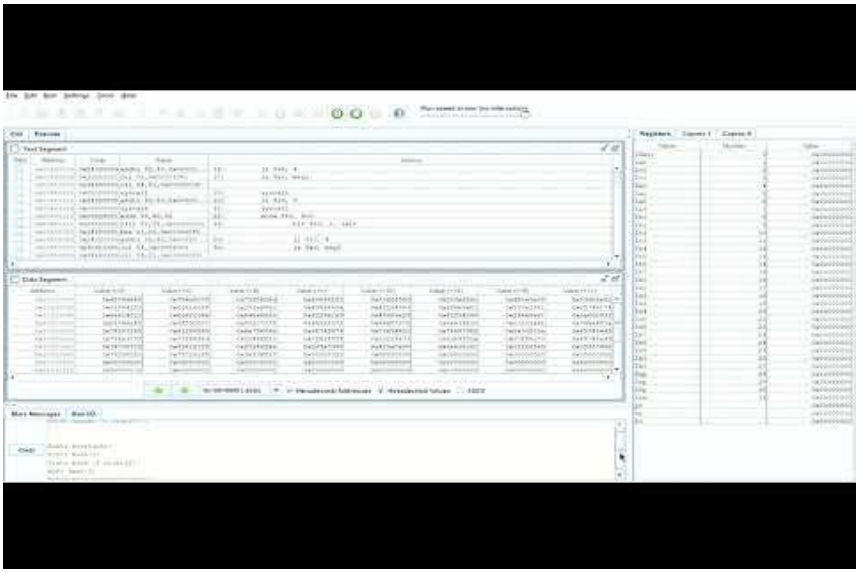
Main Question

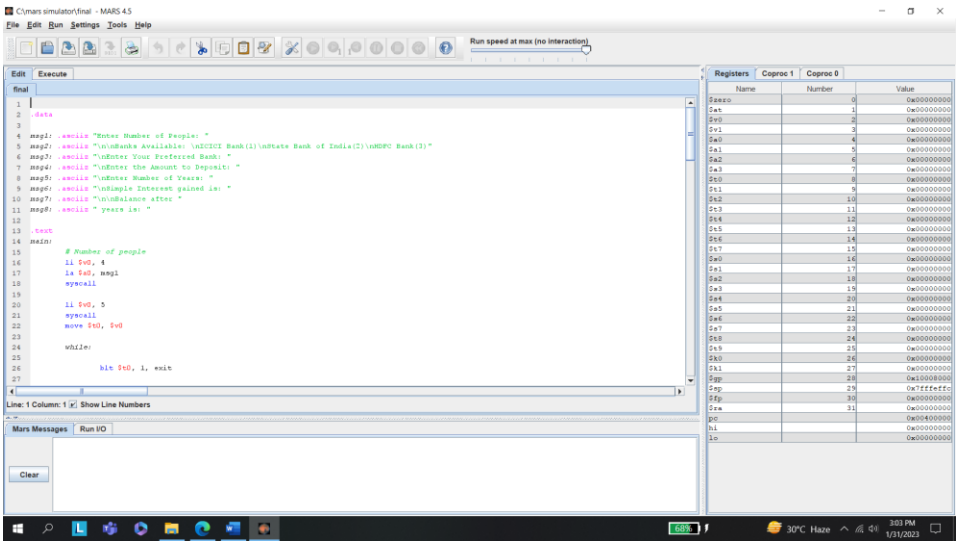
This Program is designed to calculate the **Simple Interest** and display the **Balance** when an **Amount** is deposited in a bank for a certain **Number of years**. The user can **choose** the **company of the bank** he/she wishes to deposit the money in and can also perform the same for **multiple people**.

