SOFTWARE REQUIREMENT SPECIFICATION FOR FIVE CO WISE PERIODICAL TEST MARKS AND CO,PO CALCULATION AND RESULT ANALYSIS

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SEAT NUMBER: 495
PROJECT ID: 14
PROJECT TITLE: ACADEMIC PERFORMANCE TRACKER(APT)

TECHNICAL COMPONENTS:

COMPONENT	TECH STACK
BACKEND	NODE JS , EXPRESS JS
FRONTEND	NODE JS
DATABASE	MONGODB
API	OPEN API

PROBLEM STATEMENT:

Faculty members often face challenges in efficiently tracking and analyzing students' academic performance due to the manual and fragmented nature of current processes. This results in difficulties in timely identification of students who are struggling, inconsistent calculation of Course Outcomes (CO) and Program Outcomes (PO), and a lack of streamlined data management. There is a need for a comprehensive platform that can simplify the entry, management, and analysis of student performance data from various assessments, ensuring accurate calculation of CO and PO, and providing actionable insights to improve student outcomes.

PROJECT - FLOW:

Purpose:

The purpose of this project is to create a platform that enables faculty to streamline the process of tracking students' academic performance through periodic tests and innovative practices. This platform will allow faculty to efficiently enter, manage, and analyze student data, calculate key performance metrics, and identify students who need additional support, thereby improving overall academic outcomes.

Scope:

The scope of this project includes developing a web-based platform for faculty members to input department, semester, and assessment information, creating a system to calculate CO and PO scores based on student marks, identifying students who are below the CO threshold for a particular subject, calculating CO and PO scores for the end semester, generating a PO attainment sheet, ensuring the platform is user-friendly and easy to navigate for faculty members, and providing a secure and reliable system for storing and managing student data. By achieving these objectives, the project will provide a valuable tool for faculty members to improve student performance and academic outcomes.

Business context:

Develop a web-based platform for Bannari Amman Institute of Technology to streamline faculty tracking of student academic performance, enabling efficient data management, performance analysis, and timely student support to enhance overall academic outcomes.

Consideration:

- All faculty can possess active Google accounts for authentication.
- Users have regular access to internet-enabled devices.
- A streamlined workflow that allows for efficient CO and PO calculation of students and track their academic performance.

Dependencies :

- **Data Ingestion and Integration**: To gather information on student performance, the platform will need to be integrated with a number of data sources, including assessment tools, student information systems (SIS).Dependency on data formats: To handle a variety of data sources, the platform must support multiple data formats, including CSV, Excel, and JSON.
- **Database Management System:** A database management system is needed to store students' academic performance, calculate key performance metrics like CO and PO, and provide actionable insights to improve student outcomes.
- **Analytics and Reporting Tools:** Integration with analytics and reporting tools is necessary to leverage the strengths of each tool and ensure smooth communication between the backend and frontend.

User Personas:

1)Students:

- They can track and analyze student performance data through periodical tests and innovative practice**s.**
- They can identify students who need additional support and provide targeted interventions.

2)Admin:
Faculty(activity masters):

- They can manage and maintain the platform, ensuring data accuracy and integrity.
- They can generate reports and analytics to inform institutional decision-making.

Functional requirements:

1) User Registration and Authentication:
Users (faculty members, and admin) should be able to login and authenticate themselves on the platform.

2) Data Ingestion and Integration:

- The platform will be able to collect and integrate student performance data from various sources,

including Learning Management Systems (LMS), Student Information Systems (SIS), and assessment tools.

- The platform will need to support various data formats such as CSV, Excel, and JSON to accommodate different data sources.

3) Data Analytics and Reporting:

- A user-friendly interface for tracking and analyzing student performance data, including metrics such as Course Outcomes (CO) and Programme Outcomes (PO), should be made available to faculty members by the platform.
- In order to enhance overall academic performance and assist with institutional decision-making, the platform needs to produce reports and analytics.

4) Students Performance Tracking:

Faculties should be able to use the platform to monitor students' progress over time and identify their areas of strength and weakness.

