



Digital Design Verification

Assignment # 04

Friend class and friend functions, Lambdas

Release: 1.0

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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.