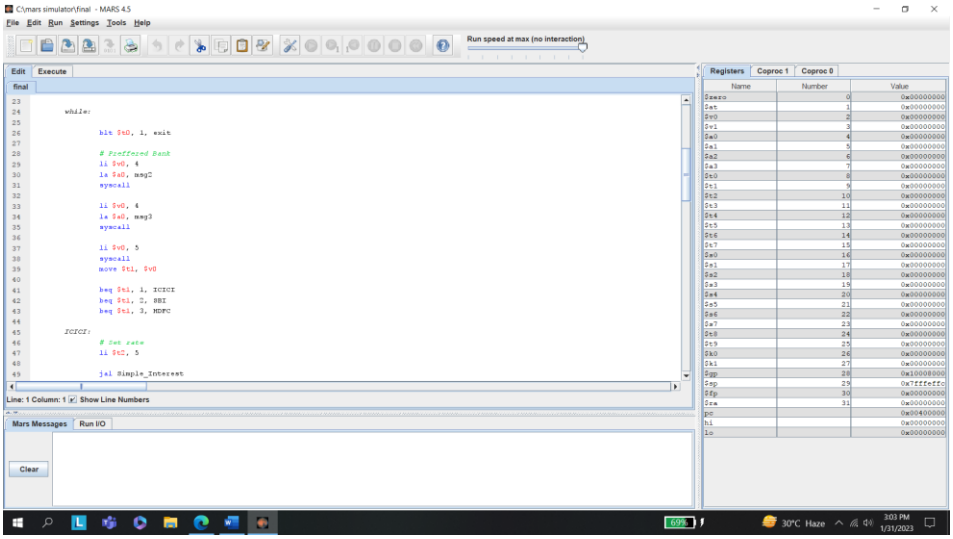
This Program is written in MIPS Assembly Language and executed with the help of MARS Simulation Software.

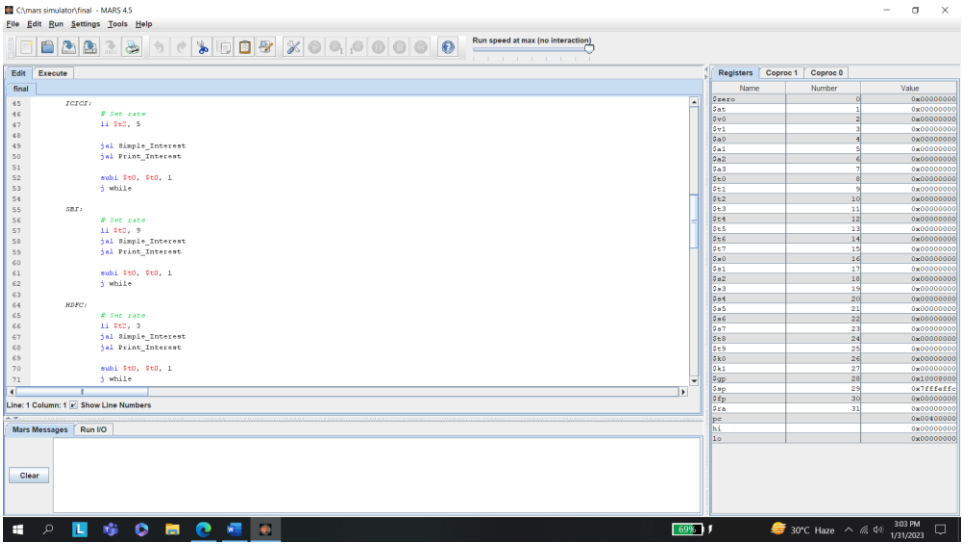
Execution Embed (yt)

