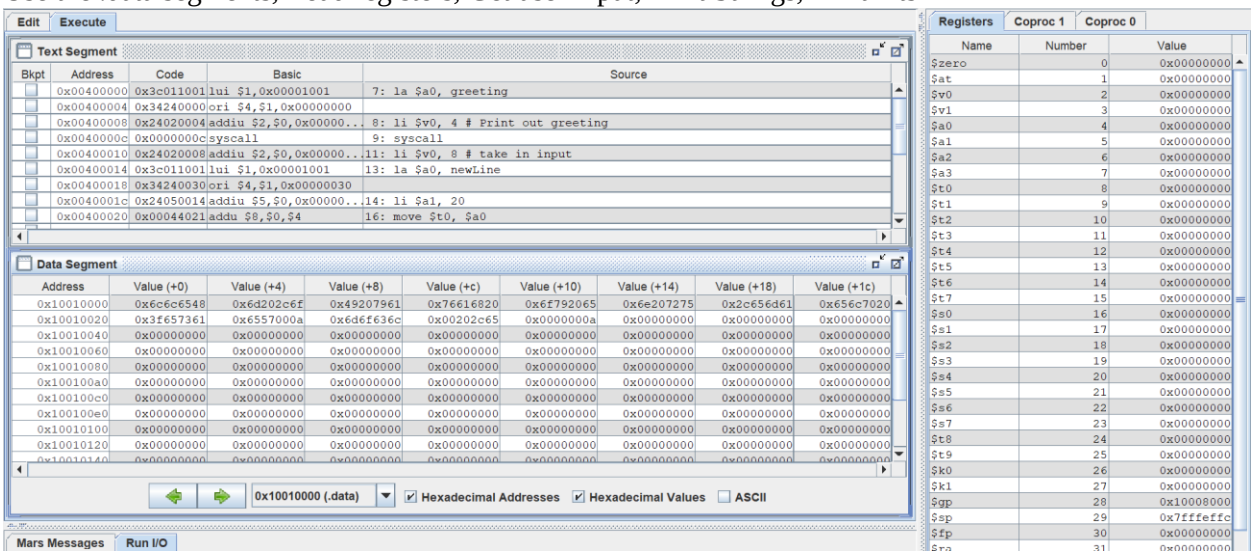
Project 1

Program 1:

1. The user will input a string giving their name followed by the enter key and the program will output “Welcome, name”
2. Print out the greeting string, and then store the user input into the $a0 register, then output that, followed by the end program string
3.

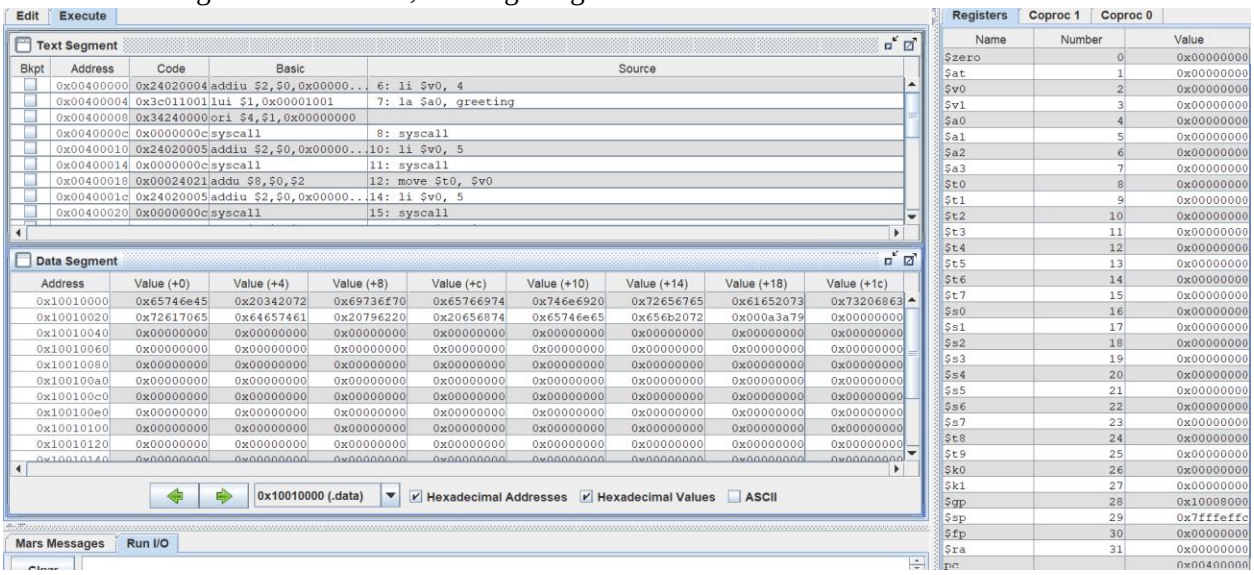
Registers	Purpose & Labels
$v0	Call a print string
$a0	Argument of syscall to print string
$v0	Call a user input as int
$a0	Argument of syscall to print int

