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DEPARTMENT OF MCA

Project Report on
“Smart Study Planner”

Submitted in partial fulfillment of requirement for the award of the degree
MASTER OF COMPUTER APPLICATIONS

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Project Guide

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INTRODUCTION:

In today's fast-paced education environment, students are expected to manage their wide range of responsibilities-from attending classes, exams and completing their assignments to preparing for their exams and pursuing personal learning goals. With short time and increasing pressure, staying organized has become the more challenging than ever.

Traditionally, students have used their handwritten notes, diaries, timetables and simple plans to complete their studies. While these methods provide basic structure, they have lack of flexibility, adaptability, and progress monitoring features. Generic digital task managers like Google Calendar or Microsoft To-Do provide reminders and scheduling but are not completely designed to meet their academic or educational requirements of students.

The area of smart study planning and productivity tools in education focuses on creating and managing intelligent systems that help students to organize and maintain their study schedules, allocating time effectively, and tracking progress of students in real time. Such systems not only reduce academic stress but also improve efficiency and work by allowing students to set their goals, prioritize tasks, and integrate subjects and class resources in one place.

The Smart Study Planner project works within this domain and only concentrate on students' academic. It combines both educational planning and resources with digital task management by knowing students to create their personalized study plans, break them into smaller tasks, monitor the study progress, and access the subject-related resources. By utilizing technology for structured study planning, this project helps to the larger field of Educational Technology (EdTech), where the aim is to support students in achieving better academic outcomes through the intelligent digital tools and plans.

2. Literature Survey

2.1 Existing Systems

A variety of digital platforms helps the students to manage and maintain their tasks and accessing educational content, but most fall short when it comes to modern academic planning. These tools tend to be broad in scope, lacking the specificity required for effective study management. More oftenly the traditional education planning will be lack of students academic growth and also it is very difficult to trace the growth of student and it will always makes follow their previous plan.

. However, they are mostly generic and not specifically designed for academic study planning.

- Google Calendar / Microsoft To-Do – These tools are widely used for scheduling and setting the reminders, but they are not developed for the generic task management. As a result, the lack feature faced in academic planning, such as tracking syllabus coverage, aligning tasks with exam dates, or organizing subject specific goals.
- Trello / Notion – These platforms provide project management features like task boards, timelines, and checklists but require manual setup and lack subject-specific focus. However, they relay on manual configuration and do not inherently support academic structure.

2.2 Problems in Existing Systems

Most existing systems fall short in supporting academic planning. They often lack subject-specific organization, intelligent scheduling features, and AI driven personalization.

1. Lack No structured planning by the subject.
2. No intelligent scheduling based on exams, deadlines, or workload.
3. Study materials and tasks are disconnected.
4. Missing AI-driven Support.

2.3 Available Solutions and Their Features

There are several popular tools that help different aspects of productivity and learning, but none of them fully address the unique needs of the students that are facing daily and when it comes to personalized study planning.

- Google Calendar –is great for basic scheduling and setting reminders, but it doesn't offer subject-specific planning and academic monitor and tracking.
- Trello / Notion – Provide flexible project Management through boards and lists, yet they lack features tailored to academic workflows.
- EdTech Platforms (Coursera, Byju's, Khan Academy) – Offers a structured learning content, but they don't
- Microsoft To Do / Todoist – Great for managing to-do lists and tracking daily tasks, but not specifically tailored for students' subject-wise study plans.
- Habit Tracking Apps (Forest, Habitica, etc.) – Useful for focus-building and consistency, but lack comprehensive scheduling, content management, or academic-specific tracking

2.4 Proposed Solution

To bridge this gap, we propose a Smart Study Planner- a unified platform that brings together Scheduling, subject -wise planning, resource management, and intelligent recommendations. This system is designed to support students in building structured, efficient, and personalized study routines.:

- Generate the **personalized study plans** for students based on their subjects, deadlines, and exam schedules.
- Providing **task scheduling** with reminders, notifications, and progress tracking.
- Integrate with **resources, notes, and references** within each subject or task.
- Using AI-driven recommendations for study planning.
- Allow **real-time progress monitoring** with visual reports of student progress.
- Enabling a **collaborative study planning**.
- Provide a User-Friendly interface.

2.5 Advantages of the Proposed Solution:

The personalized study planner is designed to do more than just manage schedules—it's built to support students in a deeper, more meaningful way. By combining structured planning with intelligent AI-powered insights, it tackles the shortcomings of traditional tools and offers a more complete learning experience.

- Keeps students motivated and engaged by showing clear progress and celebrating milestones.
 - Enhances academic efficiency through structured planning.
 - Builds discipline and consistency by encouraging regular study habits.
 - Reduces stress and overload by breaking big goals into smaller tasks.
 - Offers smart guidance with AI-driven scheduling and personalized learning support.
 - Improves overall learning outcomes through continuous progress tracking and timely feedback.
 - Supports independent learning while still offering structured guidance.
 - Fuels motivation by making achievements visible and rewarding.
 - Boosts motivation and engagement through progress tracking and milestones.
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3. Problem Statement

3.1 Problem Definition

Managing academic responsibilities has become increasingly complex for students. With a growing mix of assignments, exams, and project across multiple subjects, many find it difficult to stay organized and maintain a productive study routine. While tools like handwritten schedules or general-purpose apps (such as Google Calendar or Trello) offer some structure, they often fall short when it comes to the specific needs of academic planning and progress. These methods usually lack of flexibility to adapt the shifting of priorities and don't provide the personalized support to the students.

Core Challenges:

- Struggling to handle multiple subjects and assignments once.
- Traditional timetables lack flexibility and adaptability.
- Generic tools that aren't tailored for student workflows.
- Conflicting schedules leading to missed deadlines and poor time management
- Absence of personalized progress tracking and feedback.
- No intelligent support to guide learning strategies or optimize study time
- Increased stress due to unorganized study plan routines.
- Lack of AI-driven insights to optimize the learning strategies of students.

