6.823 Computer Architecture	DUE: 4/29/2002
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Problem Set 5	*Instructors: Krste Asanovic, Srinivas Devadas*

Problem 2

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# R1 pointer to X
# R2 pointer to Y
# R5 n
# F1 - F10 Temporary Floating Point Register for LF Instruction
# F30- F33 Temproary Floating Point Register for MULTF Instruction
# F50, F51 Temproary Floating Point Register for ADDF Instruction
# F50 result
LF F3, 0(R1); LF F4, 0(R2);
LF F5, 4(R1); LF F6, 4(R2);
LF F7, 8(R1); LF F8, 8(R2);
LF F1, 12(R1); LF F2, 12(R2);
LF F3, 16(R1); LF F4, 16(R2); MULTF F30,F3,F4; ADDI R5,R5,#-7;
LF F5, 20(R1); LF F6, 20(R2); MULTF F31,F5,F6; ADDI R1,R1,#24;
LF F7, 0(R1); LF F8, 24(R2); MULTF F32,F7,F8; ADDI R2,R2,#28;
loop: # Beginning of the loop
LF F1, 4(R1); LF F2, 0(R2); MULTF F30,F1,F2; ADDF F50, F50, F30; # Start the loop
LF F3, 8(R1); LF F4, 4(R2); MULTF F31,F3, F4; ADDF F51, F51, F31;
LF F5, 12(R1); LF F6, 8(R2); MULTF F32,F5, F6; ADDF F50, F50, F32;
LF F7, 16(R1); LF F8, 12(R2); MULTF F30,F7, F8; ADDF F51, F51, F30;
LF F9, 20(R1); LF F10, 16(R2); MULTF F31,F1, F2; ADDF F50, F50, F31;
LF F1, 24(R1); LF F2, 20(R2); MULTF F32,F3, F4; ADDF F51, F51, F32;
LF F3, 28(R1); LF F4, 24(R2); MULTF F30,F5, F6; ADDF F50, F50, F30;ADDI R5,R5,#-9;
LF F5, 32(R1); LF F6, 28(R2); MULTF F31,F7, F8; ADDF F51, F51, F31;ADDI R1,R1,#36;
LF F7, 0(R1); LF F8, 32(R2); MULTF F32,F9,F10; ADDF F50, F50, F32;ADDI R2,R2,#36; BNEZ
R5,loop
loopend: # End of the loop - finish all the open opperations
MULTF F30,F1,F2; ADDF F50, F50, F30;
MULTF F31,F3, F4; ADDF F51, F51, F31;
MULTF F32,F5, F6; ADDF F50, F50, F32;
MULTF F30,F7, F8; ADDF F51, F51, F30;
ADDF F50, F50, F31;
ADDF F51, F51, F32;
ADDF F50, F50, F30;
ADDF F50, F50, F51 # Result is stored in Floating point Register F50
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We asume that for the vector lenght n the following is true : (n -7) mod 9 = 0 and (n -7) div 9 > 0 . If that is not given we just have to loop through the code as listed in the excersize m times so that (n-m-7) mod 9 = 0. Additionally we would have to chek if n-m-7 = 0 to return the result or to start the loop given above!