

TD

**Exercise #1.**

Complete the following table which shows the value of each variable after each statement.

Instruction	a	b	c	p1	p2	instruction	a	b	c	p1	p2
int a, b, c, *p1, *p2; /						++*p2;					
a=1;b=2;c=3;		2				*p1*=*p2;					
p1=&a;p2=&c;				&a		a=++*p2**p1;					
*p1=(*p2)++;						p1=&a;					
p1=p2; p2=&b;						*p2=*p1/=*p2;					
*p1--*p2;											

**Exercise #2.**

Either the following declarations and initializations

```
int A[] = {1, 3, 5, 2, 8, 4, 9, 0}; int *P =A, *Q, *V;
```

Determine the correct and incorrect instructions and then give the results of executing the correct instructions on the vector and pointers.

```
*P+2=A[3];
P=P+A[2];
Q+=&A[5];
Q=&A[3];
A[6]=Q-P;
*(V+1)=*(P+1);
V=Q-2;
P=P-*(A+1);
for (Q=P-3 ;Q<=V ;Q++) (*Q)++ ;
P=P+(Q-V)+2 ;
```

**Exercise #3.**

Write a program that fills an array T with real numbers, then creates two arrays TP and TN, and places all positive numbers in TP and all negative numbers in TN, and leaves the zero numbers as is

**Exercise #4.**

Write a function swaps the values of two variables, Use this function to reverse the elements of a dynamic vector.

**Exercise #5.**

Using the pointer formalism:

- Write a recursive function that determines the last character in a string.
- Write a recursive function that calculates the sum of the elements of a vector.

Test these functions in a main function.

TP

**Exercise #1.**

Write a program to check the results of exercise 1 of TD.

**Exercise #2.**

Write a program that:

- reads an integer N.
- create a dynamic array of N Integers.
- Add its index to each element.
- Display the table using the formalisms (array/pointer).

**Exercise#3.**

Write a program which reads two vectors of integers V1 and V2 then adds at the end of a vector V1 the elements of a vector V2

**Exercise #4.**

Write a subroutine that reverses a string into another string.

Write a function that returns 1 if two strings are equal and 0 otherwise.

Write the main function which reads a character string and which uses these two functions to check whether this string is palindrome or not.