4. Use the .data segments, Load registers, Get user input, Print Strings, Print ints
5. 

Program 2:

1. The user will enter 4 positive integers separated by the enter key, and the program will output the function f = (a+b) – (c+d) + (b+3)
2. Store the user inputs into the registers $t0, $t1, $t2, $t3, and perform the operations on each register and store final value in $t0, then output the string
3.

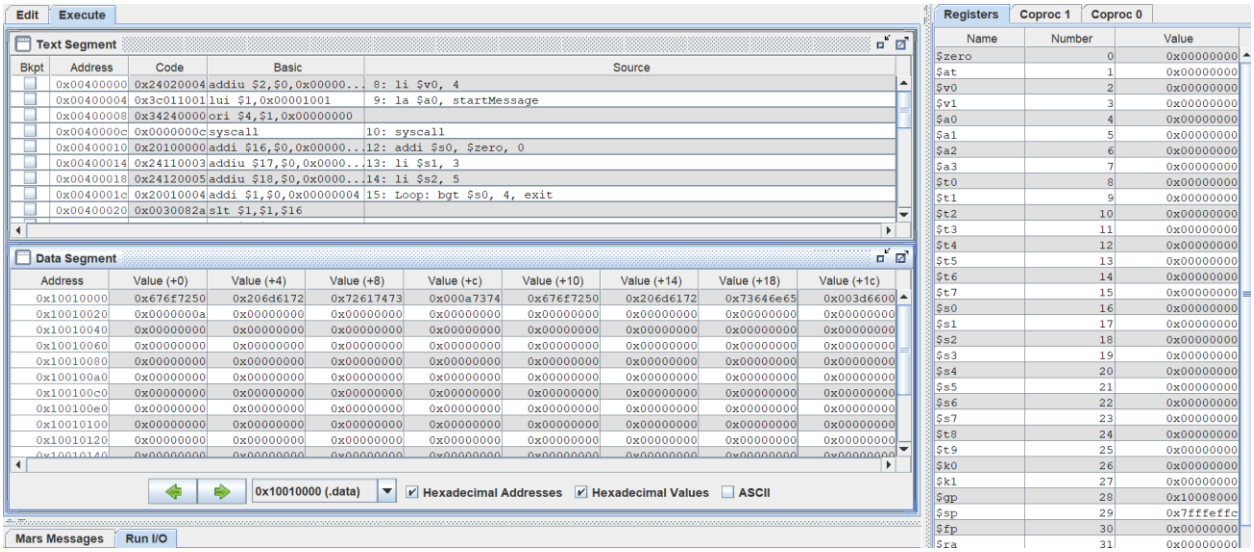
Registers	Column2
$v0	Print string
$a0	Set the output as the greeting message
$v0	Print int
$t1	Store the first int
$t2	Store the second int
$t3	Store the third int
$t4	Store the fourth int
$t0	Store the first operation
$t1	Store the second operation
$t2	Store the third operation
$t0	Store the fourth and fifth operations and output

4. Load Registers, Perform subtraction on two registers, Perform addition on two registers, Move data from one register into another, Printing integers
5. 

Program 3:

1. Make a for loop that performs an operation on 3 numbers and outputs the result each time the loop runs
2. Store the value for i in $s0, store the value for j which is 3 in $s1, store the value for k in $s2. In the loop, add i and j, and then subtract k to get f. Print out “f=” then print f and a newline character.
3.