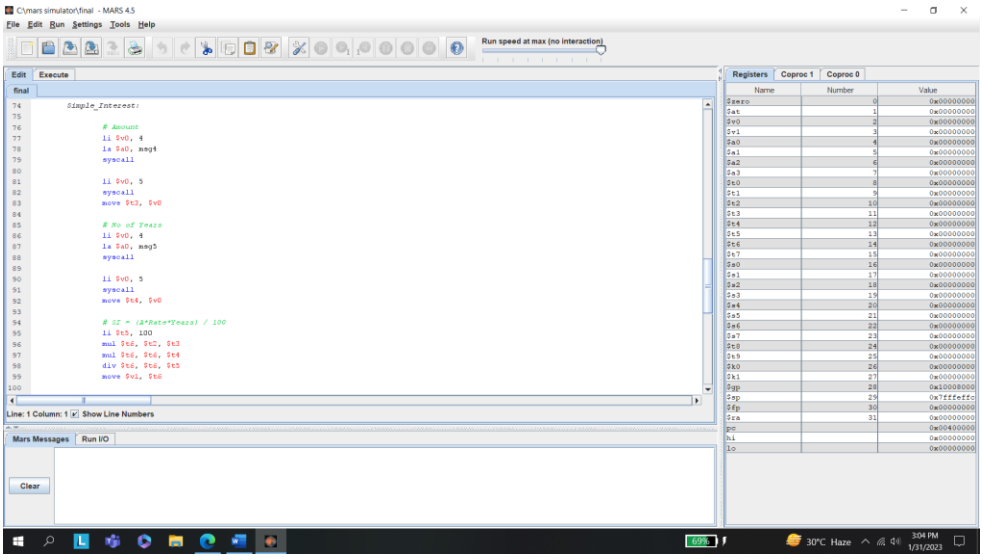


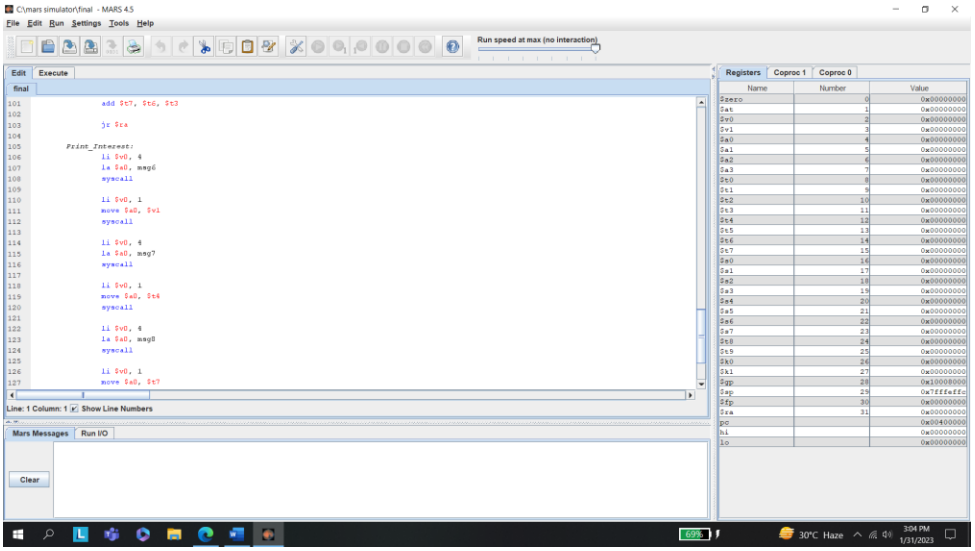
Code Snap Shots

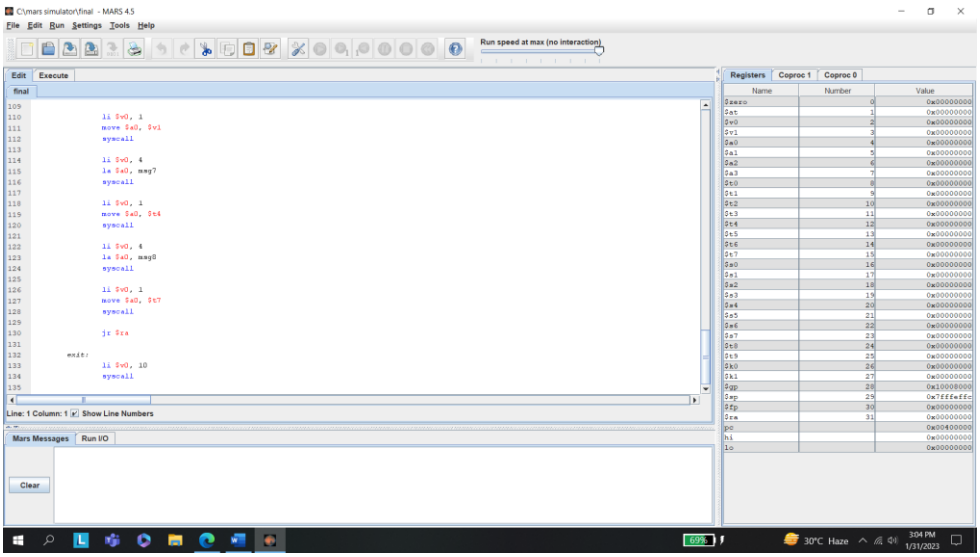



C:\mars simulator\final - MARS 4.5
File Edit Run Settings Tools Help
Run speed at max (no interaction)
Edit Execute
final
while:
blt $t0, 1, exit
Prefixed Bank
li $v0, 4
la $a0, msg2
syscall
li $v0, 4
la $a0, msg3
syscall
li $v0, 5
syscall
move $t1, $v0
beq $t1, 1, ICICI
beq $t1, 2, SBI
beq $t1, 3, HDFC
ICICI:
Set rate
li $t2, 5
jal Simple_Interest
Line: 1 Column: 1 Show Line Numbers
Mars Messages Run I/O
Clear
Registers Coproc 1 Coproc 0
Name Number Value
$zero 0 0x00000000
$at 1 0x00000000
$v0 2 0x00000000
$v1 3 0x00000000
$a0 4 0x00000000
$a1 5 0x00000000
$a2 6 0x00000000
$a3 7 0x00000000
$t0 8 0x00000000
$t1 9 0x00000000
$t2 10 0x00000000
$t3 11 0x00000000
$t4 12 0x00000000
$t5 13 0x00000000
$t6 14 0x00000000
$t7 15 0x00000000
$s0 16 0x00000000
$s1 17 0x00000000
$s2 18 0x00000000
$s3 19 0x00000000
$s4 20 0x00000000
$s5 21 0x00000000
$s6 22 0x00000000
$s7 23 0x00000000
$t8 24 0x00000000
$t9 25 0x00000000
$k0 26 0x00000000
$k1 27 0x00000000
$gp 28 0x10008000
$sp 29 0x7fffeffc
$fp 30 0x00000000
$ra 31 0x00000000
pc 0x00400000
hi 0x00000000
lo 0x00000000
69%
30°C Haze
3:03 PM
1/31/2023

