Software Requirement Specification for Co Po calculation

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Project ID	14
Problem Statement:	Five CO wise Periodical test marks, CO PO calculation , Result analysis

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1. Introduction

1.1 Purpose:

In educational settings, assessing student performance is crucial for understanding learning outcomes and improving the overall educational process. One effective method is the analysis of Continuous Outcome (CO) wise periodical test marks. This method involves collecting and analyzing test scores for various Course Outcomes (COs) across different periodical tests. The analysis helps in mapping these COs to Program Outcomes (POs) and provides a comprehensive understanding of student performance, which can be used for targeted improvements in teaching and curriculum development.

1.2 Scope of Project:

This project focuses on the analysis of Continuous Outcome (CO) wise periodical test marks to map and evaluate the achievement of Program Outcomes (POs). By collecting CO-wise marks from multiple tests, mapping these COs to POs, and performing detailed calculations, we aim to understand student performance and the effectiveness of the educational program. The result analysis will identify strengths and weaknesses, guiding targeted interventions for improvement. This systematic approach ensures continuous improvement in teaching methods, curriculum design, and overall educational quality, aligning with accreditation requirements and enhancing the learning experience.

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2. System Overview

The system for CO-wise periodical test marks analysis and CO-PO calculation consists of the following components:

2.1 Data Collection:

- **Input:** Periodical test marks for each CO across multiple tests for all students.
- **Output:** Organized dataset of CO-wise marks.

2.2 CO-PO Mapping:

- **Input:** Predefined mapping of COs to POs, indicating the weightage of each CO's contribution to various POs.
- **Output:** Mapping matrix used for calculations.

2.3 Calculation Module:

- **Average CO Marks Calculation:** Computes the average marks for each CO for every student.
- **PO Score Calculation:** Uses the CO-PO mapping to calculate the contribution of each CO to the POs by multiplying average CO marks with respective weightages and summing them up.

2.4 Result Analysis:

- **Performance Evaluation:** Analyzes the calculated PO scores to identify trends, strengths, and weaknesses in student performance.
- **Insights and Reporting:** Generates insights and reports to inform educators about areas needing improvement and the effectiveness of the educational program.

2.5 Feedback and Improvement:

- **Actionable Insights:** Provides actionable insights for targeted educational interventions and curriculum adjustments.
- **Continuous Improvement:** Supports ongoing refinement of teaching methods and educational strategies based on analysis results.

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3. Functional Requirements

3.1 Data Collection:

- The system shall allow the input of periodical test marks for each CO across multiple tests for all students.
- The system shall organize the collected data into a structured dataset of CO-wise marks.

3.2 CO-PO Mapping:

- The system shall use a predefined mapping of COs to POs, indicating the weightage of each CO's contribution to various POs.
- The system shall create a mapping matrix for calculations.

3.3 Calculation Module:

- The system shall compute the average marks for each CO for every student.
- The system shall calculate PO scores by using the CO-PO mapping to determine the contribution of each CO to the POs.

3.4 Result Analysis:

- The system shall analyze the calculated PO scores to identify trends, strengths, and weaknesses in student performance.
- The system shall generate insights and reports for educators.

3.5 Feedback and Improvement:

- The system shall provide actionable insights for targeted educational interventions and curriculum adjustments.
- The system shall support ongoing refinement of teaching methods and educational strategies based on analysis results.

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4. Non-Functional Requirements

4.1 Usability:

- The system shall have an intuitive user interface that is easy to navigate.

4.2 Performance:

- The system shall respond to user actions within 2 seconds.

