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SYLLABUS ORGANISER

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Abstract : One significant academic problem is the inefficient management of vast curricula, which leads to student burnout, poor exam performance, and a loss of educational productivity. Each day, students across various boards struggle to cover complex topics while dealing with "resource overload" and a lack of structured guidance. To solve this issue, this research introduces **Syllabus Organiser**, which is a web-based platform intended to connect students, academic mentors, and educational resources through one centralised digital interface.

Users will be able to register, log detailed study sessions, and be assigned an AI-driven qualitative analysis of their learning progress. The purpose of automating the coordination and progress-tracking processes through the platform is to eliminate manual efforts, such as traditional paper-based or spreadsheet journaling, and create a more predictable and transparent process for mastering the syllabus. The results of the system's testing show that it works effectively by integrating a deterministic "Readiness Meter" and behavioural tracking to enhance the coordination among all those involved in the learning process. The proposed solution aligns with academic goals to eliminate learning gaps and create a culture of data-driven professional student responsibility.

IndexTerms : **Artificial Intelligence, Syllabus Organiser, Behavioural Education, MERN Stack, Academic Analytics, Technical Analysis, Sentiment Analysis, Time Management, Generative AI**

I. INTRODUCTION

A. Background

After the pandemic, the Indian educational landscape has changed significantly. Due to the shift toward digital learning, many educational platforms started offering diverse resources, and many students entered the digital learning space in the last few years. Studying has become very easy now as anyone can access curriculum details and start learning from their phone. Even after this big participation, most students still do not achieve profitable academic results.

Reports show that a high percentage of students fail to meet their goals because they do not follow rules strictly. Many times, after a failed test, students only engage in "panic studying" so they can recover the lost time in a quick manner. Some students hold onto ineffective study habits, hoping that their performance will move in their favour. These are some reasons why academic failures increase. Many students track their progress in Excel or paper, which is not enough as these only show numbers, not the qualitative reason behind the study session. They do not track their emotions and psychological states, making them unaware of their mental blocks.

The current academic environment in India has become hyper-competitive, where even a 1% difference in marks can change a student's career trajectory. While digital tools have made study materials available at the click of a button, they have also introduced a new kind of "cognitive clutter." Students often find themselves jumping between various YouTube tutorials, PDF notes, and reference books without a central system to track what they have actually mastered. This lack of a "single source of truth" leads to a fragmented understanding of the syllabus. Furthermore, the traditional Indian education system places immense pressure on the final examination performance, yet provides almost no tools for a student to measure their "daily academic burn rate" or their mental readiness. Without a system that tracks the intersection of time spent, topic difficulty, and the student's own psychological state, the learning process remains an unoptimized, high-stress activity that often ends in burnout rather than excellence.

B. Problem Statement

Many of the current methods used by students for syllabus tracking and academic planning have not been digitalised or automated; therefore, they rely heavily on manual, paper-based processes and are often disorganised. This lack of structure leads to academic "chaos" during exam seasons. The dysfunction of the current manual system can be attributed to the following:

- There is a significant gap between the student's actual daily progress and the feedback provided by academic mentors or parents.
- Without a tracking mechanism, students often realise too late that they have spent too much time on easy topics while leaving

complex ones for the last minute.
● There is no scientific way for a student to monitor their retention levels or psychological readiness for a subject.

● Organised academic tracking systems are not commonly known or utilized by the average retail student in India. To perform surplus food donations efficiently and transparently, there needs to be an infrastructure created that is centrally located, automated, and web enabled.

C. Objectives

The objectives of the proposed project are as follows:

● Develop an automated syllabus management **sy**stem that is accessible via any web browser.
● Establish a means for students and AI mentors to communicate through a context-aware feedback loop.

● To develop an automated syllabus breakdown process where vast subjects are divided into manageable modules.

● To create a secure and user-friendly method for students to log study hours and emotional states.

● To enhance timely coordination of revisions to reduce the "forgetting curve" and academic waste.

II. PURPOSE AND PROBLEM DEFINITION

A. Purpose of the System

The primary purpose of this system is to create a structured and digital environment where academic goals can be tracked and achieved effectively. The system aims to:

● Reduce academic burnout by balancing study loads.
● Support consistent learning habits through daily logging.
● Improve the clarity of goals among students.

● Promote academic discipline using modern Generative AI technology.

