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Belagavi, Karnataka State, India

A project report on

“PLANORA”

Submitted in partial fulfilment of the degree of

Master of Computer Applications

Submitted by

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**Visvesvaraya Technological University,
Belagavi, Karnataka State, India.**



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CERTIFICATE

This is to certify that **Mr Basavaraj**, bearing USN **2BA23MC004**, has satisfactorily completed the project work entitled '**Planora**' submitted to the Basaveshwar Engineering College, Bagalkote, in partial fulfilment of the requirements for the award of Master of Computer Applications (MCA), during the academic year 2024-2025.

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I, **Basavaraj M Dyamangoudar**, student of final semester MCA, Basaveshwar Engineering College, Bagalkote, hereby declare that the dissertation entitled “Planora” has independently carried out by me at Master of Computer Application (MCA) Department, Basaveshwar Engineering College, Bagalkote, and submitted in the partial fulfillment of requirements for the award of MASTER OF COMPUTER APPLICATIONS by Basaveshwar Engineering College, Bagalkote, during the academic year of 2024-2025. Further the matter embodied in dissertation has not been submitted by anybody for the award of any degree or diploma to any other university.

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Yours Sincerely,

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Abstract

The Smart Study Planner is a web-based application developed to help students manage their academic schedules and study routines more efficiently. Built using Python and Django for the backend, and HTML, CSS, JavaScript, and Bootstrap for the frontend, the system offers a clean and responsive interface that is easy to use and accessible across devices. Its primary goal is to simplify study planning and improve time management for students.

Users can create personalized study plans by selecting subjects, setting goals, and allocating time slots for each task. The planner includes basic AI features such as automated reminders and simple suggestions based on user input and task completion. These features help students stay consistent with their study habits and avoid missing important deadlines. The system also tracks progress and updates the schedule accordingly.

The application provides visual dashboards that display upcoming tasks, completed goals, and overall progress. This helps users monitor their academic activities and stay motivated. The interface is designed to be intuitive, allowing users to easily navigate between different sections such as calendar view, task list, and performance summary. The use of Bootstrap ensures that the layout remains responsive and visually appealing.

Security and performance are key aspects of the system. All user data is stored securely, and the application is optimized to handle multiple users without lag or data loss. The modular design allows for easy updates and future enhancements, making it suitable for individual learners as well as small academic groups. The system is lightweight and does not require high-end hardware or complex configurations.

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1. INTRODUCTION

In today's fast-paced educational environment, students are expected to manage a wide range of responsibilities, including attending classes, taking exams, and completing assignments, to prepare for their exams and pursue personal learning goals. With short time and increasing pressure, staying organised has become 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 lack flexibility, adaptability, and progress monitoring features. Generic digital task managers, such as Google Calendar or Microsoft To-Do, provide reminders and scheduling, but are not specifically designed to meet the 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 organise and maintain their study schedules, allocate time effectively, and track the 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, prioritise tasks, and integrate subjects and class resources in one place.

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

2. LITERATURE SURVEY

2.1 Existing System:

A variety of digital platforms help students to manage and maintain their tasks and access 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 often, the traditional education planning will lack students' academic growth, and it is also very difficult to trace the growth of students, and it will always make 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 reminders, but they are not developed for generic task management. As a result, the lack of features faced in academic planning such as tracking syllabus coverage, aligning tasks with exam dates, and organising 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 rely on manual configuration and do not inherently support academic structure

2.2 Problems in Existing System:

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

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 who are facing daily and when it comes to personalised study planning.

- Google Calendar is great for basic scheduling and setting reminders, but it doesn't offer subject-specific planning and academic monitoring 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) – Offer 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 (Generic):

In today's fast-moving world, individuals and organisations face increasing challenges in managing time, tasks, and resources effectively. Whether it's students balancing coursework, professionals handling multiple projects, or teams working toward shared goals, the need for smarter, more supportive systems is greater than ever.

To address this gap, we propose a **simple yet intelligent solution**—a platform that combines structured planning with personalised support. This system is designed to help users stay organised, make informed decisions, and achieve their goals more efficiently.

The generic system would include the following key aspects:

1. Personalised Study Plans

- Automatically adjusts plans based on deadlines and priorities.
- Adapts to individual pace and preferences for better flexibility.

2. Task Scheduling with Reminders

- Breaks down your workload into manageable tasks with built-in reminders and notifications.
- Users can link notes, documents, and references to specific tasks

3. Integrated Resource Management

- Attach notes, reference materials, and links directly to each subject or task.
- Keeps everything organised and accessible—no more searching through folders.

