

Project proposal

(Object Oriented Programming)

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1. Title of the Project:

Grade Calculator System using Object-Oriented Programming in Java

2. Project Description & Purpose:

This project aims to develop a Grade Calculator System using Java that allows students and educators to input scores and receive calculated grades based on predefined criteria.

Problem It Solves:

Many students and teachers need a fast and accurate way to evaluate academic performance. Manually calculating grades is error-prone and inefficient. This system automates the grading process based on user input.

Relevance of OOP:

Using Object-Oriented Programming ensures that the system is modular, reusable, and easy to maintain. Entities such as Student, Course, and GradeCalculator are modeled as classes, encapsulating data and behaviors effectively

3. Project Goals and Functionalities:

Main Goals:

Build a user-friendly grade calculator using Java.

Demonstrate OOP concepts effectively.

Provide accurate grade outputs based on score inputs.

Key Functionalities:

Input student information and marks.

Calculate percentage and assign grade.

Display result summary.

Support multiple subjects or students.

Exit/terminate session.

5. Technologies Used:

Programming Language: Java

Frameworks/Libraries: Core Java only

Database: Not required (data stored temporarily in memory)

6. Use of Object-Oriented Programming Principles:

Encapsulation:

Student and Grade data stored in private variables.

Accessed via public methods to protect data integrity.

Inheritance:

A base class Person could be extended by Student to reuse common attributes.

Polymorphism:

Overloaded methods for grade calculation based on different score formats. Overriding display methods for customized output.

Abstraction:

Users interact with simple input/output interfaces while complex logic is hidden.

7. Project Timeline & Phases:

Phase Description	Estimated Time	Dates(Flexible)
1.Reequirements Gathering	2 days	Day 1 - Day 2
2.System Design & Planing	3 days	Day 3 - Day 5
3.Basic Class Implementation	4 days	Day 6 - Day 9
4.Input Module	2 days	Day 10 - Day 11
5.Grade Calculation Logic	2 days	Day 12 - Day 13
6.Result Display Function	2 days	Day 14 - Day 15
7.Multi Student Handling	1 days	Day 16
8.Menu & UI Integration	2 days	Day 17 - Day 18
9.Error Handling& Validation	2 days	Day 19 - Day 20
10.Testing(Unite and Full)	3 days	Day 21 - Day 23
11.Enhencements(Optional)	3 days	Day 24 - Day 26
12.Documentation	2 days	Day 27 – Day 28
13.Final Review & Presentation	2 days	Day 29 - Day 30

8. Final Product & User Benefits:

What It Achieves:

Automates grading with structured and secure input-output handling.

Demonstrates OOP through practical application.

User Benefits:

Saves time and minimizes manual errors.

Can be used as a learning tool or academic resource.

9. Conclusion:

This project reflects the application of Object-Oriented Programming by developing a reliable Grade Calculator System in Java. It promotes clean design, secure data processing, and intuitive user interaction. By simulating an academic grading workflow, the project bridges theoretical OOP knowledge with real-world

10. References:

1. Oracle Java Documentation – <https://docs.oracle.com/javase/>
2. Java Programming Tutorial – <https://www.w3schools.com/java/>
3. "Head First Java" by Kathy Sierra & Bert Bates
4. Object-Oriented Programming Concepts – <https://www.geeksforgeeks.org/object-orientedprogramming-oops-concept-in-java/>
5. Java Code Examples – <https://www.programiz.com/java-programming/examples>