3.2 Proposed Solution

The Smart Study Planner is built to help students take control and manage of their academic responsibilities by offering a unified platform that blends scheduling, resource organization, and intelligent guidance. Its goal is to make study planning more intuitive, and more consistent and effective-ultimately leading to improved academic performance.

Key Features of the Proposed System:

- **Customized Study Plans by Subject**– Students can design tailored study plans for each subject, promoting balanced preparation in academic progress.
- **Task Management with Deadlines and Alerts** – Assignments, projects, and exam preparation are scheduled with built-in reminders to support timely completion and reduce last-minute stress.
- **Progress Tracking** – The Smart Study Planner is tracking the student's day to day work progress and update it.
- **Integration of Study Resources** – Student can get extra benefit because the all the resources are available in one platform.
- **AI-driven Personalized Recommendations** – Based on individual performance and upcoming deadlines, the planner suggests the optimize the timetables and helps to effectively adapt the strategies.
- **Student-friendly Interface** – Designed with simplicity in mind, the interface should encourage the regular user and students.
- **Stress Management through Structured Planning** – Large academic goals are broken down into smaller, manageable tasks, helps a student to fell less overwhelmed and more in control.
- **Motivation through Feedback and Insights** – Provides visual progress updates and achievements to keep students motivated and achieve their academic goals.

3.3 Development Process

The development of the **Smart Study Planner** follows the Agile Software Development Life Cycle (SDLC) approach, a flexible framework that promotes the iterative progress, regular feedback, and adaptability to evolving student needs. This approach enables the system to grow steadily, with improvements integrated at each stage.

Main Stages of Development:

1. **Requirement Gathering & Analysis** – Collecting functional and non-functional requirements through surveys, academic scenarios, and feedback from students and educators also from the direct feedback.
2. **Sprint Planning & System Analysis** – Requirements are divided into smaller development cycles called sprints. During this phase, user roles such as Admin and Student are defined, and system is segmented into manageable modules for focused implementation.
3. **System Design** – Designing ER diagrams, Data Flow Diagrams (DFDs), Use Case diagrams, and database schema to support modular development and ensure the data integrity.
4. **Building the Application in iterations** – Development is carried out in multiple sprints using technologies like Python with Django and database such as MySQL. Each sprint delivers new features, allowing for continuous refinement and expansion.
5. **Testing for Quality Assurance** – Every iteration undergoes through testing, including unit tests, integration tests, and sprint reviews. Once a module is complete, user acceptance testing ensures that it meets expectations and functions reliably.
6. **Deployment** – Releasing the application in phases for real student use, ensuring smooth deployment and feedback collection.
7. **Maintenance & Continuous Enhancement** – Regular updates based on student feedback, bug fixes, and adding new features such as AI-driven recommendations, smart scheduling of the time table, and advanced analytics.

4. Software Requirement Specification (SRS)

4.1 Purpose and Scope

The Smart Study Planner is designed to help the students with a digital solution that simplifies the work of students and manage their academic workload. Its core aim is to help learners plan their academic workload. Its core aim is to help learners plan their studies efficiently, stay organized, and track their progress over time. By incorporating AI-driven scheduling and personalized learning strategies, the system empowers students to optimize their time and academic performance.

The scope of the project includes:

- **Secure User Access:** Enables students to create accounts and log in securely, ensuring personalized access and data protection.
- **Subject & Task Management:** Allows users to categorize subjects and assign tasks with deadlines to maintain the academic discipline.
- **Custom Study Plans:** Facilitates the creation and monitoring of individualized study plans aligned with personal academic goals.
- **Resource Integration:** Supports linking of study materials and references directly within the planner for convenient access.
- **Resource Integration:** Learning materials and references can be linked directly within the planner for easy access. Calendar integration for better visualization of study schedules.

4.2 Product Overview

The Smart Study Planner is a browser-based tool developed to support students to maintain and managing their academic responsibilities more effectively. It offers structured approach to study planning, helping learners and students to reduce stress and boost productivity. The smart study planner also includes administrative controls that allow designated personnel to monitor the system activity and provide user assistance when its needed. It also includes resource management, allowing easy access to study materials and references to the students.

Key Aspects of the Product:

- **Actors:**

- **Admin** – Responsible for managing users, maintaining the database, ensuring smooth system operation, and monitoring the activities.
- **User (Student)** – Primary actor who creates personalized and uses study plans, schedules tasks, tracks academic progress, and accesses integrated study materials.

- **Roles & Responsibilities:**

- **Admin Role:**

- Add, update, or remove the users from the application.
- Monitor the system performance and integrate security.
- Manage the storage of data and responsible for the backups of data.
- Approve or oversee new feature updates.

- **User Role:**

- Create subject-wise study plans to student.
- Add, update, and mark tasks as complete.
- Track progress through visual dashboards and reports and monitor.
- Access the notes, references, and linked study resources and videos.

- **AI Support:**
 - Suggests a personalized study schedules plans to the student to manage deadlines and student performance.
 - Prioritizes the tasks intelligently to reduce workload and the stress of the student.
 - Recommends the relevant resources, videos, and notes to improve learning efficiency of the student.
 - Provides adaptive feedback to improve study strategies over time to the students.
- **Platform Accessibility:**
 - Accessible via desktops, laptops, and mobile browsers, ensuring wide usability to student.
 - Responsive design for a seamless experience for users across devices.
 - Future scope includes the dedicated mobile apps (Android/iOS) for offline access and also provide notifications features.
- **Additional Features:**
 - User-friendly dashboard for quick navigations.
 - Notifications and reminders for upcoming tasks should complete by the student.
 - The platform ensures data privacy and security for student records.
 - Scalability to support a large number of users to manage simultaneously.

4.3 Functional Requirements

The Smart Study Planner is designed to make academic planning easier and more effective for both the students and administrators. These requirements ensure that the system is not only user-friendly but also secure, efficient, and effective in improving study management. Below are the features that define how the system works.

