

## # Campus Course & Records Manager

### ## Project Report

#### ### 1. Introduction

CCRM helps educational institutions manage academic records...

#### ### 2. Problem Statement

[Copy from statement.md]

#### ### 3. Functional Requirements

- Student management (add, update, list)
- Course catalog management
- Enrollment with business rules
- Grade management and transcripts

#### ### 4. Non-functional Requirements

- Performance: Efficient with 1000+ records
- Usability: Menu-driven console interface
- Reliability: Backup/restore system
- Maintainability: Modular Java code

#### ### 5. System Architecture

[Insert your generated architecture diagram]

#### ### 6. Design Diagrams

[Insert your generated class diagram]

#### ### 7. Implementation Details

Used Java with packages: domain, service, io, config

Key classes: Student, Course, Enrollment, FileService

#### ### 8. Testing Approach

Manual testing of all menu options and file operations.

#### ### 9. Challenges Faced

- Implementing enrollment validation rules
- CSV file parsing and error handling
- Maintaining data consistency

#### ### 10. Learnings

- Better understanding of Java I/O operations
- Experience with business logic implementation
- Improved error handling skills

#### ### 11. Future Enhancements

- Database integration
- Web interface
- Advanced reporting

#### ### 12. References

- Java Documentation
- Course materials