4. AI-Powered Recommendations

- Suggests optimal study times, techniques, and resources based on your performance and habits.
- Offers tips to improve focus, manage stress, and boost productivity.

5. Real-Time Progress Tracking

- Visual dashboards show your progress across subjects and tasks.
- Celebrate milestones and identify areas that need more attention.

6. Collaborative Study Planning

- Plan group study sessions, share resources, and sync schedules with classmates.
- Perfect for team projects, peer learning, and exam prep groups.

2.5 Advantages of the proposed solution:

The personalised 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.

The main advantages are:

1. Keeps Students Motivated

- Visual progress bars and milestone badges boost confidence.
- Positive feedback after task completion keeps students engaged.

2. Structured Planning for Better Efficiency

- Weekly and daily views help students plan short- and long-term goals.
- Colour-coded subjects make it easier to prioritise and stay organised.

3. Builds Discipline and Consistency

- Habit tracking encourages daily study routines.
- Scheduled breaks prevent burnout and improve focus.

4. Reduces Stress by Breaking Down Big Goals

- Task splitting makes complex topics easier to tackle.
- Progress tracking reduces anxiety by showing steady improvement.

5. AI Chatbot Assistant

- Answers common study-related questions and offers quick guidance.
- Sends reminders for upcoming tasks and deadlines through chat.

6. Smart Recommendation Engine

- Prioritises subjects with approaching exams or pending tasks.
- Adapts suggestions based on completed work and current pace.

7. Progress Prediction Based on Current Pace

- Uses task completion rate to forecast future performance.
- Highlights subjects that may need extra attention or time.

8. Enhanced Course Cards with Better Visuals

- Displays key info like deadlines, progress, and resources briefly.
- Makes the dashboard more engaging and easier to navigate.

3. PROBLEM DEFINITION

3.1 Problem Definition:

Managing academic responsibilities has become increasingly complex for students. With a growing mix of assignments, exams, and projects across multiple subjects, many find it difficult to stay organised 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 priorities and don't provide personalised support to the students.

3.2 Proposed System (Specific):

To address the limitations of existing online learning platforms—such as a lack of personalised guidance, limited progress tracking, and fragmented resource management—the **Smart Study Planner** is proposed as a user-centric platform designed for learners of all backgrounds. Whether someone is pursuing professional development, hobby-based learning, or exam preparation, this system aims to make planning and progress tracking more intuitive and effective.

The system consists of three core modules:

1. Learner Module:

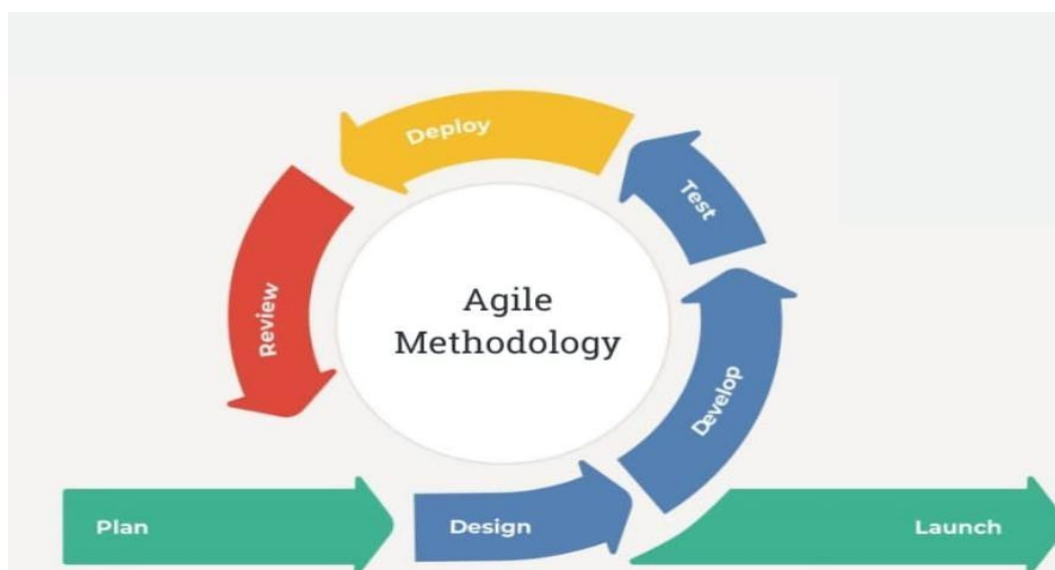
- Users can create personalised study plans based on selected courses, goals, and timelines.
- Tasks are broken into manageable steps with reminders and notifications to stay on track.
- Tasks are broken into manageable steps with reminders and notifications to stay on track.
- Real-time progress tracking helps users monitor their learning journey and celebrate milestones.
- A visual dashboard displays recent activity, upcoming tasks, and overall progress.