1. User Authentication

- Students must be able to register, log in, and log out securely.
- Passwords will be securely stored using encryption or hashing to protect user data.
- Only verified users will be able to access the platform, ensuring academic information stays private and secure.

2. Study Plan Management

- Students can create, edit, and delete personalized study plans to achieve their academic goals.
- Each plan can include subjects, topics, and defined study goals, enabling structured academic planning.
- Flexibility to adjust or update plans as deadlines and priorities change according to plan.

3. Task Management

- Students can add, update, or delete tasks within each subject or study plan as they needed.
- Ability to assign deadlines, task type (assignment, exam prep, notes, etc.), and priority to complete the tasks.
- Once a task is completed, students can mark it off, giving a sense of progress and accomplishment.

4. Progress Tracking

- Displays completion percentage for each subject and task for each student.
- The system gives an overview of progress across the entire study plan, helping students stay on track.
- Visual dashboards and reports highlight areas that need more attention, making it easier to manage time and effort.

5. Resource Management

- Students can attach useful materials like links, notes, PDFs, and reference materials directly under subjects or tasks.
- Keeps all study resources organized and well-structured in one place for quick access.
- Reduces dependency on multiple apps or storage locations platform.

6. AI Features

- Suggests optimal and well-structured study schedules by analysing deadlines, workload, and student performance.
- Provides personalized recommendations for effective learning strategies (e.g., focus more on weaker subjects).
- AI ensures the adaptability and making study plans in dynamic instead of the static.

7. Admin Functions

- Admin can manage and maintain student accounts (add, update, delete users).
- Monitor the system usage and activity of users to logs to ensure smooth functioning.
- Can approve new updates, manage database storage, and maintain application security.

4.5 Exception Handling

To keep the Smart Study Planner running smoothly, the system is equipped to detect and manage unexpected errors without shutting down. By handling exceptions properly, it protects user data, maintains system stability, and ensures a seamless experience. This not only boosts reliability but also helps users stay focused on their studies without technical interruptions.

Key Exception Handling Scenarios:

- **Invalid Login Attempts**
 - If someone enters the wrong password too many times, the system will show a clear error message.
 - To protect accounts, it may trigger a lockout or ask for captcha verification after repeated failures.
- **Missing or Invalid Task Deadlines**
 - When a task is added without a deadline, the system will gently remind the user to set one.
 - If the date entered is in the past or doesn't make sense, it'll flag the issue to prevent scheduling mistakes.
- **Invalid or Broken Resource Links**
 - When users attach external links or study materials, the system checks if the format is valid (like starting with "https://").
 - If a link doesn't work, an error message will pop up so users aren't left with broken resources.
- **Server Downtime or Connectivity Issues**
 - If the server goes offline or there's a connection problem, the system will show a friendly message instead of crashing.
 - Where possible, offline features like viewing saved tasks will still be available to keep things moving.

- **Form Validation Errors**
 - If a user forgets to fill in required fields like the subject name, task title, or deadline—the system will immediately prompt them to complete the missing information before allowing submission.
 - Validation also checks for correct data formats (e.g., date fields, URLs, numeric inputs), helping users avoid common mistakes.
 - Helpful tooltips or inline messages guide users to fix errors without frustration, improving overall usability.
- **Unexpected System Errors**
 - Any error that the system doesn't anticipate—such as a failed database connection or a bug in the code—is automatically logged with detailed information for the admin team to review.
 - Users should see a generic error notification instead of technical error codes.
 - These logs include timestamps, error types, and user actions leading up to the issue, making troubleshooting faster and more effective.
 - Instead of showing confusing technical messages, users will see a simple, friendly notification like “Something went wrong. Please try again later.”

4.6 Acceptance Criteria

Before we roll out the smart study planner, we need to make sure it ticks all the right boxes. This means checking that every feature works as expected that system is stable and it actually helps the students and admins in real, and practical ways. These final checks confirm the platform is stable and complete and it is ready to be used with confidence.

Key Acceptance Criteria:

- **User Authentication**
 - The platform should allow the users to register, log in and log out securely with passwords handled using proper encryption and ensure security.
 - If login credentials are incorrect, users should see clear error messages that guide them without confusion.
- **Study Plan Management**
 - Users must be able to create, update, and delete their study plans without running errors and confusion.
 - Each plan should support goal-setting and deadlines for individual subjects, helping students to stay organized and complete the task within the deadline.
- **Task Management & Progress Tracking**
 - Users should be able to manage tasks—adding, editing, or removing them—within their study plans.
 - The system must accurately track and display progress for each subject and the overall plan, giving users a clear view of how they are doing and managing their workforce.
- **AI Recommendations**
 - The AI should provide smart suggestions for study schedules, task prioritization, and learning new and unique strategies.
 - These recommendations must be relevant and adjust dynamically based on the student's workload and their task and upcoming deadlines.

- **Resource Management**
 - Users should be able to attach and access the study materials like links, notes and the document with the easy access.
 - If a link is broken or incorrectly formatted, the system should catch it and notify the user and before the saving.
- **System Usability**
 - The interface should be clean, easy to navigate, and work well on both desktop and mobile devices.
 - Features like reminders and notifications should function reliably to keep the users informed and on track.
- **Admin Functions**
 - Admin must be able to manage user accounts adding, updating, or deleting them when admin needed.
 - They should also be able to monitor system activity to ensure the everything runs smoothly and securely.
 - The admin is responsible for all the activities is carried out and manage by the admin.

4.7 Design Hints and Guidelines

The smart study planner system is develop an effective, scalable, and user-friendly smart study planner, its essential to follow sound design and development practices. The system should prioritize simplicity in its interface to help users navigate and plan their studies with ease. Scalability must be built into the foundation so the planner can grow alongside user needs without compromising performance.