B. Operational Challenges

The system addresses several operational challenges such as:

● Managing multiple subjects simultaneously without losing track of individual progress.
● Ensuring real-time synchronisation between study logs and progress charts.
● Secure authentication to protect sensitive student data.
● Efficient task prioritization based on subject difficulty and exam dates.
● Accurate database management of complex syllabus structures.

III. SCOPE

A. Functional Scope

The system provides the following modules:

● Student Registration and Login: Secure profile creation and subject selection.
● Syllabus Entry and Management: A CRUD interface to define topics, sub-topics, and weightage.
● Progress Tracking and Analytics: Visual charts (Pie charts/Gantt charts) for completion status.
● AI Coach Integration: Qualitative feedback on study patterns using the Gemini API.
● Admin Panel for Monitoring Features for academic coordinators to review student engagement.

B. Technical Scope

Frontend: HTML, CSS, JavaScript

Backend: Node.js

Database: MySQL

Platform: Web-based Application

C. Limitations

- Requires stable internet connectivity.
- No automated "knowledge testing" (depends on student self-reporting).
- Dependent on student honesty regarding the actual hours studied.
- Initial setup of the syllabus manually might be time-consuming.

IV. EXISTING SYSTEM / LITERATURE REVIEW

A. Traditional Food Donation System

Traditional study methods involve communicating goals via physical diaries or simple to-do lists. These systems generally lack proper documentation, a structured history of past performance, and transparency, which leads to forgotten topics and exam stress.

B. Digital Food Donation Platforms

Many organizations have developed apps for learning content (like BYJU's or Unacademy). However, many of these platforms focus on content delivery rather than **personal syllabus management**. They lack centralized tracking of a student's individual discipline and lack behavioural monitoring features.

C. Research Gap

Existing systems generally do the following:

- Have little to no integrated behavioural/emotional tracking.
- Do not provide a structured database of the student's unique learning curve.
- Have Limited qualitive feedback.
- Provide Minimal Automation in Scheduling

The proposed Syllabus Organiser System addresses these gaps by providing a centralised, automated, and transparent platform for managing syllabus progress and learning activities.

V. SYSTEM DESIGN AND ARCHITECTURE

A. Architecture Overview

The system follows a three-layer architecture:

- Presentation Layer: User Interface for students and mentors using React.js.
- Application Layer: Business logic for calculating progress and handling AI prompts.
- Database Layer: Secure data storage of syllabus logs and student history in MongoDB.

B. Key Modules

- User Authentication Module
- Syllabus Breakdown Module
- AI Mentorship Module
- Readiness Meter Module
- Analytics Dashboard

VI. METHODOLOGY AND ALGORITHMS

A. Needs Gathering Analysis :

Real world challenges, individual needs of people with whom we work were evaluated in gathering systems requirements.

B. System Design :

ER diagrams, workflow diagrams, and development of DB schema (Database Schema) are designed to assist your organization by providing an efficient means for managing data and structuring operations.

C. System Implementation :

the frontend (React) and Backend (Node.js) have been integrated with the MongoDB cloud database to provide for the seamless exchange of data between the student's dashboard and the storage engine..

D. System Test

The system has been tested in the following ways:

- Unit Test— Each module (Login, Topic Entry, AI Analysis) was tested individually
- Integration Test—Confirmed that the AI Coach correctly receives data from the MongoDB logs.
- Use Acceptance Test—Tested by local students to ensure the usability matches their daily study workflow.

The test results confirm that the system performs reliably and that all modules operate correctly together.

VII. IMPLEMENTATION DETAILS

. Tech Stack

- Frontend: HTML, CSS, JavaScript
- Backend: Node.js
- Database: MySQL
- Hosting: Localhost / Web Server

B. Security Considerations

- Secure login authentication
- Input validation
- Database protection mechanism
- Role-based access control

