Program 3

Code Snippet:

```
1   #Program 3
2   .data
3   list1: .word 1,2,3,4,5,6,7,8,9,10
4   list2: .word 1,2,3,4,5,6,7,8,9,10
5   count: .word 10
6   spaces: .asciiz " "
7   string1: .asciiz "Input: "
8   string2: .asciiz "\nOutput: "
9   .text
10
11  #to print input label
12  li $v0, 4
13  la $a0, string1
14  syscall
15
16
17  la $s1, list1 #pointer to list1
18  lw  $s0, 0($s1) #accessing items from array
19
20  lw $t0, count #store count in t0
21  li $t1, 0 #i=0
22
23  #start the loop
24  loop1:
25  bge $t1, $t0, exit1
26  lw $s0, 0($s1) #read data from memory (list1)
27
28  #print integers
29  li $v0, 1 # to print int
30  move $a0, $s0
31  syscall
32
33  #print string
34  li $v0, 4
35  la $a0, spaces
36  syscall
37
38  #adder
39  addi $t1,$t1,1 #increment i
40  addi $s1, $s1, 4 #increment address
41
42  j loop1
43
44  #end first loop
45  exit1:

46
47
48  # print output label
49  li, $v0, 4
50  la $a0, string2
51  syscall
52
53  la $s1, list2 #pointer to list2
54  lw  $s0, 0($s1) #accessing items from array
55
56  lw $t0, count #store count in t0
57  li $t1, 0 #i=0
58
59  #start the loop
60  loop2:
61  bge $t1, $t0, exit2
62  lw $s0, 0($s1) #read data from memory (list1)
63
64  # Square the values
65  mul $s0, $s0, $s0
66
67  #adders
68  addi $t1,$t1,1 #increment i
69  addi $s1, $s1, 4 #increment address
70
71
72  #print integer value
73  li $v0, 1
74  move $a0, $s0
75  syscall
76
77  #to print string
78  li $v0, 4
79  la $a0, spaces
80  syscall
81
82  # end second loop
83  j loop2
84
85  # to end program
86  exit2:
87  li $v0, 10
88  syscall
```

Output:

```
Input: 1 2 3 4 5 6 7 8 9 10
Output: 1 4 9 16 25 36 49 64 81 100
-- program is finished running --
```

Script:

```
#Program 3
.data
list1: .word 1,2,3,4,5,6,7,8,9,10
list2: .word 1,2,3,4,5,6,7,8,9,10
count: .word 10
spaces: .asciiz " "
string1: .asciiz "Input: "
string2: .asciiz "\nOutput: "
.text


#to print input label
li $v0, 4
la $a0, string1
syscall



la $s1, list1 #pointer to list1
lw  $s0, 0($s1) #accessing items from array


lw $t0, count #store count in t0
li $t1, 0 #i=0


#start the loop
loop1:
bge $t1, $t0, exit1
lw $s0, 0($s1) #read data from memory (list1)


#print integers
```

```
li $v0, 1 # to print int

move $a0, $s0

syscall


#print string

li $v0, 4

la $a0, spaces

syscall


#adder

addi $t1,$t1,1 #increment i

addi $s1, $s1, 4 #increment address


j loop1


#end first loop

exit1:



# print output label

li, $v0, 4

la $a0, string2

syscall


la $s1, list2 #pointer to list2

lw  $s0, 0($s1) #accessing items from array


lw $t0, count #store count in t0

li $t1, 0 #i=0
```

```
#start the loop

loop2:

bge $t1, $t0, exit2

lw $s0, 0($s1) #read data from memory (list1)


# Square the values

mul $s0, $s0, $s0


#adders

addi $t1,$t1,1 #increment i

addi $s1, $s1, 4 #increment address



#print integer value

li $v0, 1

move $a0, $s0

syscall


#to print string

li $v0, 4

la $a0, spaces

syscall


# end second loop

j loop2


# to end program

exit2:
```

```
li $v0, 10
syscall
```