Key Design Guidelines:

- User Interface (UI) Design**

- Design the interface to be simple, clean and minimal to keep the users focused and avoid confusions.
 - Design must be mobile friendly and responsive for smooth access on desktops, tablets, and smartphones.
 - Use intuitive navigation with dashboards, icons, and progress bars for a smooth user experience.

- Database Design**

- Design the database using a normalized relational structure to reduce redundancy and ensure the data consistency.
 - Apply appropriate indexing techniques to enhance the speed and efficiency of the database queries.
 - Preserve referential integrity across related tables such as users, study plans, Tasks, and resources to maintain the accurate the relationships and data reliability.

- System Architecture**

- Use a modular design strategy by developing each features like such as authentication, study planning, AI tools, resources, and admin controls as independent modules.
 - This approach simplifies maintenance, makes debugging more manageable, and supports smooth scalability for future upgrades.

- **Security Guidelines**

- Apply password encryption or hashing techniques such as bcrypt or SHA-256 to securely store the user credentials.
- Implement input validation to protect against common security threats like SQL injection, cross -site scripting (XSS), and cross site request forgery (CSRF).
- Use HTTPS and SSL certificates for secure communication.

- **Performance and Optimization**

- Optimize the database queries to handle large amount of data.
- Implement caching methods to store the frequently accessed data, to reducing server load and improving the response speed.
- Optimize performance to deliver quick load times across both mobile and desktop platforms for a smoother user experience.

- **Future Scalability**

- Keep the system flexible for integration with third-party EdTech platforms (Coursera, Byju's, etc.).
- Provides an AI recommendation study plan for the students.
- Plan for cloud deployment for better availability and scaling with user growth and faster development.

4.8 Glossary of Terms

The glossary outlines important terms used throughout the smart study planner system to ensure clear understanding and consistent usage.

- **Study Plan** – A planned schedule developed by the student to manage study sessions across various subjects. It typically includes learning goals, deadlines, and key milestone tailored to each subject.
- **Task** – A define piece of academic work within a study plan, such as an assignment, project, exam prep, chapter reading, or exercise. Tasks are specific, measurable, and can be tracked for completion.
- **Progress** – A performance metric that indicate the percentage of tasks finished within a specific subject or across the entire study plan. It helps students track their progress, assess their learning pace, and measure overall achievement.
- **Resource** – Any educational material such as notes, reference links, PDF's or multimedia content that is connected to a subject or task, aimed at helping students complete their academic work to complete the student task.
- **AI Recommendation** – A personalized suggestion generated by the system using artificial intelligence. It may offer the ideal study schedules, prioritization of the tasks or recommended the learning materials tailored to the student's to manage their workload, and maintain the deadline, and achieve the academic goals.
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- may include optimal study schedules, prioritization of tasks, or recommended learning resources based on workload, deadlines, and student performance.
- **User (Student)** – The primary actor who interacts with the system by creating study plans, adding tasks, tracking progress, and accessing resources.
- **Admin** – The system manager responsible for maintaining the platform, managing users, and ensuring smooth operation of the application.
- **Deadline** – The specific date and time assigned to a task or subject-related goal, ensuring timely completion.
- **Dashboard** – The central interface of the application where users can view study plans, progress reports, upcoming tasks, and AI-driven recommendations.

4.9 Technology Requirements

The development of the Smart Study Planner requires a combination of frontend, backend, database, AI integration, and supporting tools. The chosen technologies ensure scalability, usability, and performance across different platforms.

Technology Stack:

- **Frontend:**
 - HTML, CSS, Bootstrap – For building a responsive and user-friendly interface.
 - React – For creating dynamic, component-based, and interactive user experiences.
- **Backend:**
 - Python (Django Framework) – Provides a robust, secure, and scalable backend for handling user authentication, study plan management, and AI integration.
- **Database:**
 - MySQL – A reliable relational database used to store user data, study plans, tasks, resources, and progress tracking.
- **AI Integration:**
 - **Python Libraries such as:**
 - Scikit-learn – For implementing machine learning algorithms.
 - TensorFlow – For advanced AI models and predictive analytics.
 - Rule-based algorithms – For basic scheduling and recommendations when complex ML models are not required.
- **Development Tools:**
 - Visual Studio Code (VS Code) – For coding and debugging.
 - GitHub – For version control and collaborative development.
 - MS Word / Google Docs – For preparing project documentation and reports.
- **Operating System (OS):**

- Cross-platform support for Windows and Linux, ensuring wide accessibility during development and deployment.
- **Additional Tools (Optional for Deployment & Testing):**
 - Postman – For testing APIs.
 - Docker – For containerization and easy deployment.
 - Heroku / AWS / Azure – For cloud hosting and scalability

5. System Design

System design is the process of defining the architecture, components, modules, and relationships of a system to meet specific requirements. It provides a blueprint for how the system will function, ensuring that data is stored efficiently, operations are well-defined, and user interactions are properly supported.

In this project, the system design is represented through an ER diagram (Entity Relationship Diagram), which captures the entities of the study planner, their attributes, and how they are connected.

Study Planner System Design

1. Entities and Roles

- Admin: Manages and monitors users in the system.
- User: Represents students/learners who create subjects and plans.
- Subject: A course or topic chosen by the user.
- Study Plan: Defines the user's learning path and goals for a subject.
- Task: Individual activities under a study plan with deadlines and types.
- Progress: Tracks completion status of tasks for each user.
- Resources: Study materials like books, notes, videos linked to subjects.
- Tracks: Maintains the record of which user follows which plan.

