

Lab Task-1

CCCN 221 – Computer Architecture

Lab Instructor: Abdullah Abbasi

Submission Time: **As per BB**

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Instructions:

1. This is a closed book and closed notes.
2. Copying with colleagues will be marked 0.
3. For answer used this **text color**

Marks:

Exercises	1	1	Total
Allocated	1	1	2
Obtained			
CLO, PLO, SO	3.1, V3, S05	3.1, V3, S05	

Note: Student must attach the screenshot of the Final output.

Assemble and run the code using MIPS/QtSPIM only.

1. Identify and correct the errors in the following code and attach the Final output. [1 Mark]

A. Printing an Integer

```
.data
    age: .int 12 // age: .word 12

.text
    li $v0, 1
    lw $a0, age
    syscall
```

B. Printing a String

```
.data
    myMessage1: .asciiz "Best of Luck\n"

.text
    li $v0, 1 // li $v0, 4
    la $a0, myMessage1
    syscall
```

2. Write a MIPS program to add two floating point numbers, print the result and attach the Final output. [1 Mark]

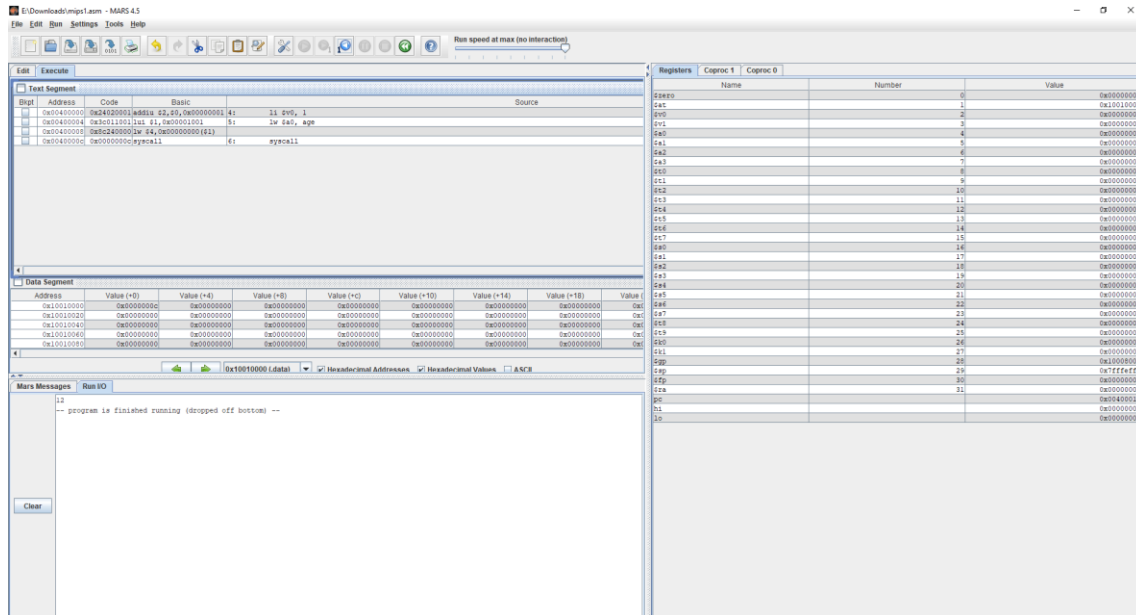
```
.data
    Num1: double 3.102
    Num2: double 2.0

.text
    (add.d $f12, $f2, $f0)
```

A)

```
.data
age: .word 12

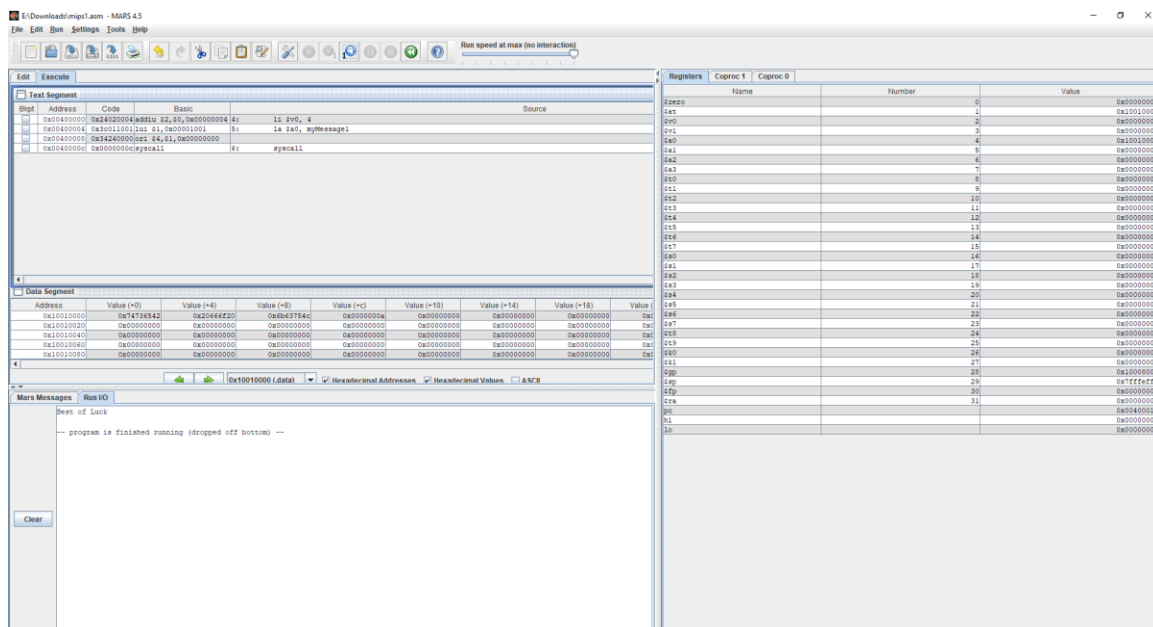
.text
li $v0, 1
lw $a0, age
syscall
```



B)

```
.data
myMessage1: .asciiz "Best of Luck\n"

.text
li $v0, 4
la $a0, myMessage1
syscall
```



Question 2 Answer:

.data

Num1: .double 3.102

Num2: .double 2.0

.text

ldc1 \$f2, Num1

ldc1 \$f0, Num2

li \$v0, 3

add.d \$f12, \$f2, \$f0

syscall

The screenshot shows the MARS MIPS simulator interface. The main window displays the assembly code for the program. The Text Segment window shows the following instructions:

```
ldc1 $f2, Num1
ldc1 $f0, Num2
li $v0, 3
add.d $f12, $f2, $f0
syscall
```

The Data Segment window shows the memory layout, with the values of the variables Num1 and Num2 stored in memory.

The Registers window on the right shows the values of the floating-point registers. The register \$f12 is highlighted in green, indicating the result of the addition. The value of \$f12 is 0x40144872, which is the hexadecimal representation of the double-precision floating-point number 5.102.

The Registers window also shows the values of the integer registers, which are all zero.

The MARS Messages window at the bottom shows the output of the program, which is 5.102.