5) Security and Authentication:

The platform should ensure the security and integrity of student performance data, including authentication and authorization protocols to ensure only authorized users can access the data.

Non Functional Requirements:

1) Scalability:

The platform should be designed to handle large volumes of student performance data and scale to meet the needs of a growing user base.

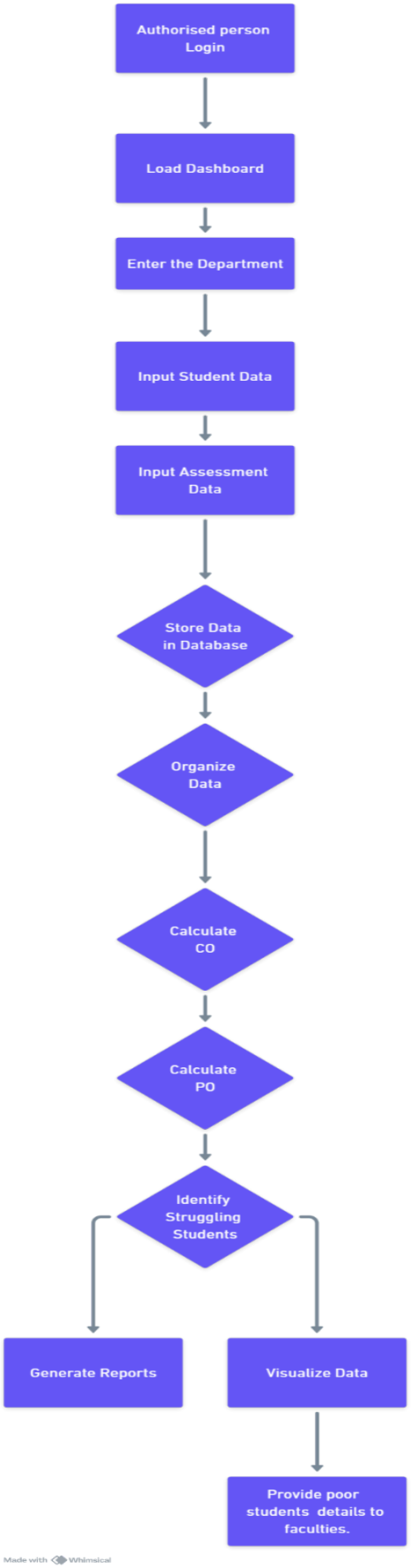
2)Usability

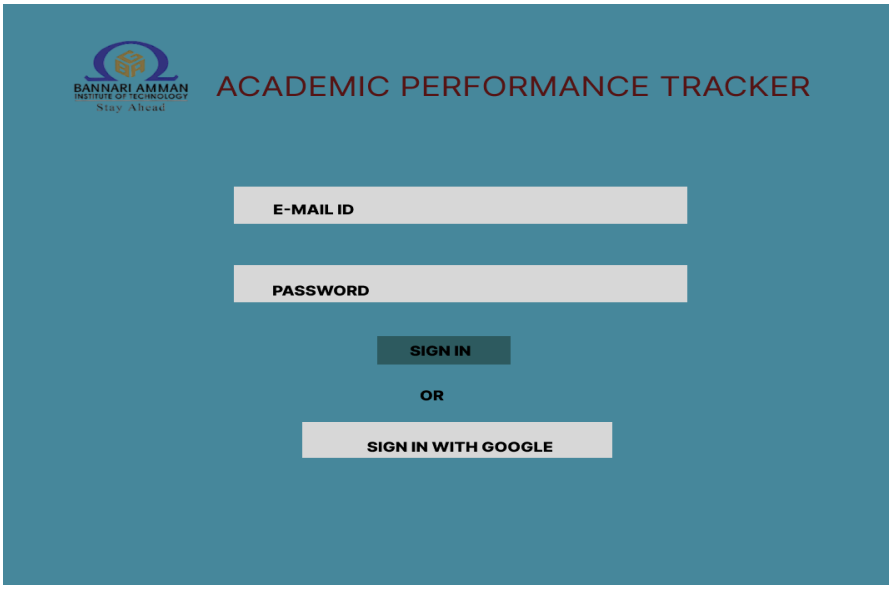
For administrators and educators, the platform should have a low learning curve and be simple to use.

