Problem FC-3 (2 parts) **Loops in MIPS**

p1p5:	addi	$1, $0, Array	# I_A
	addi	$6, $0, Bright	# I_B
		…	
Loop:		*loop body*	# I_C
		…	
Next:	addi	$1, $1, 4	# I_D
	bne	$1, $6, Loop	# I_E

Part A What are the value of $1 at the following times in the execution of the loop above? Assume `Array:` begins at 6000 and `Bright:` begins at 7024.

$1 when I_C is first executed:	6000
$1 when I_C is last executed:	7020
$1 when I_E is last executed:	7024

Part B: Complete this subroutine which computes the dot product of two vectors of equal length. Assume the first vector starts at base address labeled "A" and the second vector starts at label "B". Register $1 contains the vector length in words (# integers), which is greater than 0. Use $2 to hold the vector index and $3 to hold the vector length in bytes. Use $5 and $6 to hold the current elements of the two vectors, which are multiplied together, and keep the running sum of the products in $4. Return the dot product in $4 (i.e., the sum of the products of corresponding elements of the vectors).

Label	Instruction	Comment
DotP:	**add $2, $0, $0**	**# init vector index to 0**
	add $4, $0, $0	**# init running sum to 0**
	sll $3, $1, 2	**# vector length x 4**
Loop:	**lw $5, A($2)**	**# load current element of A**
	lw $6, B($2)	**# load current element of B**
	mult $5, $6	**# multiply elements**
	mflo $5	**# put product in $5**
	add $4, $4, $5	**# add product to running sum**
	addi $2, $2, 4	**# increment vector index**
	bne $2, $3, Loop	**# loop if index != length**
End:	**jr $31**	**# return to caller**