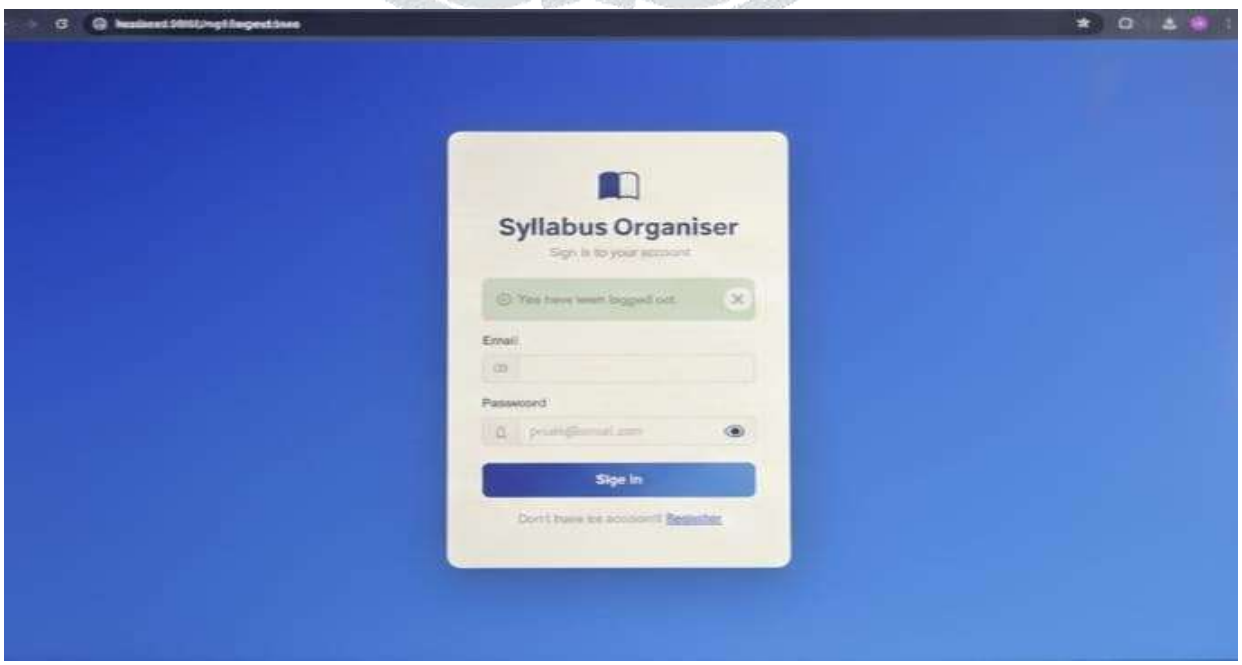
VIII. RESULTS AND DISCUSSION

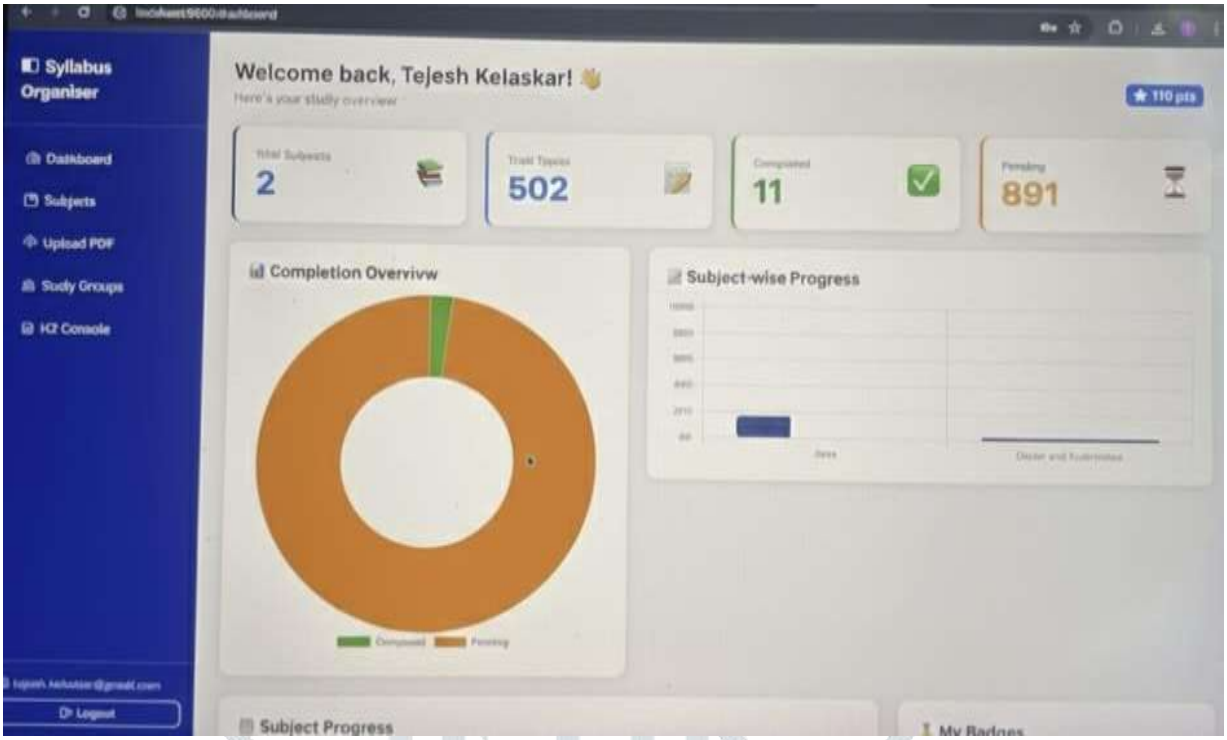
The system provides an efficient way to do the following:

