Digital Design Verification

Assignment # 04

Friend class and friend functions, Lambdas

Revision History

Revision Number	Revision Date	Revision By	Nature of Revision	Approved By
1.0	23/07/2025	Hira Sohail	Manual	Sharjeel Khilji

Tools & Language

- GNU G++ compiler
- C++

Task #01:

Design a class Student that stores the name and a list of marks (using std::vector<int>) for each student. The class should:

1. Include:
   - A private data member name (string)
   - A private std::vector<int> to store marks in multiple subjects.

2. Provide:
   - A constructor to initialize the name.
   - A public method add_mark(int) to add a mark to the vector.
   - A method display() to print the name and all marks.

3. Create a friend function calculate_average(const Student&) that calculates and returns the average of the marks.

4. In main():
   - Create a std::vector<Student> and add at least 3 students with different marks.
   - Use a lambda expression to filter and print students whose average marks are greater than 75.
   - Use a function pointer to apply a custom print function to display selected students (i.e., filtered via lambda).

Submission:

Upload .cpp file along with report containing flow chart.