3) Data Security and privacy:

The platform should ensure the security and privacy of student performance data, including encryption, access controls, and auditing

FLOW DIAGRAM:


Authorised person Login
Load Dashboard
Enter the Department
Input Student Data
Input Assessment Data
Store Data in Database
Organize Data
Calculate CO
Calculate PO
Identify Struggling Students
Generate Reports
Visualize Data
Provide poor students details to faculties.
Made with Whimsical


BANNARI AMMAN
INSTITUTE OF TECHNOLOGY
Stay Ahead
ACADEMIC PERFORMANCE TRACKER
E-MAIL ID
PASSWORD
SIGN IN
OR
SIGN IN WITH GOOGLE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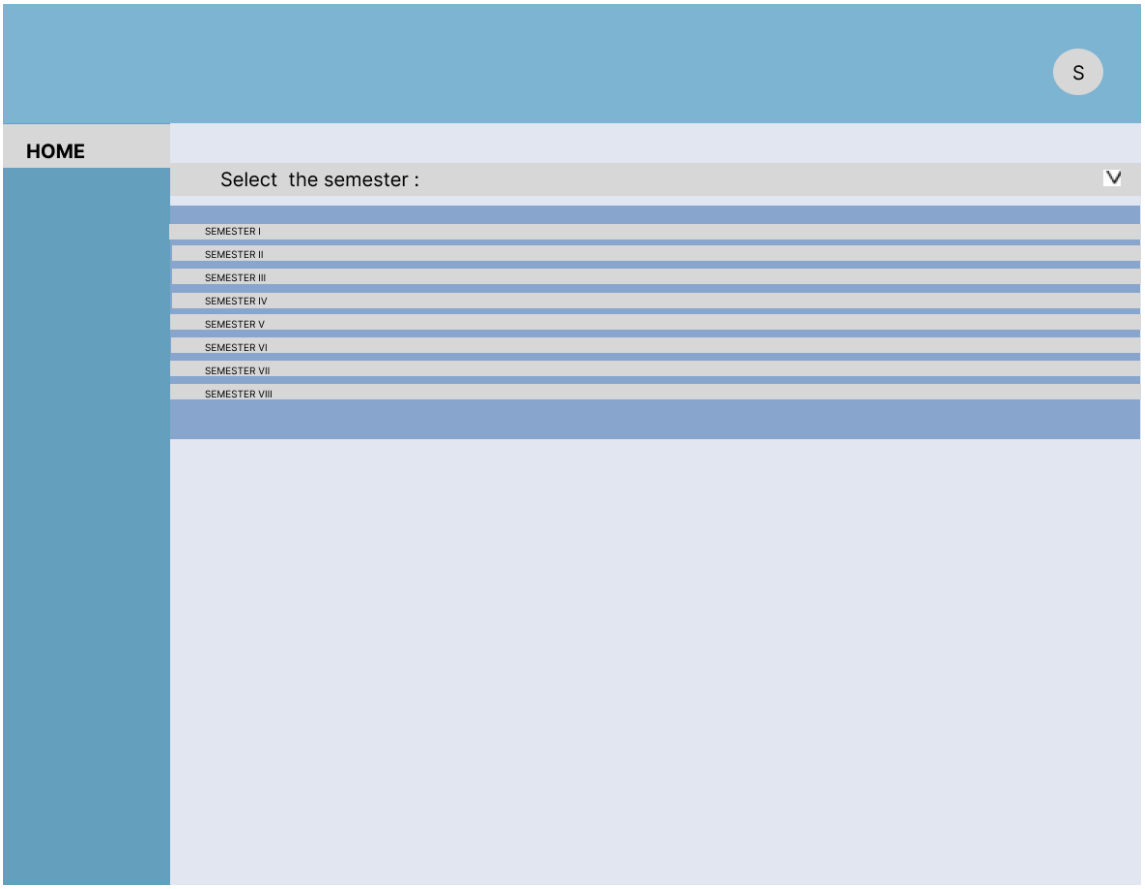
Enter the Department


