

TP N° : 04

Exercise 1:

Write a program that allows to:

1. Declare pointers to: an integer, a real number, a character, a "Student" record composed of the following fields: Registration number, Last name, First name and Average;
2. Then Read and Write data that corresponds to the variables pointed to by these pointers.

Exercise 2 (Optional):

1. Write a program that uses the notion of a pointer to read two integers and calculate their sum.
2. The same previous question but use a function with passes by address.

Exercise 3:

Write a program in which you must declare a static array *tab* of integers. Then fill and display its contents using pointers.

Exercise 4 (Optional):

Write a program that allows filling and sorting a dynamic array using pointers managing memory addresses.

Exercise 5: (Linear linked lists)

Consider the following data structure:

```
Type list = record
    el : type_element ;
    next : ↑ list;
end ;
```

Write the following procedures:

1.

```
Procedure insert_begin (v : type_element ; var L : ↑list) ;
// which inserts an element v at the beginning of the list L
```

2.

```
Procedure insert_end(v : type_element ; var L : ↑list) ;
// which inserts an element v at the end of the list L
```

3.

```
Procedure delete_begin (var L: ↑list) ;
// which delete an element from the beginning of the list L
```

4.

```
Procedure delete_end ( var L : ↑list) ;
// which delete an element from the end of the list L
```

5.

```
Procedure delete (v:type_element ; var L:↑list) ;
// which deletes an existing element v, from the list L
```

6. Use the previous operations to write a procedure for transferring the elements of an array T of N reals into a linear list L.