- **Registering Students: Allowing secure account creation and profile management**
- **Posting Study Logs: Students can enter topics covered, including time spent and their emotional state (focused, tired, etc.).**
- **AI Performance Analysis: The system generates a report highlighting which subjects are being ignored and which are mastered.**
- **Tracking Status: Real-time updates on the "Readiness Meter" from the start of the semester until the final exam.**

The implementation of these processes has eliminated much of the manual effort involved in academic planning, improved the awareness of syllabus completion, and ensured that students are better prepared for their examinations in a timely manner.

B. Result





HALLENGES AND SOLUTIONS

1. Limitations on Internet Connections

In order for Syllabus Organiser to provide you with the highest level of academic support, the user must have access to a stable and reliable Internet connection. This is particularly critical for the AI Mentorship Module, which relies on real-time API calls to the Google Gemini engine. Our systems were designed around the concept of creating responsive web interfaces that sync local study data with the cloud database. We have optimized the platform to perform efficiently even on standard student networks, ensuring that progress tracking is updated without lag during day-to-day study operations.

2. Lack of Continuous Interaction between Students and Mentors

In conventional study environments, interaction between students and mentors is often irregular and dependent on physical availability, which limits continuous academic guidance.

3. Manual Management of User and Donation Data

Manual handling of study records, topic completion, and performance reports often leads to inconsistencies and data redundancy. The Syllabus Organiser System uses a structured database to store student profiles, syllabus structures, and progress logs. Automated data handling reduces human errors and ensures consistency in academic records.

4. Absence of Proper Progress and Readiness Tracking

Students frequently face difficulty in assessing their actual level of preparation for examinations due to the lack of systematic progress monitoring. The system addresses this challenge through automated progress tracking and the readiness meter module. Students can view subject-wise completion status and overall preparedness in real time, enabling better self- assessment and planning.

IX. CONCLUSION AND FUTURE WORK

Effective syllabus management remains a major challenge for students, especially in environments that demand self-regulated learning and consistent academic planning. The proposed **Syllabus Organiser System** provides a structured and centralised platform to support students in organising their syllabus, recording study activities, and monitoring learning progress. By integrating automated scheduling, progress analytics, and AI-based guidance, the system improves transparency in academic planning and reduces dependency on manual tracking methods. The implementation supports better time management, enhances awareness of pending and completed topics, and assists students in preparing in a more organised and disciplined manner.

Overall, the system contributes to improved academic planning practices and offers a scalable solution for structured learning management.

Future Developments

- Mobile app
- Advanced personalisation of study schedules based on learning patterns
- Integration with institutional academic systems
- Predictive performance analysis using machine learning techniques

X. ACKNOWLEDGMENT

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REFERENCES:

[1] React Documentation, "Building User Interfaces," Available: https://react.dev/

[2] Node.js Documentation, "JavaScript Runtime for Scalable Network Applications," Available: https://nodejs.org/en/docs/

[3] Express.js Documentation, "Web Application Framework for Node.js," Available: https://expressjs.com/

[4] MongoDB Documentation, "NoSQL Database Platform," Available: https://www.mongodb.com/docs/

[5] MySQL Documentation, "Database Management System," Available: https://dev.mysql.com/doc/

[6] Google AI Platform, "Generative AI and API Services," Available: https://ai.google.dev/

[7] Google Maps Platform Documentation, "Location and Map Services," Available: https://developers.google.com/maps

[8] MDN Web Docs, "Web Technologies for Frontend Development," Available: https://developer.mozilla.org/