## **SEMINAR 2**

- Assume that X and Y are two vectors with integer elements and the same length, compute the following:

   a) The sum and product of the elements of X.
  - b) The sum Z = X + Y.
  - c) The dot product of X and Y.
  - d) The arithmetic mean of the odd elements of the vector Z.

**2.** For a given vector V of size N, sort in descending order its elements using the interchange algorithm.

3. Let A be a matrix, with m lines and m columns, m read from the console.

- a) find the maximum element and its position in the matrix ;
- b) compute the sum and product of the elements on the main diagonal;
- c) count and display the number of positive elements of the matrix;
- d) for given values r and s, read from the console, interchange rows r and s.

4. For two matrices A (mxn), B(nxp) calculate and display matrix C(mxp)=A\*B.

Supplementary problems :

3.e. Complete the Problem 3, deducing the relationships to describe the elements belonging to the secondary diagonal, over/under the two diagonals respectively.

4.a. Particularize the solution for the multiplication of a matrix A and a vector V ; deduce the appropriate dimensions so that the multiplication is possible ( $A^*V$  or  $V^*A$ ).

2.a. Implement the sorting algorithm using the Selection method, without functions and procedures.