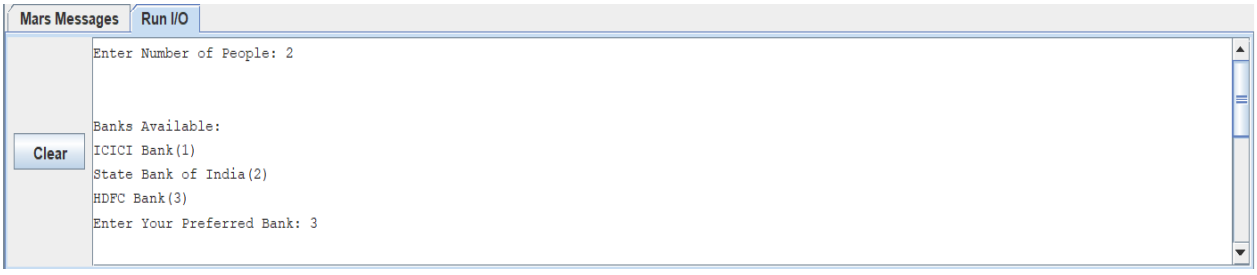

C:\mars simulator\final - MARS 4.5
File Edit Run Settings Tools Help
Run speed at max (no interaction)
Edit Execute
final
ICICI:
Set rate
li $t2, 5
jal Simple_Interest
jal Print_Interest
subi $t0, $t0, 1
j while
SBI:
Set rate
li $t2, 9
jal Simple_Interest
jal Print_Interest
subi $t0, $t0, 1
j while
HDFC:
Set rate
li $t2, 3
jal Simple_Interest
jal Print_Interest
subi $t0, $t0, 1
j while
Line: 1 Column: 1 Show Line Numbers
Mars Messages Run I/O
Clear
Registers Coproc 1 Coproc 0
Name Number Value
$zero 0 0x00000000
$at 1 0x00000000
$v0 2 0x00000000
$v1 3 0x00000000
$a0 4 0x00000000
$a1 5 0x00000000
$a2 6 0x00000000
$a3 7 0x00000000
$t0 8 0x00000000
$t1 9 0x00000000
$t2 10 0x00000000
$t3 11 0x00000000
$t4 12 0x00000000
$t5 13 0x00000000
$t6 14 0x00000000
$t7 15 0x00000000
$s0 16 0x00000000
$s1 17 0x00000000
$s2 18 0x00000000
$s3 19 0x00000000
$s4 20 0x00000000
$s5 21 0x00000000
$s6 22 0x00000000
$s7 23 0x00000000
$t8 24 0x00000000
$t9 25 0x00000000
$k0 26 0x00000000
$k1 27 0x00000000
$gp 28 0x10008000
$sp 29 0x7fffeffc
$fp 30 0x00000000
$ra 31 0x00000000
pc 0x00400000
hi 0x00000000
lo 0x00000000
69%
30°C Haze
3:03 PM
1/31/2023

