Question 1 (25 points): A common pattern of execution in numerical computing is called a *stencil* computation. In a stencil computation the same computing pattern is repeated for multiple elements of an array. An example is a computation that computes the average of the surrounding elements in an $N \times N$ array. Assume that an integer is stored using 4 bytes in this machine. Also assume that the dimension of the vector `A` was declared statically to be 64×64

```
00 int stencil2D_element_update(int *A, int i, int j)
01 {
02   int sum;
03
04   sum = A[i][j-1];
05   sum = sum + A[i][j+1];
06   sum = sum + A[i-1][j];
07   sum = sum + A[i+1][j];
08   return(sum/4.0);
09 }
```

Write MIPS assembly code for the computation of `sum` (lines 04 to 08 in the C code) using a minimum number of instructions.