

Week 2  
31.01.2023  
Exercises

Write assembly language programs for the MIPS architecture to do the following:

1. add two numbers stored in registers
2. add four numbers stored in registers

Spot:

1. Write an assembly language program for the MIPS architecture to decrement a number by 10.

## 1) Add two numbers stored in registers

Code

`.data`

`prompt: .asciiz "Enter value: "`

`result: .asciiz "The result is:"`

`.text`

`#Read the first integer`

`li $v0, 4`

`la $a0, prompt`

`syscall`

`li $v0, 5`

`syscall`

`move $s2, $v0`

#Read the second integer

li \$v0, 4

la \$a0, prompt

syscall

li \$v0, 5

syscall

move \$s1, \$v0

#Calculate the sum

add \$s3, \$s2, \$s1

#Display output

la \$a0, result

li \$v0, 4

syscall

move \$a0, \$s3

li \$v0, 1

syscall

#Terminate

li \$v0, 10

syscall

## 2) Add four numbers stored in registers

Code

.data

prompt: .asciiz "Enter value: "

result: .asciiz "The result is:"

.text

#Read the first integer

li \$v0, 4

la \$a0, prompt

syscall

li \$v0, 5

syscall

move \$s1, \$v0

#Read the second integer

li \$v0, 4

la \$a0, prompt

```
syscall li  
$v0, 5  
syscall  
move $s2, $v0
```

```
#Read the third integer  
li $v0, 4  
la $a0, prompt  
syscall  
li $v0, 5  
syscall  
move $s3, $v0
```

```
#Read the fourth integer  
li $v0, 4  
la $a0, prompt  
syscall  
li $v0, 5  
syscall  
move $s4, $v0
```

#Calculations

add \$t0, \$s1, \$s2

add \$t1, \$s3, \$s4

add \$s0, \$t0, \$t1

#Display output

la \$a0, result

li \$v0, 4

syscall

move \$a0, \$s0

li \$v0, 1

syscall

#Terminate

li \$v0, 10

syscall