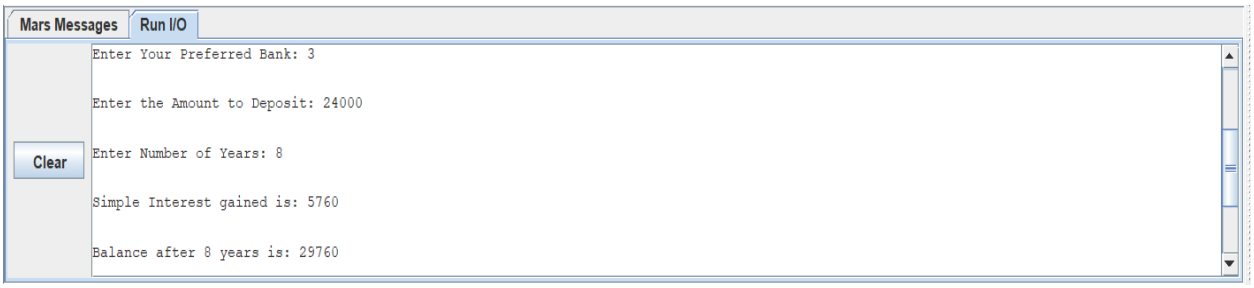

C:\mars simulator\final - MARS 4.5
File Edit Run Settings Tools Help
Run speed at max (no interaction)
Edit Execute
final
Simple_Interest:
Amount
li $v0, 4
la $a0, msg4
syscall
li $v0, 5
syscall
move $t3, $v0
# No of Years
li $v0, 4
la $a0, msg5
syscall
li $v0, 5
syscall
move $t4, $v0
# SI = (A*Rate*Years) / 100
li $t5, 100
mul $t6, $t2, $t3
mul $t6, $t6, $t4
div $t6, $t6, $t5
move $v1, $t6
Line: 1 Column: 1 Show Line Numbers
Mars Messages Run I/O
Clear
Registers Coproc 1 Coproc 0
Name Number Value
$zero 0 0x00000000
$at 1 0x00000000
$v0 2 0x00000000
$v1 3 0x00000000
$a0 4 0x00000000
$a1 5 0x00000000
$a2 6 0x00000000
$a3 7 0x00000000
$t0 8 0x00000000
$t1 9 0x00000000
$t2 10 0x00000000
$t3 11 0x00000000
$t4 12 0x00000000
$t5 13 0x00000000
$t6 14 0x00000000
$t7 15 0x00000000
$s0 16 0x00000000
$s1 17 0x00000000
$s2 18 0x00000000
$s3 19 0x00000000
$s4 20 0x00000000
$s5 21 0x00000000
$s6 22 0x00000000
$s7 23 0x00000000
$t8 24 0x00000000
$t9 25 0x00000000
$k0 26 0x00000000
$k1 27 0x00000000
$gp 28 0x10008000
$sp 29 0x7fffeffc
$fp 30 0x00000000
$ra 31 0x00000000
pc 0x00400000
hi 0x00000000
lo 0x00000000
69%
30°C Haze
3:04 PM
1/31/2023