2. Relationships

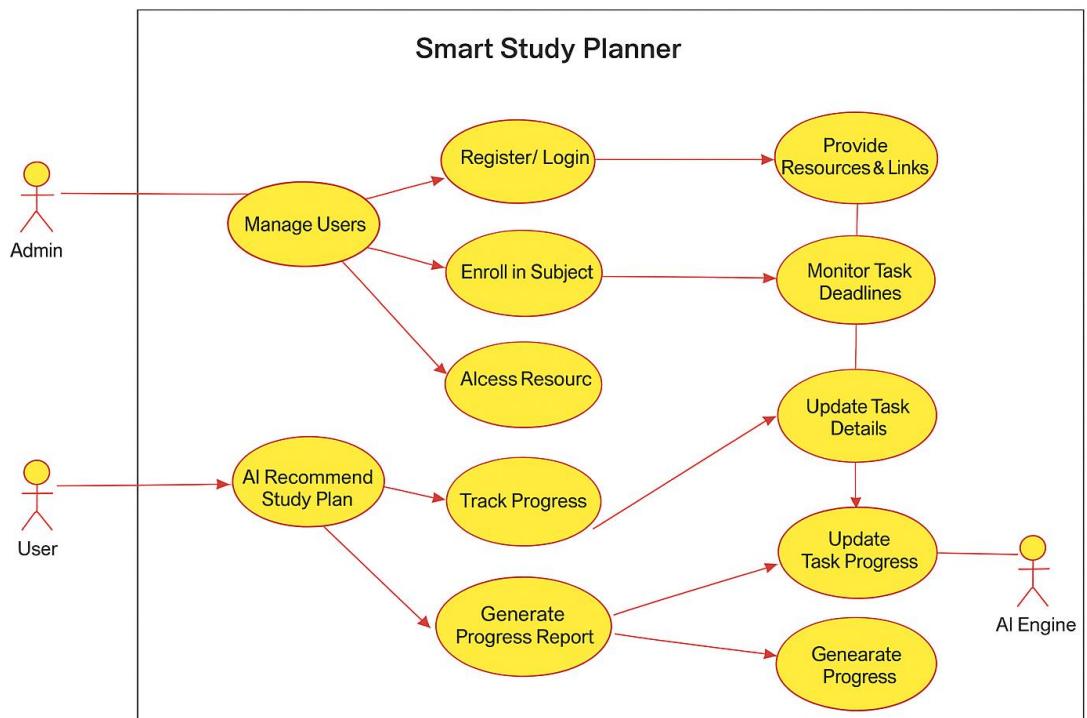
- An Admin can manage multiple Users.
- A User can create multiple Subjects.

- Each Subject can have one or more Study Plans.
- A Study Plan consists of multiple Tasks.
- Progress links tasks and users to track completion.
- Resources are attached to subjects for additional support.
- Tracks connect users to the study plans they follow.

3. Workflow

1. Admin registers and manages users.
2. Users create subjects based on their learning requirements.
3. For each subject, users build study plans with goals and timelines.
4. Study plans are broken down into tasks (assignments, quizzes, etc.).
5. As users complete tasks, their progress is updated.
6. Resources are provided for better understanding of subjects.
7. The system tracks which plans are being followed by which users.

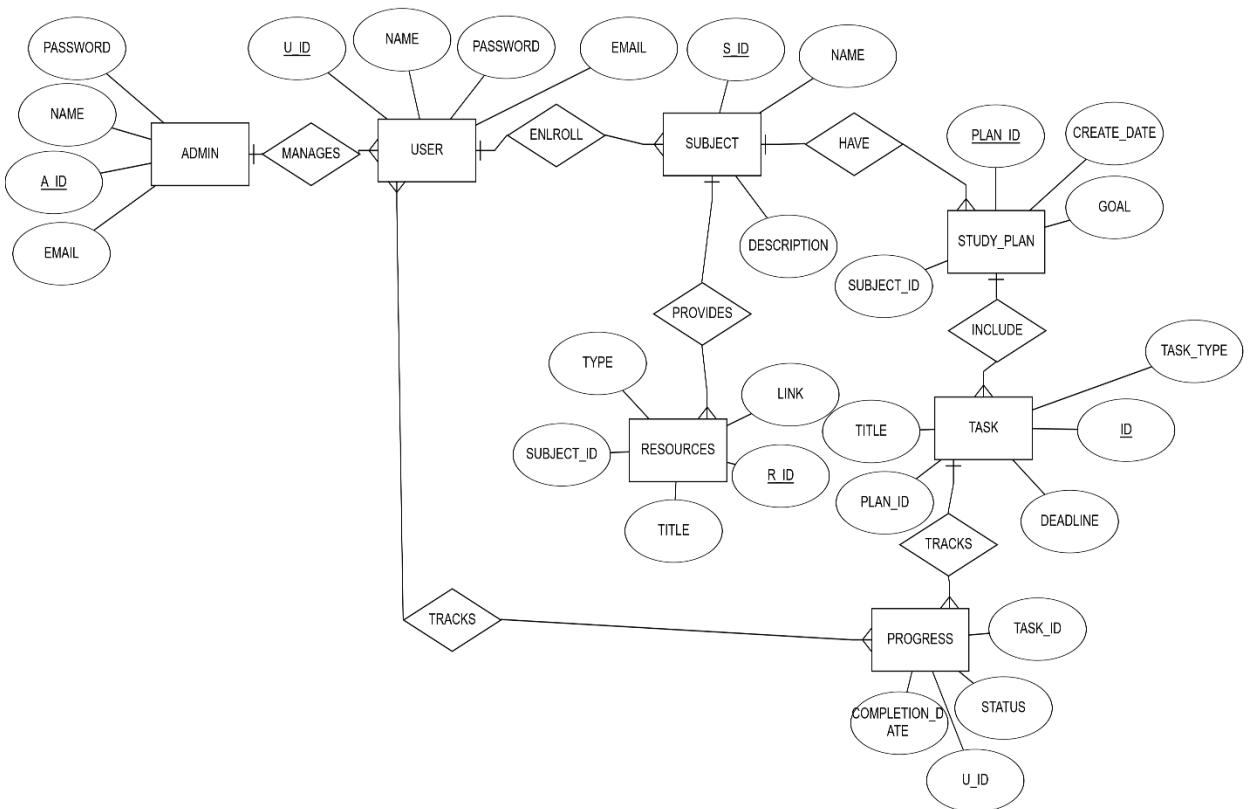
Diagram:



