

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

p1p5:	addi	\$1, \$0, Array	# I _A
	addi	\$6, \$0, Bright	# I _B
		...	
Loop:		<i>loop body</i>	# I _C
		...	
Next:	addi	\$1, \$1, 4	# I _D
	bne	\$1, \$6, Loop	# I _E

Part A: What are the values 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:	
\$1 when I _C is last executed:	
\$1 when I _E is last executed:	

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:		# init vector index to 0
		# init running sum to 0
		# vector length x 4
Loop:		# load current element of A
		# load current element of B
		# multiply elements
		# put product in \$5
		# add product to running sum
		# increment vector index
		# loop if index != length
End:		# return to caller