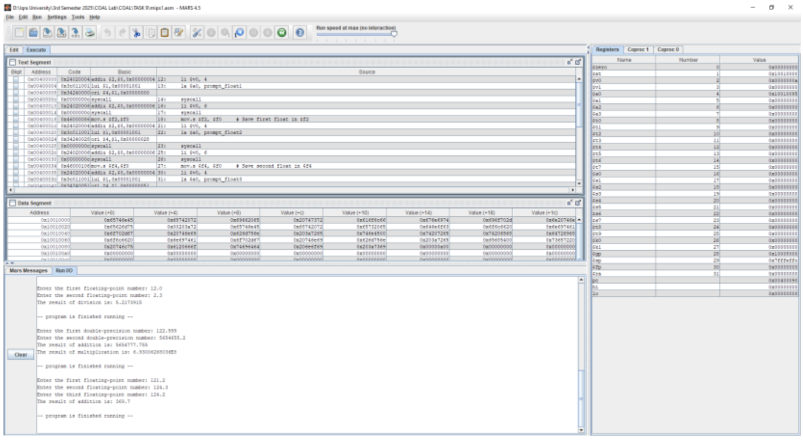
LAB 9

TASK #01:

```
.data
prompt_float1: .asciiz "Enter the first floating-point number: "
prompt_float2: .asciiz "Enter the second floating-point number: "
prompt_float3: .asciiz "Enter the third floating-point number: "
result_add:    .asciiz "The result of addition is: "
newline:       .asciiz "\n"

.text
.globl main
main:
   # Prompt and read first float
   li $v0, 4
   la $a0, prompt_float1
   syscall

   li $v0, 6
   syscall
   mov.s $f2, $f0     # Save first float in $f2

   # Prompt and read second float
   li $v0, 4
   la $a0, prompt_float2
   syscall

   li $v0, 6
   syscall
   mov.s $f4, $f0     # Save second float in $f4

   # Prompt and read third float
   li $v0, 4
   la $a0, prompt_float3
   syscall

   li $v0, 6
   syscall
   mov.s $f6, $f0     # Save third float in $f6

   # Add three floats: $f2 + $f4 + $f6
   add.s $f8, $f2, $f4
   add.s $f8, $f8, $f6     # f8 now holds the total

   # Print result label
   li $v0, 4
```



D:\Iqra University\3rd Semester 2025\COAL Lab\COAL\TASK 9\mips1.asm - MARS 4.5
File Edit Run Settings Tools Help
Run speed at max (no interaction)
Edit Execute
Text Segment
Data Segment
Registers Coproc 1 Coproc 0
Mars Messages Run I/O
Clear

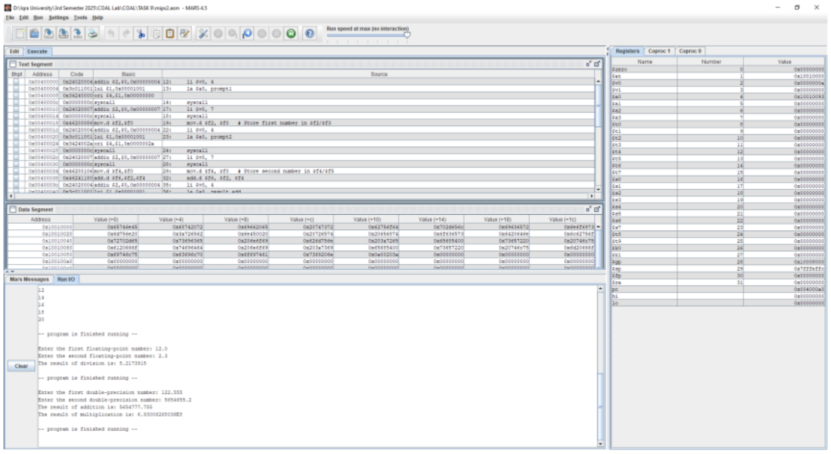
```
Enter the first floating-point number: 12.0
Enter the second floating-point number: 2.3
The result of division is: 5.2173915

-- program is finished running --

Enter the first double-precision number: 122.555
Enter the second double-precision number: 5654655.2
The result of addition is: 5654777.755
The result of multiplication is: 6.93006268036E8

-- program is finished running --

Enter the first floating-point number: 121.2
Enter the second floating-point number: 124.3
Enter the third floating-point number: 124.2
The result of addition is: 369.7

-- program is finished running --
```

Date : 18/4/2025

```
    la $a0, result_add
    syscall

    # Print the result
    mov.s $f12, $f8
    li $v0, 2
    syscall

    # Newline
    li $v0, 4
    la $a0, newline
    syscall

    # Exit
    li $v0, 10
    syscall
```

