program.
* Ask the user to enter two integers and save these in two registers.
* Perform **addition, subtraction, multiplication**, and **division** (integer quotient) on two integers.
* Display the results of **addition, subtraction, multiplication, and division**.
* Print “**Thank You!”** in the end.

**Output Sample**

|  |
| --- |
| Ali – This program will perform simple arithmetic on two integers inputted by user.  Enter first Number: 9  Enter second number: 3  Sum = 12  Difference = 6 (OR)  Product = 27 (OR)  Quotient = 3 (OR)  Thank You! |

Graphical user interface, text

Description automatically generated with medium confidence

Graphical user interface

Description automatically generated

Graphical user interface, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

**.data**

**Mymessage: .asciiz "Tom - This program will perform simple arithmetic on two integers inputted by user.\n"**

**Num1: .asciiz "\nEnter first number: "**

**Num2: .asciiz "\nEnter second number: "**

**Sum: .asciiz "\nSum = "**

**Diff: .asciiz "\nDifference = "**

**Product: .asciiz "\nProduct = "**

**Quotient: .asciiz "\nQuotient = "**

**Thanks: .asciiz "\n\nThank You!"**

**.text**

**#Welcoming message**

**li $v0, 4**

**la $a0, Mymessage**

**syscall**

**#First number prompt**

**li $v0,4**

**la $a0, Num1**

**syscall**

**#input for the first number**

**li $v0, 5**

**syscall**

**move $s0, $v0**

**#Second number prompt**

**li $v0,4**

**la $a0, Num2**

**syscall**

**#input for the second number**

**li $v0, 5**

**syscall**

**move $s1, $v0**

**#Sum message**

**li $v0,4**

**la $a0, Sum**

**syscall**

**#Sum calculation**

**li $v0, 1**

**add $a0, $s0, $s1**

**syscall**

**#Difference message**

**li $v0, 4**

**la $a0, Diff**

**syscall**

**#Difference calculation**

**li $v0, 1**

**sub $a0, $s0, $s1**

**syscall**

**#Product message**

**li $v0, 4**

**la $a0, Product**

**syscall**

**#Product calculation**

**li $v0, 1**

**mul $a0, $s0, $s1**

**syscall**

**#Quotient message**

**li $v0, 4**

**la $a0, Quotient**

**syscall**

**#Quotient calculation**

**li $v0, 1**

**div $a0, $s0, $s1**

**syscall**

**#Welcoming message**

**li $v0, 4**

**la $a0, Thanks**

**syscall**