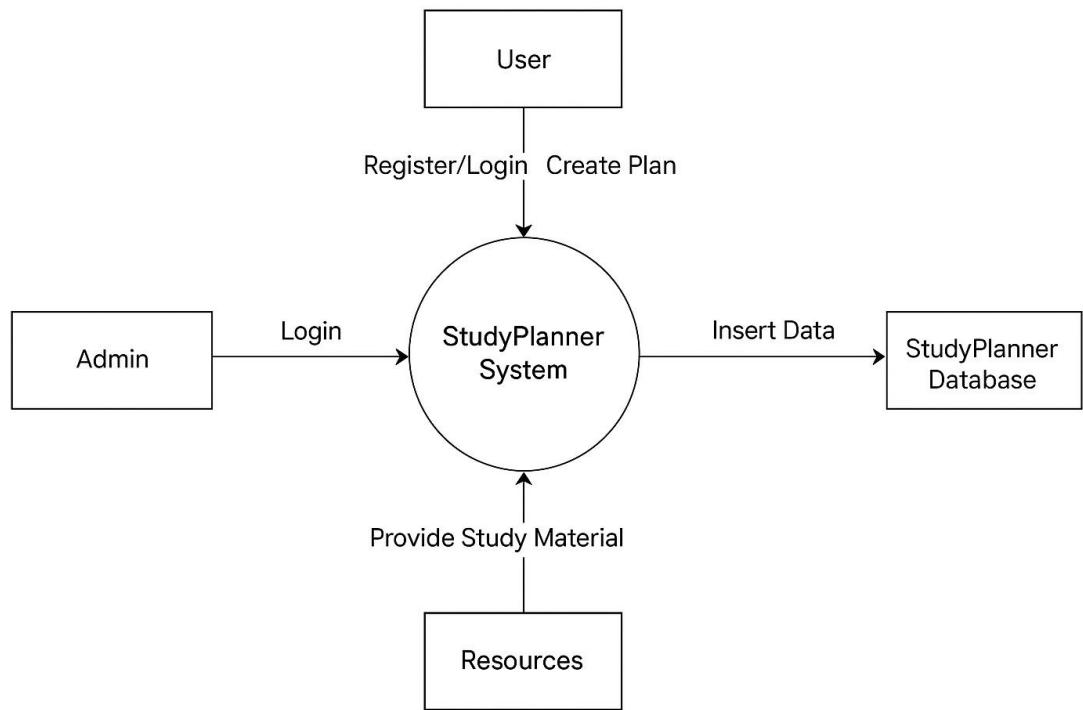
6. Detailed Design

1. High-Level Design

1. Class and Object Model



2.DFD: LEVEL 0

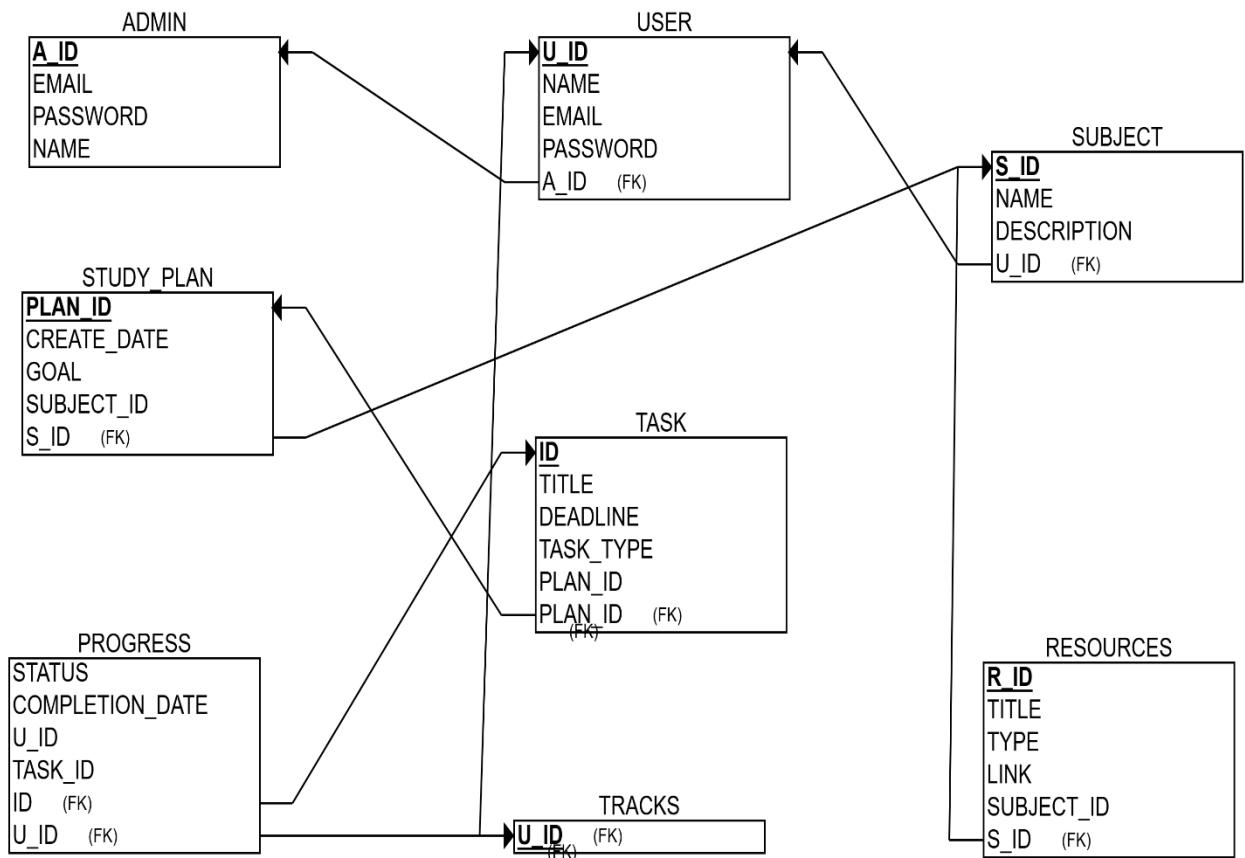


2.LOW-LEVEL DESIGN

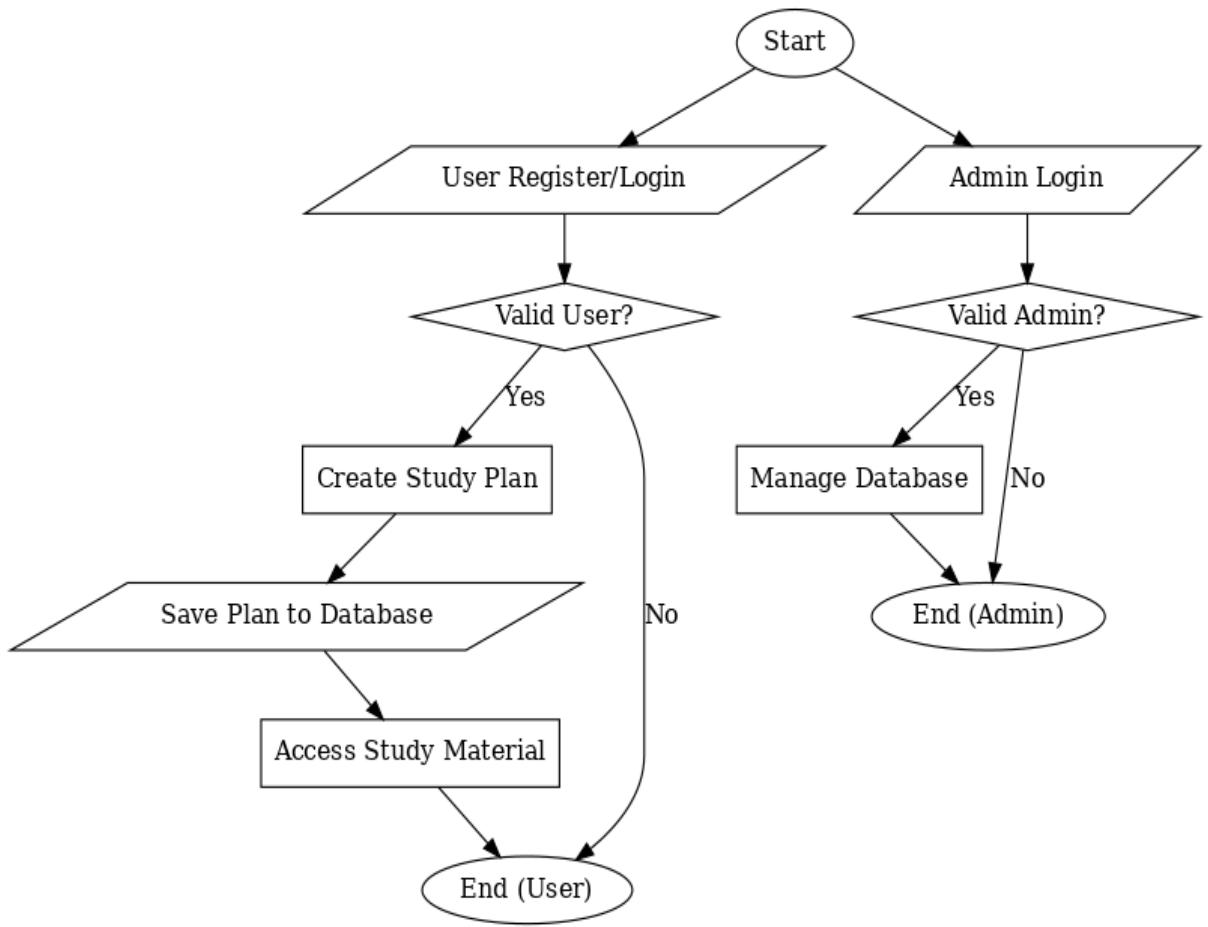
1.Relational Model:

A Relational Diagram illustrates the database structure using tables, their attributes, and keys. It defines how entities are related through primary and foreign keys, ensuring data consistency. This diagram helps visualize the logical connections among different entities for efficient database design.

- A Relational Diagram represents the structure of a database in terms of tables (relations).
- It shows how entities are stored in tables with their attributes (columns).
- Primary keys uniquely identify each record in a table.
- Foreign keys create relationships between tables to maintain data integrity.
- It helps in understanding how different entities are logically connected within the database.



2.Flowchart:



7. IMPLEMENTATION

7.1 Testing & Results

To ensure the Smart Study Planner delivered a reliable and user-friendly experience, we conducted a comprehensive testing process across multiple phases. Each phase was designed to uncover issues early, validate functionality, and ensure the system met real-world expectations.

1. Unit Testing We began by testing individual components in isolation. This included modules like:

- User Registration: Tested with various input combinations valid emails, duplicates, weak passwords, and missing fields—to ensure robust validation.
- Study Plan Creation: Verified that users could create plans with custom subjects, timelines, and goals.
- Task Management: Ensured tasks could be added, edited, marked complete, and deleted without errors.
- Resource Upload: Checked file types, upload limits, and accessibility across devices.
- Progress Tracking: Validated that progress bars and completion metrics updated accurately based on user activity.

These tests helped us catch edge cases and refine each module's behaviour before moving on to broader testing.

2. Integration Testing Once individual modules were stable, we tested how they interacted with each other—especially between the backend (Django REST APIs) and frontend (React). For example:

- When a student added a task, it was instantly stored in the database and reflected on the dashboard.
- Uploaded resources were accessible from both the planner and the task view.
- Notifications triggered correctly based on deadlines and task status.

