PROGRAMM 1:

Write a program that prints in the screen ten times the message "Hello " followed by your own name.

PROGRAMM 2:

Compute the dot product (scalar product) of two vectors (arrays) of dimension 3 that will be indicated interactively by the keyboard. The result will be displayed on the computer screen.

PROGRAM 3:

Modify the previous code and include a subroutine that allows to compute the dot product (scalar product) of 2 vectors of dimension n to be indicated interactively by the keyboard and verify that this new program works perfectly as the previous one.

PROGRAM 4:

Modify the previous program by including dynamic array allocation in the main program.

PROGRAM 5:

Modify the previous program by adding the necessary statements to write the dot product solution in a text file named "dot_prod.txt".

PROGRAM 6:

Modify the computer program proposed in exercise 2 and include the necessary modifications to compute the triple product of 3 vectors of dimension 3. The vector data will be indicated at run time with the keyboard and the solution will be saved in a text file named "triple_product.txt".

PROGRAM 7:

Write a computer program that allows to compute $\ln(1+x)$ for $|x| < 1$ by using the first m terms of the Taylor Expansion and compare it with the value given by the intrinsic Fortran function "log". (It is recommended to calculate each new term of the series from the previous term.)

PROGRAM 8:

Develop a computer program to calculate the sine of a number $x \in [0, \pi]$ using the m first terms of the Taylor's expansion and compare it with the value obtained by the intrinsic Fortran function "sin". Use as far as possible a recurrence law that requires a small number of operations. For this purpose it is recommended to calculate each new term of the serial development from the previous term.

PROGRAM 9:

To develop a computer program that allows to obtain the trace of a square matrix ($\boldsymbol{A}$) of dimension 4×4 whose terms $\{a_{ij}\}$ are defined as the result of adding the row number (i) and the column number (j). Once the trace is obtained, modify the program and repeat the calculation for a square matrix of dimension 100.

PROGRAM 10:

Modify the previous computer program by using dynamic allocation in the main program.