The following is block of SPIM code to compute the sum of the elements of a diagonal in a matrix stored as shown. For the matrix shown below the sum in $t2 should end up being 1+12+23+34 = 70. Fill in any missing pieces of code to complete the program. Use any additional registers as necessary to keep track of the number of loop iterations and any other information you require. You may complete your code on the next page as necessary. If does not have to fit on the spaces shown. You cannot change the loop body. Remember there are many distinct, correct, feasible solutions!

```
                .data
row1:           .word 1,2,3,4
row1:           .word 11,12,13,14
row1:           .word 21,22,23,24
row1:           .word 31,32,33,34

                .text
                la $t0, row1
                [                                   ]
loop:           [                                   ]
                lw $t1, 0($t0)      #loop body that performs the sum
                add $t2, $t2, $t1
                [                                   ]
                [                                   ]
                li $v0, 10      # exit the program
                syscall
```