2. Admin Module

- Administrators can manage course structures, scheduling templates, and platform-wide updates.
- They can view user engagement metrics and generate performance reports.
- The system allows for sending announcements, tips, and personalised nudges to learners.
- Admins can oversee content uploads, resource sharing, and collaborative learning features.

3.3 Development Process:

Agile Methodology



Agile is a **flexible and iterative approach to software development** where projects are broken down into smaller parts called *sprints*. Instead of waiting until the end to deliver the full system, Agile delivers working pieces step by step. Each sprint is planned, developed, tested, and reviewed with users, ensuring that feedback is incorporated quickly. This makes Agile faster, more adaptive, and better suited for projects where requirements may change over time.

1. **Plan** – The team understands the requirements, discusses goals, and prepares a roadmap for the sprint.
2. **Design** – System features and user interfaces are designed to match the requirements.

3. **Develop** – The actual coding and module building take place in this step.
4. **Test** – The developed features are tested to ensure they work correctly and meet expectations.
5. **Deploy** – The tested version is released for use, either fully or as a small working part.
6. **Review** – Feedback is collected from users and stakeholders, highlighting what works well and what needs improvement.
7. **Launch** – After review, the product is finalised and made available to a wider audience.

The development of the **Smart Study Planner** was carried out using the **Agile methodology**, which enabled the system to be built in small, manageable sprints while continuously gathering feedback from learners and administrators. This iterative approach ensured the platform remained user-focused, flexible, and adaptable to evolving needs.

The process included the following phases:

1. Requirement Gathering (User Stories)

- Interactions with learners and admins helped identify common challenges in planning, tracking, and staying motivated.
- These insights were converted into user stories (e.g., “As a learner, I want to receive reminders so I don’t miss important tasks.”).
- Features were prioritised to focus first on the most important problems.

2. Sprint Planning

- The work was divided into short sprints (2–3 weeks each).
- Each sprint focused on delivering a functional feature, such as personalised planning, progress tracking, or smart recommendations.

3. Design and Database Setup

- User interface designs were created to be clean, responsive, and easy to navigate across devices.
- ER diagrams and data flow diagrams were prepared to show how information moves in the system.
- The database was structured for scalability, security, and efficient linking of users, tasks, and resources.

4. Incremental Development

- Modules for learners and admins were developed step by step.
- Features like task scheduling, dashboards, reminders, and recommendation logic were added in successive sprints.

5. Continuous Testing

- Unit tests were conducted on each new feature to ensure reliability.
- Integration testing verified that all modules worked together seamlessly.
- Real users tested early prototypes and provided feedback for improvement.

6. Review and Feedback

- At the end of each sprint, the team demonstrated the progress to stakeholders.
- Feedback was collected and used to refine upcoming sprints, keeping the system aligned with user expectations.

7. Deployment and Maintenance

- Once core features were complete, the platform was deployed on a secure server for real-world use.
- Admins received onboarding support for smooth adoption.
- Regular updates and future enhancements (such as mobile apps or collaborative tools) will be rolled out in upcoming sprints.

4. SOFTWARE REQUIREMENT SPECIFICATION

4.1 Purpose:

The main purpose of the **Smart Study Planner** is to provide a simple, intelligent, and user-friendly platform where learners can organise their study goals, track progress, and stay motivated—while administrators can manage content, monitor engagement, and support learner success. The project aims to bridge the gap between intention and execution by offering personalised planning tools, smart recommendations, and real-time insights.

By using this platform, learners no longer have to rely solely on generic calendars or manual tracking methods. Instead, they can create tailored study plans, receive timely reminders, and visualise their progress through interactive dashboards. For administrators, the system promotes accountability by offering tools to manage course structures, monitor learner activity, and generate performance reports.

The Smart Study Planner is designed to support a wide range of users—from students preparing for exams to professionals pursuing skill development—making learning more structured, engaging, and effective.

4.1.1 Scope:

The Smart Study Planner is developed as a web-based platform intended to support learners in organising their study activities more effectively. It is designed to be scalable and adaptable, making it suitable for individual users, educational institutions, and online learning platforms.:

1. **Learners** – Individuals can create personalised study plans, receive reminders, track their progress, and access relevant learning materials in one place.
2. **Administrators** – Platform managers or educators can oversee user engagement, manage content delivery, send notifications, and generate performance reports.

Key features of the system include user registration and login, task scheduling, progress tracking, resource management, and notification alerts. The platform supports real-time updates and can be extended with additional capabilities such as mobile access, multilingual support, and integration with external learning systems.