S
HOME
Select the semester :
SEMESTER I
SEMESTER II
SEMESTER III
SEMESTER IV
SEMESTER V
SEMESTER VI
SEMESTER VII
SEMESTER VIII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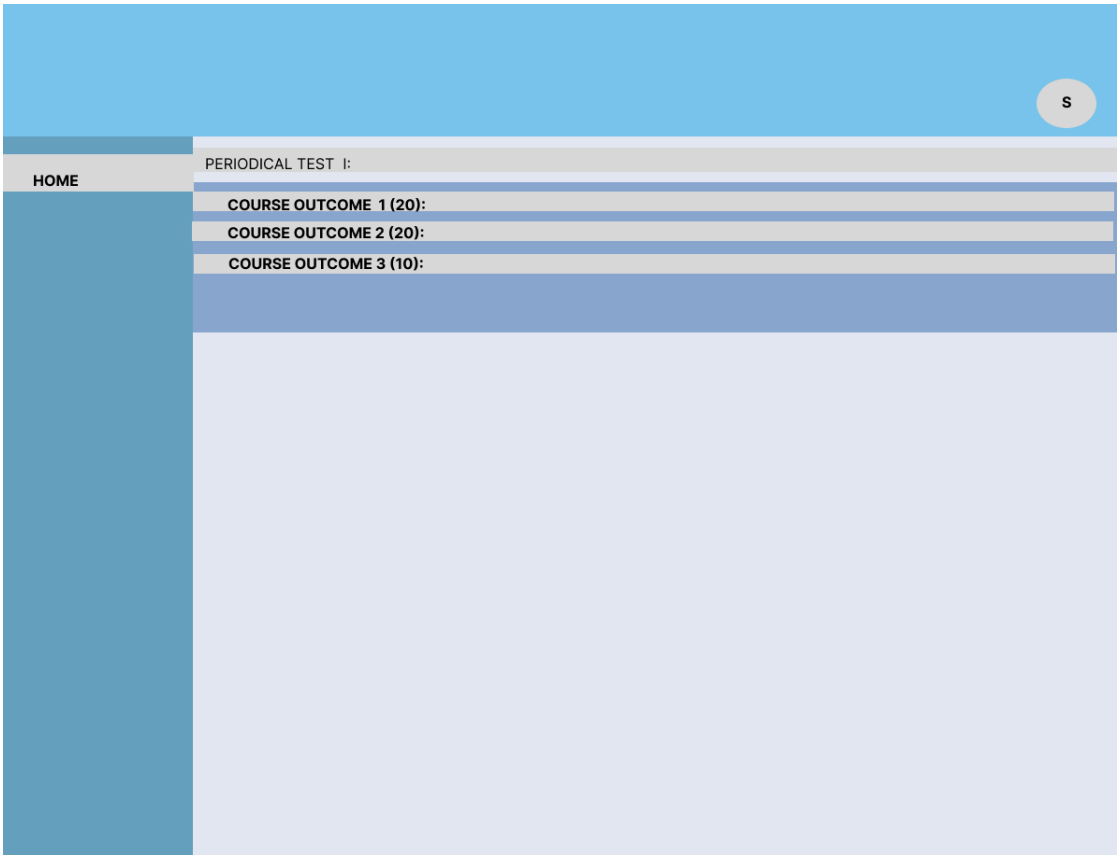
Home
Select Activity :
Periodical Test I
Periodical Test II
Innovative Practice I
Innovative Practice II
End Semester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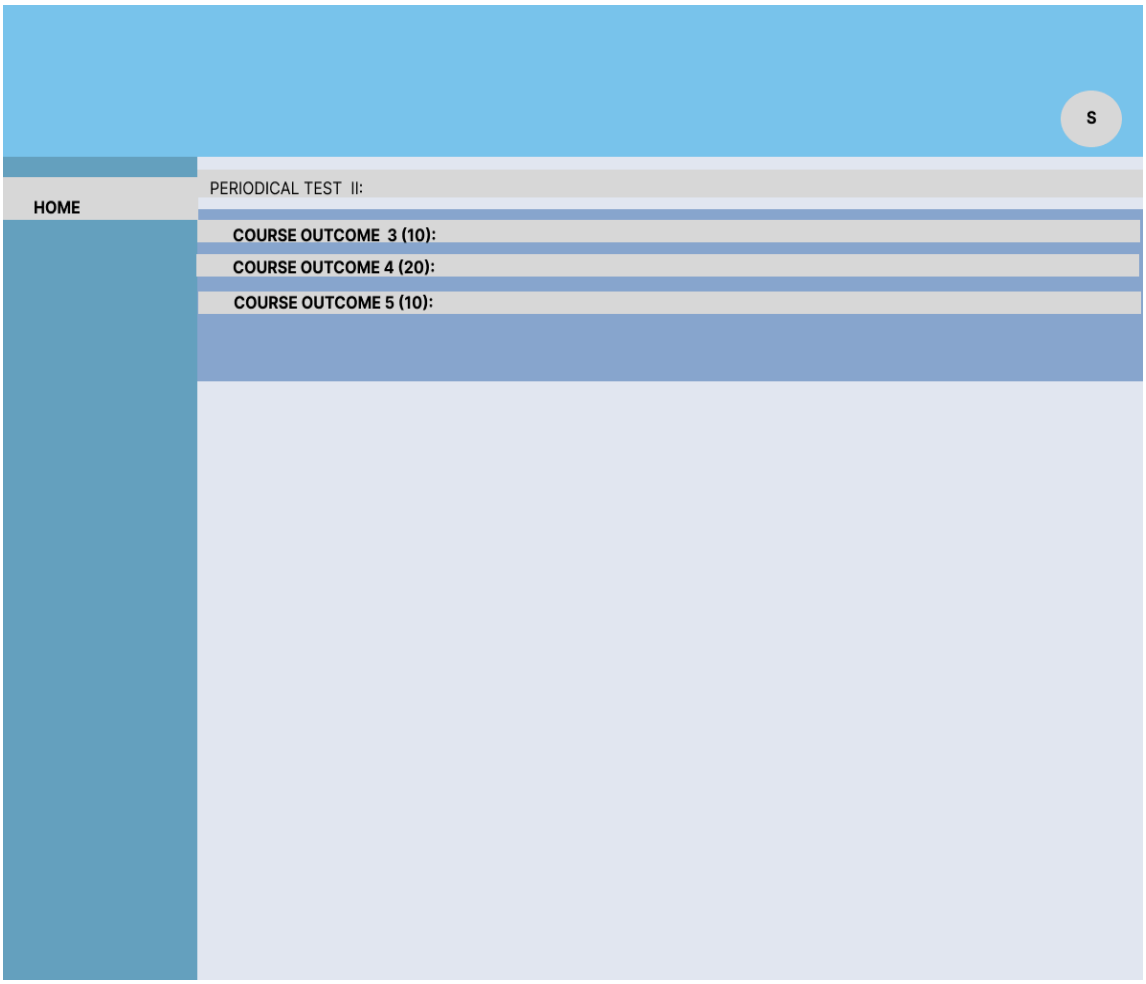
HOME
PERIODICAL TEST I:
COURSE OUTCOME 1 (20):
COURSE OUTCOME 2 (20):
COURSE OUTCOME 3 (10):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PERIODICAL TEST II:
COURSE OUTCOME 3 (10):
COURSE OUTCOME 4 (20):
COURSE OUTCOME 5 (10):


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HOME
Innovative Practice I (8):
Course Outcome I:
Course Outcome II:
Course Outcome III:


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HOME
Innovative Practice II (8):
Course Outcome III:
Course Outcome IV:
Course Outcome V:

End semester:

Course Outcome I (20):

Course Outcome II (20):

Course Outcome III (20):

Course Outcome IV (20):

Course Outcome V (20):