ASDS Mini Project

1. Objective

The purpose of this mini project is to allow students to apply their programming knowledge, especially in C language, and to build a real application: a **Scientific Calculator**.

This project will help students to:

- Practice modular programming using functions,
- Work with mathematical operations and C libraries,
- Improve user interaction skills with menus and input handling,
- Strengthen logic and structured programming skills,

2. Problem Description

Design and implement a console-based **scientific calculator** capable of performing various mathematical operations such as:

- Basic arithmetic (addition, subtraction, multiplication, division),
- Power, Factorial, exponential and square root,
- Trigonometric functions (sine, cosine, tangent), Converting angle degrees/radians,

The program must:

- Display a menu of operations,
- Allow the user to choose an operation,
- Take input values from the user,
- Display results clearly,
- Repeat until the user chooses to exit,

3. RequiredWork

Students must:

- Create their own library of functions,
- Implement the different functions, use the math.h library for advanced operations,
- Create a menu system to navigate between calculator functions,
- Display results in a clear and friendly format,
- Allow continuous calculations until the user exits,
- Input validation must be handled (example: avoid division by zero),

4. Remarks

- The project must be done in groups of three students,
- The code must be well-commented,
- The interface must be user-friendly to provide good assistance,
- Any additional improvements or optional features will be rewarded,
- The demonstration date : the last week befor the winter holiday (any absence on theday of demonstration is equivalent to 0 in the grade of Mini-Project).