TASK #02:

```
.data
prompt1:     .asciiz "Enter the first double-precision number: "
prompt2:     .asciiz "Enter the second double-precision number: "
result_add:   .asciiz "The result of addition is: "
result_mult:  .asciiz "The result of multiplication is: "
newline:     .asciiz "\n"
```



D:\Iqra University\3rd Semester 2025\COAL Lab\COAL\TASK 9\mips2.asm - MARS 4.5

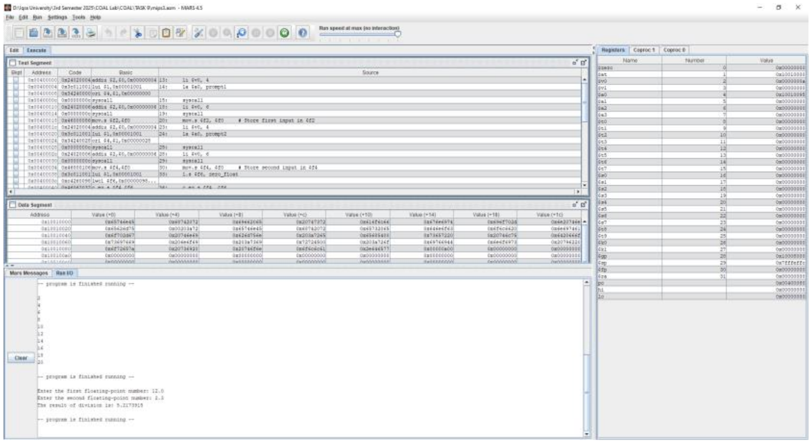
```
12
14
16
18
20

-- program is finished running --

Enter the first floating-point number: 12.0
Enter the second floating-point number: 2.3
The result of division is: 5.2173915

-- program is finished running --

Enter the first double-precision number: 122.555
Enter the second double-precision number: 5654655.2
The result of addition is: 5654777.755
The result of multiplication is: 6.93006268036E8

-- program is finished running --
```

```
.text
.globl main
main:
    # Prompt for first number
    li $v0, 4
    la $a0, prompt1
    syscall

    # Read first double (64-bit float)
    li $v0, 7
    syscall
    mov.d $f2, $f0   # Store first number in $f2/$f3

    # Prompt for second number
    li $v0, 4
    la $a0, prompt2
    syscall

    # Read second double
```

```
li $v0, 7
syscall
mov.d $f4, $f0   # Store second number in $f4/$f5

# Add the two double numbers
add.d $f6, $f2, $f4

# Print addition result message
li $v0, 4
la $a0, result_add
syscall

# Print result of addition
mov.d $f12, $f6
li $v0, 3          # 3 = print double
syscall

# Newline
li $v0, 4
la $a0, newline
syscall

# Multiply the two double numbers
mul.d $f8, $f2, $f4

# Print multiplication result  message
li $v0, 4
la $a0, result_mult
syscall

# Print result of multiplication
mov.d $f12, $f8
li $v0, 3          # 3 = print double
syscall

# Newline
li $v0, 4
la $a0, newline
syscall

# Exit program
li $v0, 10
syscall
```

TASK #03:

```
.data
prompt1:     .asciiz "Enter the first floating-point number: "
prompt2:     .asciiz "Enter the second floating-point number: "
result_text: .asciiz "The result of division is: "
error_text:  .asciiz "Error: Division by zero is not allowed."
newline:     .asciiz "\n"
zero_float:  .float 0.0

.text
.globl main
main:
   # Prompt for first number
   li $v0, 4
   la $a0, prompt1
   syscall

   # Read first float
   li $v0, 6
   syscall
   mov.s $f2, $f0     # Store first input in $f2

   # Prompt for second number
   li $v0, 4
   la $a0, prompt2
   syscall

   # Read second float
   li $v0, 6
   syscall
   mov.s $f4, $f0     # Store second input in $f4

   # Load 0.0 into $f6 for comparison
   l.s $f6, zero_float

   # Compare: if $f4 == 0.0, branch
   c.eq.s $f4, $f6
   bc1t division_by_zero

   # Perform division: $f2 / $f4
   div.s $f8, $f2, $f4

   # Print result message
   li $v0, 4
```



```
-- program is finished running --

2
4
6
8
10
12
14
16
18
20

-- program is finished running --

Enter the first floating-point number: 12.0
Enter the second floating-point number: 2.3
The result of division is: 5.2173915

-- program is finished running --
```

Date : 18/4/2025

```
   la $a0, result_text
   syscall

   # Print result value
   mov.s $f12, $f8
   li $v0, 2
   syscall

   # Newline
   li $v0, 4
   la $a0, newline
   syscall

   # Exit program
   li $v0, 10
   syscall

division_by_zero:
   # Print error message
   li $v0, 4
   la $a0, error_text
   syscall

   # Newline
   li $v0, 4
   la $a0, newline
   syscall

   # Exit program
   li $v0, 10
   syscall
```