**CSC 3101 - FALL 2016**

**Lab Assignment 9**

Please read the requirements carefully. Any missing point will result in a grade reduction. This assignment has to be submitted to your **blackboard in class** in this **Word file**. Hard copy is **not accepted**.

**Question:** **(100 pts.)**

Initialize an array [5, 7, 12, 3, 8, 21, 11, 1, 2, 16] in the memory. Access the elements in the array as required below. (Use loop and conditional branch to finish all these questions.)

1. Display the original array and use space to separate the numbers. (40 pts.)
2. Print out the total count of elements with values bigger than 10. (Hint: loop through the array, compare each element with 10, use a counter to record.) (20 pts.)
3. Display the results of the summation of odd indexed elements (5, 12, 8, 11, 2) and even indexed elements (7, 3, 21, 1, 16) in two separate lines respectively. (40 pts.)

(Please attach your code and screenshots in this file for submission.)

**Code below:**

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\* Program : LAB 9

\* Written by : CALEB LATIMER

\* Date : 11/9/2016

\* Description: ARRAY MANIPULATION

\*-----------------------------------------------------------

ORG $1000

START: ; first instruction of program

LEA PARTA, A1 //PRINT PARTA

MOVE.B #14,D0 //display the original string

TRAP #15

CLR.L D1

LEA ARRAY,A1 LOAD ARRAY TO A1

CLR.L D3 CLEARS COUNT REGISTER

CLR.L D4 CLEARS EVEN REGISTER

CLR.L D5 CLEARS ODD REGISTER

CLR.L D6 CLEARS INDEX COUNTER

LOOP

MOVE.B (A1)+,D1

ADD.B #1,D6

AND #1,D6

BEQ ADDTOEVEN

BNE ADDTOODD

COMPARE

CMP.B #10,D1

BGT INCREMENT

BRA PRINTSPACE //if a period is identified, jump out the loop.

RETURN

MOVE #3, D0 //if it is neither a space nor a period, display the character

TRAP #15

CMP.B #16,D1

BEQ DONE

BRA LOOP

PRINTSPACE

MOVE.L A1,A3

LEA TAB,A1

MOVE.B #14,D0

TRAP #15

MOVE.L A3,A1

BRA RETURN

INCREMENT

ADD.B #1,D3

BRA PRINTSPACE

ADDTOEVEN

ADD.B D1,D4

BRA COMPARE

ADDTOODD

ADD.B D1,D5

BRA COMPARE

DONE

LEA NEWL,A1

MOVE.B #14,D0

TRAP #15

LEA PARTB,A1

MOVE #14,D0

TRAP #15

MOVE.L D3,D1

MOVE.B #3,D0

TRAP #15

LEA NEWL,A1

MOVE.B #14,D0

TRAP #15

LEA PARTCO,A1

MOVE #14,D0

TRAP #15

MOVE.L D5,D1

MOVE.B #3,D0

TRAP #15

LEA NEWL,A1

MOVE.B #14,D0

TRAP #15

LEA PARTCE,A1

MOVE #14,D0

TRAP #15

MOVE.L D4,D1

MOVE.B #3,D0

TRAP #15

MOVE.B #9,D0

TRAP #15

\* Variables and Strings

CR EQU $0D

LF EQU $0A

ARRAY DC.B 5,7,12,3,8,21,11,1,2,16

NEWL DC.B '',CR,LF,0

TAB DC.B ' ',0

PARTA DC.B 'Part A',CR,LF,0

PARTB DC.B 'Part B: ',0

PARTCO DC.B 'Part C ODD: ',0

PARTCE DC.B 'Part C EVEN: ',0

END START ; last line of source

**Screen shots below:**