Registers	Purpose & Labels
$v0	Print string, and later int
$a0	Argument of syscall to print string and later int
$s0	Store the i value for the Loop
$s1	Store 3 for the value of j
$s2	Store 5 for the value of k
$s3	Store i+j, then store that minus k

4. Load registers, Create a loop, Exit loop, Perform math on registers, Jump Loops, Print out strings and ints
5. 

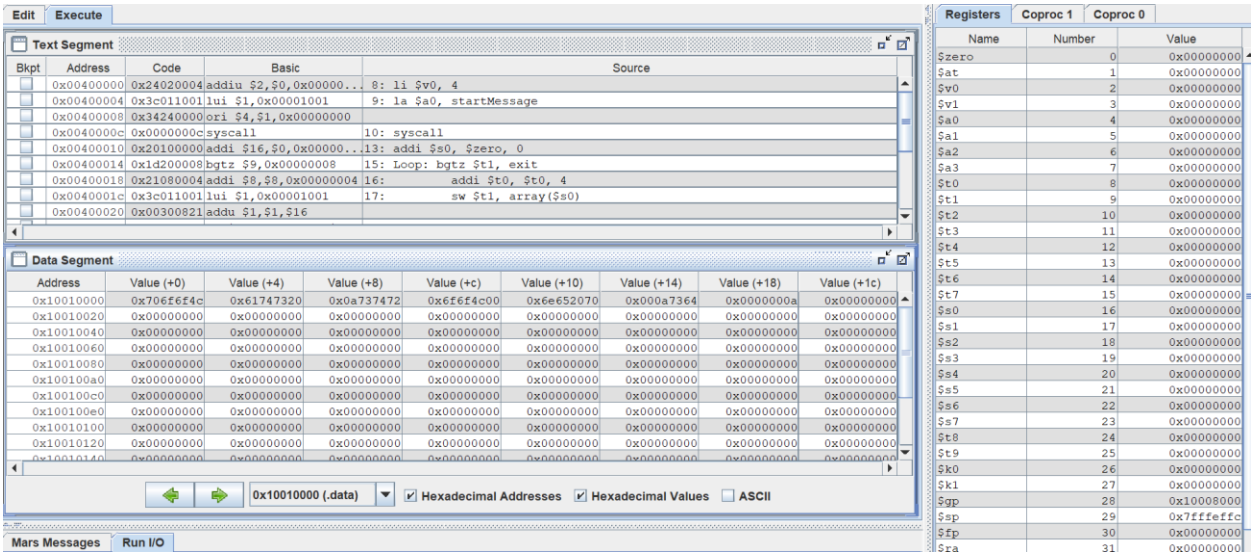
Program 4:

1. Make a loop that stores the index value + 2 in the array
2. Store the array index in $s0, loop through the array, loop through the array counting down from 10 by 2 and add 2 to the index and store it back in the array at that index
3.

Registers	Purpose & Labels
$v0	Print string, and later int
$a0	Argument of syscall to print string and later int
$s0	Store the array index at 0
$s1	Store the value of the array at each index
$t1	Increase the index value by 2
$t2	Decrease the inde by 2

4. Load Registers, Create array, Store array index, Move thru array, Store Values in array

5.


Edit
Execute
Text Segment
Bkpt Address Code Basic Source
0x00400000 0x24020004 addiu $2,$0,0x00000... 8: li $v0, 4
0x00400004 0x3c011001 lui $1,0x00001001 9: la $a0, startMessage
0x00400008 0x34240000 ori $4,$1,0x00000000
0x0040000c 0x0000000c syscall 10: syscall
0x00400010 0x20100000 addi $16,$0,0x00000... 13: addi $s0, $zero, 0
0x00400014 0x1d200008 bgtz $9,0x00000008 15: Loop: bgtz $t1, exit
0x00400018 0x21080004 addi $8,$8,0x00000004 16: addi $t0, $t0, 4
0x0040001c 0x3c011001 lui $1,0x00001001 17: sw $t1, array($s0)
0x00400020 0x00300821 addu $1,$1,$16
Data Segment
Address Value (+0) Value (+4) Value (+8) Value (+c) Value (+10) Value (+14) Value (+18) Value (+1c)
0x10010000 0x706f6f4c 0x61747320 0x0a737472 0x6f6f4c00 0x6e652070 0x000a7364 0x0000000a 0x00000000
0x10010020 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010040 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010060 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010080 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x100100a0 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x100100c0 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x100100e0 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010100 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010120 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010140 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x10010000 (.data)
Hexadecimal Addresses
Hexadecimal Values
ASCII
Mars Messages
Run I/O
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