PRF192 - Final Project Guidelines

**Topic: Student Management**

**Lab 01 – Project Guide: Analyze Project Functions**

# Students’ Task

* + Read project requirements (student management, GPA calculation, search/sort, file I/O, exception handling).
  + Break down the project into smaller functions (Decomposition).
  + Identify recurring patterns (input validation, search logic, menu structures).

# Deliverable

* + Analysis Document: List of project functions, decomposed into subtasks, with identified patterns.

# Lab 02 – Project Guide: Design Project Functions Using Flow Chart

# Students’ Task

* + Design flowcharts for project functions (Add Student, Search Student, GPA calculation, Sorting).
  + Show decision-making and loops in visual form (Pattern Recognition & Algorithmic Thinking).

# Deliverable

* + Analysis Document (Flowcharts): Flowcharts of major functions, showing decisions, iterations, and algorithm steps.

# Lab 03 – Project Guide: Implement Project Functions

# Students’ Task

* + Implement C code for basic functions: input/output, conditional checks, GPA calculation, menu system.
  + Apply Abstraction (functions for modular code), Pattern (reusable logic), and Algorithmic Thinking (step-by-step solutions).
  + Debug and refine code.

# Deliverable

* + Analysis Document (Function Implementation): C code with documented functions corresponding to flowcharts.

# Lab 04 – Project Guide: Implement Project Functions (Struct & Array)

* + Implement struct Student with attributes.
  + Use static array or dynamic array for storing and retrieving student records.
  + Emphasize Abstraction & Pattern in design.

# Deliverable

* + Analysis Document and C code implementing using struct array

# Lab 05 – Project Guide: Implement Project Functions (File & Testing)

1. **Students’ Task**
   * Add File I/O (saving/loading records from .txt files).
   * Perform testing of all functions (add, edit, delete, search, sort, GPA)
   * Finalize the project for submission.

# Deliverable

* + Analysis Document (Final Project Report): code with File I/O, and test results for all project functions.