This phase confirmed that data flowed smoothly across the system and that user actions translated into expected outcomes.

3. System Testing

We simulated real-world usage by running end-to-end workflows:

- A user signs up → creates a study plan → adds tasks → uploads resources → receives reminders and tracks progress.
- We tested across different devices and browsers to ensure consistent performance and responsiveness.

This helped us identify minor UI inconsistencies and optimize the user journey for clarity and ease of use.

4. User Acceptance Testing (UAT)

We invited a group of students to try out the planner and share their feedback. Their insights were invaluable:

- Most found the interface intuitive and appreciated the clean layout.
- The ability to visualize progress and receive timely reminders was highlighted as especially helpful.
- A few suggested enhancements like color-coded subjects and calendar sync, which we've noted for future updates.

5. Performance & Load Testing

To ensure scalability, we tested the system under simulated high-traffic conditions:

- The planner handled multiple concurrent users without lag or crashes.
- API response times remained within acceptable limits even during peak usage.
- Resource uploads and dashboard rendering were smooth across different network speeds.

Final Results

- All core features performed reliably and met functional requirements.
- Minor bugs (e.g., UI alignment, notification timing) were identified and resolved.
- The system generated accurate study schedules and tracked progress effectively.
- Performance remained stable under load, confirming readiness for broader deployment.

Testcase No	1
Module	Student
User form	Login Form
Input	Valid user id and Valid Password
Expected Output	Successful login to Student Dashboard.
Observed Output	Successful login to Student Dashboard.
Remark	PASS

Testcase No	2
Module	Admin
User form	Login Form
Input	Valid user id and Valid Password
Expected Output	Successful login to Admin Dashboard.
Observed Output	Successful login to Admin Dashboard.
Remark	PASS

CONCLUSION:

The Smart Study Planner, known as Planora, has been successfully developed and implemented to help students overcome the everyday challenges of managing their academic schedules. By integrating structured study planning with task management, resource organization, and progress tracking, Planora offers a practical and user-friendly solution aimed at boosting productivity and reducing stress.

Built on a solid technical foundation—Django REST Framework and MySQL for the backend, React and Bootstrap for the frontend—the system is both secure and scalable. The interface is clean, responsive, and easy to navigate, making it accessible for students across different devices and platforms.

Extensive testing confirmed that Planora is reliable, efficient, and intuitive. From unit and integration testing to full system and user acceptance testing, every module was carefully validated. Students who tested the platform found it helpful in staying organized and consistent with their study goals.

One of the standout features is the AI-powered scheduling and reminder system, which intelligently adapts to user inputs and helps maintain momentum throughout the academic term. This not only improves time management but also encourages better study habits.

Beyond its core functionality, Planora showcases how modern web technologies can be applied to real-world educational needs. It is a strong example of how digital tools can support academic success in meaningful ways.

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Books

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- Holovaty, A. & Kaplan-Moss, J. The Definitive Guide to Django, Apress, 2nd Ed., 2009
- Nixon, R. Learning PHP, MySQL & JavaScript, O'Reilly, 5th Ed., 2018
- Seshadri, S. Learning React, O'Reilly, 2nd Ed., 2020
- Freeman, E. & Robson, E. Head First Design Patterns, O'Reilly, 2nd Ed., 2020

Websites

- **Django Documentation** — <https://docs.djangoproject.com>
- **Django REST Framework** — <https://www.django-rest-framework.org>
- **React Docs** — <https://react.dev>
- **Bootstrap Docs** — <https://getbootstrap.com>
- **MySQL Docs** — <https://dev.mysql.com/doc>

Other Resources

- GitHub: Open-source study planner/task manager projects
- Stack Overflow: Debugging & development support
- Tutorials: GeeksforGeeks, W3Schools, Tutorials Point
- Research: IEEE Xplore & Google Scholar (time management, productivity tools)

11. APPENDIX

I: User Manual

The Smart Study Planner (Planora) is designed to be simple and user-friendly. Below are the basic steps to use the system:

1. User Registration & Login

- Students can register by filling in their details.
- Admin approval is required for account activation.
- Users can then log in using their credentials.

2. Dashboard Overview

- The home dashboard displays an overview of study plans, tasks, and progress.

3. Creating a Study Plan

- Navigate to the “Study Plan” section.
- Add subjects, topics, and deadlines.
- Save the plan for automatic progress tracking.

4. Task Management

- Add new tasks under a study plan.
- Mark tasks as completed once finished.
- Edit or delete tasks when needed.

5. Resource Management

- Upload study materials (PDFs, notes, links).
- Access resources directly from the dashboard.

6. Progress Tracking & Notifications

- View completed vs. pending tasks in progress charts.
- Receive reminders and notifications for upcoming deadlines.

7. Admin Features

- Approve or reject new student registrations.
- Monitor user activity and manage resources.

II: Tools and Technologies

The project was developed using the following tools and technologies:

Frontend:

- **React.js** – For building a dynamic and responsive user interface.
- **Bootstrap 5** – For modern, mobile-friendly styling and layouts.
- **JavaScript (ES6+)** – Core scripting for frontend logic.

Backend:

- **Django (Python Framework)** – For handling server-side logic.
- **Django REST Framework (DRF)** – For developing RESTful APIs.

Database:

- **MySQL** – Relational database for storing user, task, and resource data.

Task Scheduling & Notifications:

- **Celery + Redis** – For handling background tasks and reminders.

Development Tools:

- **Visual Studio Code (VS Code)** – IDE for coding.
- **Postman** – For testing APIs.
- **GitHub** – For version control and collaboration.

Deployment & Hosting:

- **Apache Tomcat / Nginx** (optional, if hosting later).
- **Netlify / Vercel** (for frontend hosting).
- **Heroku / PythonAnywhere** (for backend hosting).