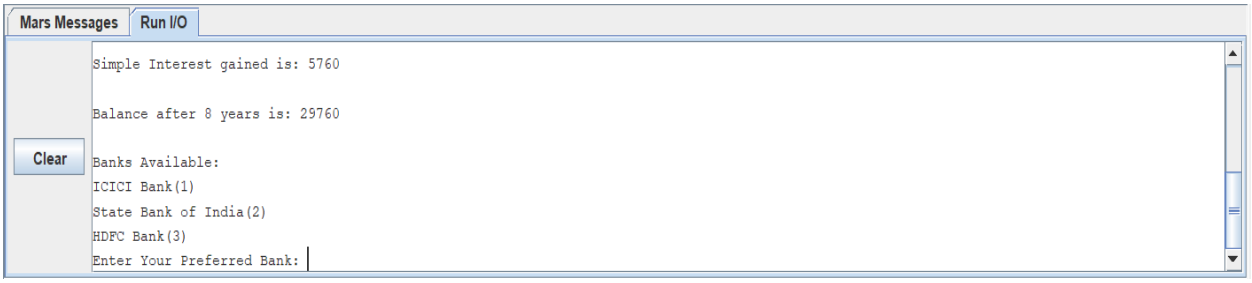


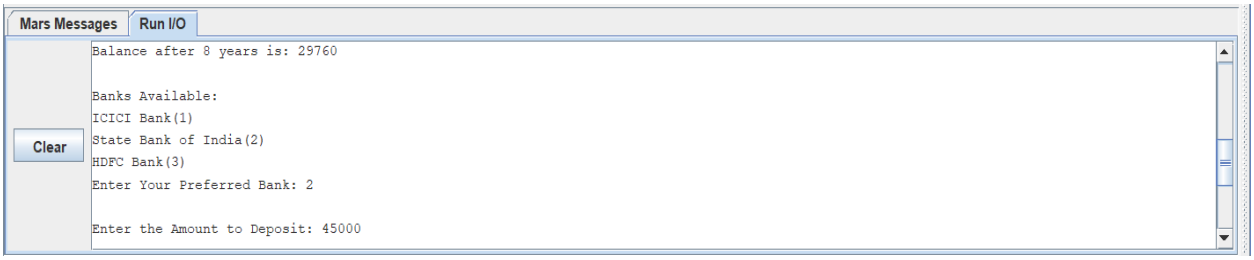


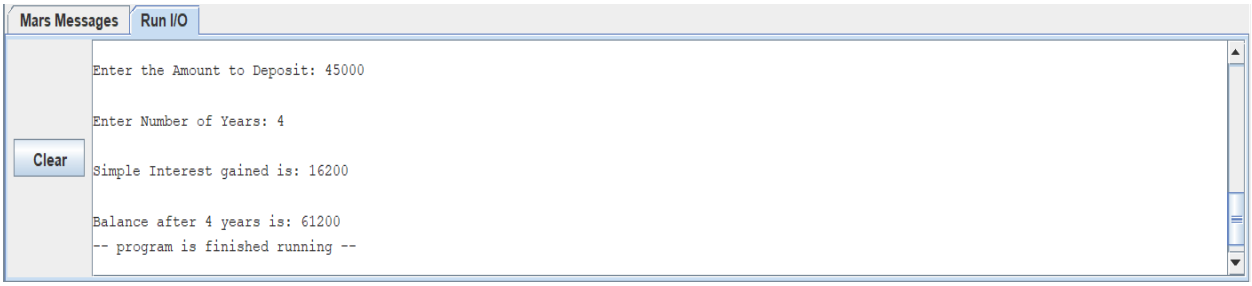
Output Snap Shots











Source Code (cs)

```
.data

msg1: .asciiz "Enter Number of People: "
msg2: .asciiz "\n\nBanks Available: \nICICI Bank(1)\nState Bank of India(2)\nHDFC
Bank(3)"
msg3: .asciiz "\nEnter Your Preferred Bank: "
msg4: .asciiz "\nEnter the Amount to Deposit: "
msg5: .asciiz "\nEnter Number of Years: "
```

```
msg6: .asciiz "\nSimple Interest gained is: "
msg7: .asciiz "\n\nBalance after "
msg8: .asciiz " years is: "

.text
main:
    # Number of people
    li $v0, 4
    la $a0, msg1
    syscall

    li $v0, 5
    syscall
    move $t0, $v0

    while:

        blt $t0, 1, exit

        # Preffered Bank
        li $v0, 4
        la $a0, msg2
        syscall

        li $v0, 4
        la $a0, msg3
        syscall

        li $v0, 5
        syscall
        move $t1, $v0

        beq $t1, 1, ICICI
        beq $t1, 2, SBI
        beq $t1, 3, HDFC

    ICICI:
        # Set rate
        li $t2, 5

        jal Simple_Interest
        jal Print_Interest

        subi $t0, $t0, 1
        j while
```

```
SBI:
    # Set rate
    li $t2, 9
    jal Simple_Interest
    jal Print_Interest

    subi $t0, $t0, 1
    j while

HDFC:
    # Set rate
    li $t2, 3
    jal Simple_Interest
    jal Print_Interest

    subi $t0, $t0, 1
    j while


Simple_Interest:

    # Amount
    li $v0, 4
    la $a0, msg4
    syscall

    li $v0, 5
    syscall
    move $t3, $v0

    # No of Years
    li $v0, 4
    la $a0, msg5
    syscall

    li $v0, 5
    syscall
    move $t4, $v0

    # SI = (A*Rate*Years) / 100
    li $t5, 100
    mul $t6, $t2, $t3
    mul $t6, $t6, $t4
    div $t6, $t6, $t5
```

```
        move $v1, $t6

        add $t7, $t6, $t3
        jr $ra

    Print_Interest:
        li $v0, 4
        la $a0, msg6
        syscall

        li $v0, 1
        move $a0, $v1
        syscall

        li $v0, 4
        la $a0, msg7
        syscall

        li $v0, 1
        move $a0, $t4
        syscall

        li $v0, 4
        la $a0, msg8
        syscall

        li $v0, 1
        move $a0, $t7
        syscall
        jr $ra

    exit:
        li $v0, 10
        syscall
```

References

- https://courses.missouristate.edu/kenvollmar/mars/help/syscallhelp.html
- https://www.youtube.com/playlist?list=PL6AD3A7DB35D14937
- https://www.youtube.com/playlist?list=PL5b07qlmA3P6zUdDf-o97ddfpvPFuNa5A