4.3 Security:

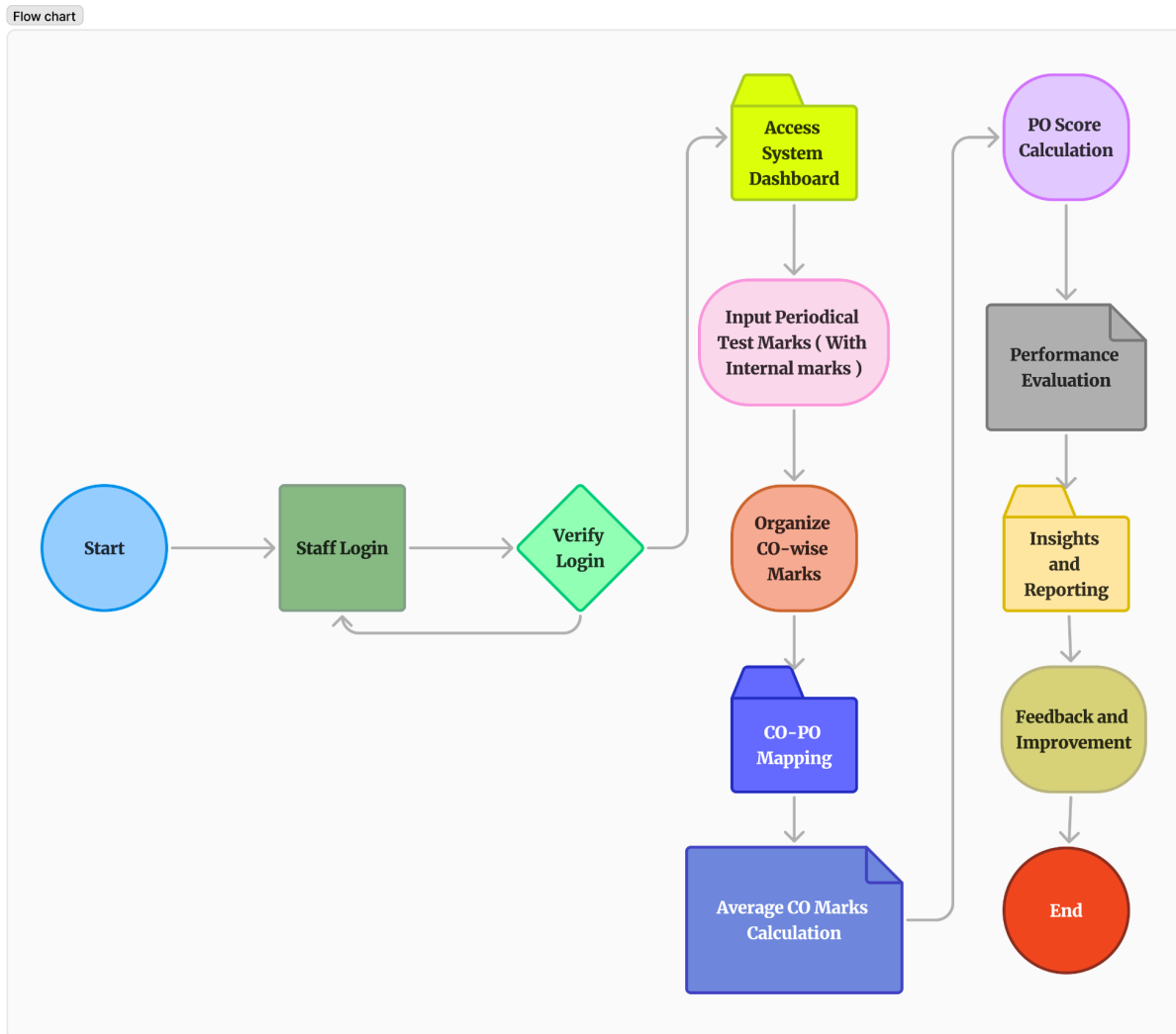- The system shall use encryption for data transmission and storage.

- The system shall implement measures to prevent unauthorized access.

4.4 Scalability:

- The system shall be able to handle concurrent users and a growing amount of data.

4.5 Availability:

- The system shall have an uptime of 99.9%.

Flow chart

CO PO attainment calculation

Direct Assessment		CO1	CO2	CO3	CO4	CO5
Test 1	0.12	3	3	3		
Test 2	0.12			3	3	3
IP1	0.08		3			
IP2	0.08					3
ESM	0.60	3	3	2	3	
Continuous Internal Evaluation (CIE)	0.40	3.00	3.00	3.00	3.00	3.00
Direct CO Attainment		3.00	3.00	2.40	3.00	3.00
Final CO Attainment Level (100% Direct CO Att.)		3.00	3.00	2.40	3.00	3.00

$(0.12*3+ 0.08*3) /(0.12+0.08) = 3$

$(0.60*2+0.40*3)/ (0.6+0.4)$

PO attainment

PO & PSO ATTAINMENT

CO-PO-PSO Articulation Matrix

CO No.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1											2		
2		2	1										1		
3			2	3	3								2		
4			1	2	3									2	
5			1	2	3									2	
Average	3.00	1.50	1.25	2.33	3.00								1.67	2.00	

$3.0*(3/3)= 3.00$

$3.00*(1/3) = 1.00$

$2.40*(2/3) = 1.60$

$[(3.00*1) +(2.40*2)+(3.00*1)+(3.00*1)]/(1+2+1+1) =2.76$

PO & PSO Attainment Level and Percentage

CO No.	CO Attainment	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3.00	3.00	1.00											2.00		
2	3.00		2.00	1.00										1.00		
3	2.40			1.60	2.40	2.40								1.60		
4	3.00			1.00	2.00	3.00									2.00	
5	3.00			1.00	2.00	3.00									2.00	
Overall PO/PSO Level		3.00	3.00	2.76	2.74	2.80								2.76	3.00	
Overall PO/PSO %		100.00	100.00	92.00	91.43	93.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.00	100.00	0.00