4.2 Product Overview:

The Smart Study Planner is a browser-based tool developed to support students in maintaining and managing their academic responsibilities more effectively. It offers a 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 it's needed. It also includes resource management, allowing easy access to study materials and references for 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 personalised and uses study plans, schedules tasks, tracks academic progress, and accesses integrated study materials.
- **Roles & Responsibilities:**
 - **Admin Role:**
 - Add, update, or remove users from the application.
 - Monitor the system performance and integrate security.
 - Manage the storage of data and be responsible for the backups of data.
 - Approve or oversee new feature updates.
 - **User Role:**
 - Create subject-wise study plans for the 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 personalised study schedule to the student to manage deadlines and student performance.
 - Prioritises the tasks intelligently to reduce workload and the stress of the student.
 - Recommends the relevant resources, videos, and notes to improve the learning efficiency of the student.
 - Provides adaptive feedback to improve study strategies over time for the students.
- **Platform Accessibility:**
 - Accessible via desktops, laptops, and mobile browsers, ensuring wide usability for students.
 - Responsive design for a seamless experience for users across devices.
 - Future scope includes the dedicated mobile apps (Android/iOS) for offline access and also provides notification features.
- **Additional Features:**
 - User-friendly dashboard for quick navigation.
 - Notifications and reminders for upcoming tasks should be completed by the student.
 - The platform ensures data privacy and security for student records.
 - Scalability to support many users to be managed simultaneously.

4.3 Functional Requirements:

The Smart Study Planner is designed to make academic planning easier and more effective for both 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 personalised 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 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 organised 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 personalised recommendations for effective learning strategies (e.g., focus more on weaker subjects).
- AI ensures the adaptability and makes study plans dynamically instead of being static.

7. Admin Functions

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

4.4 Performance Requirements:

The Smart Study Planner is expected to deliver consistent and responsive performance across different devices and user scenarios. Key performance requirements include:

- **Fast Response Time** The system should load dashboards, study plans, and resources within 2–3 seconds under normal usage.
- **Scalability** The platform must support a growing number of users without performance degradation, including simultaneous access by thousands of learners.
- **Efficient Resource Handling** Uploading, accessing, and linking study materials should be smooth, with minimal delay or data loss.
- **Real-Time Updates** Notifications, reminders, and progress tracking should reflect changes instantly to ensure accuracy.
- **Cross-Platform Compatibility** The system should perform reliably on desktops, tablets, and smartphones across major browsers and operating systems.
- **Low Downtime** The platform should maintain at least 99.5% uptime to ensure uninterrupted access for users.

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 logout 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 does not 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 the system is stable, and that it actually helps the students and admins in real, 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 into errors and confusion.
 - Each plan should support goal-setting and deadlines for individual subjects, helping students to stay organised and complete the task within the deadline.
- **Task Management & Progress Tracking**
 - Users should be able to manage tasks-adding, editing, or removing within their study plans.

- The system must accurately track and display progress for each subject and the 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 prioritisation, 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 easy access.
 - If a link is broken or incorrectly formatted, the system should catch it and notify the user before 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 needed.
 - They should also be able to monitor system activity to ensure everything runs smoothly and securely.
 - The admin is responsible for all the activities carried out and managed by the admin.

4.7 Design hints and guidelines

The smart study planner system is developing an effective, scalable, and user-friendly smart study planner. It's essential to follow sound design and development practices. The system should prioritise 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 confusion.
 - 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 normalised relational structure to reduce redundancy and ensure 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 accurate relationships and data reliability.
- **System Architecture**
 - Use a modular design strategy by developing each feature 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 Optimisation**
 - Optimise the database queries to handle a large amount of data.
 - Implement caching methods to store the frequently accessed data, to reduce server load and improve the response speed.
 - Optimise 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 Technology Requirements:

4.8.1 Software Requirements

- Frontend Development
 - HTML5, CSS3, JavaScript – For building user-friendly web pages.
- Backend Development
 - Node.js / Express.js – For handling server-side operations and APIs.
 - Alternatively, Django can also be used, depending on team expertise.
- Database
 - MySQL / SQLite3 – For structured storage of complaints, donations, and user records.
- Other Software Tools
 - Visual Studio Code / IntelliJ – For coding and debugging.
 - GitHub / GitLab – For version control and collaborative development.

- Postman – For testing APIs.
- Testing Tools
 - Selenium / JUnit / Mocha – For automated and unit testing.
 - Manual testing tools for usability and functionality checks.
- Deployment Environment
 - AWS / Microsoft Azure / Google Cloud – For hosting the portal with scalability.
 - Docker – For containerised deployment and easier management.

4.8.2 Hardware Requirements

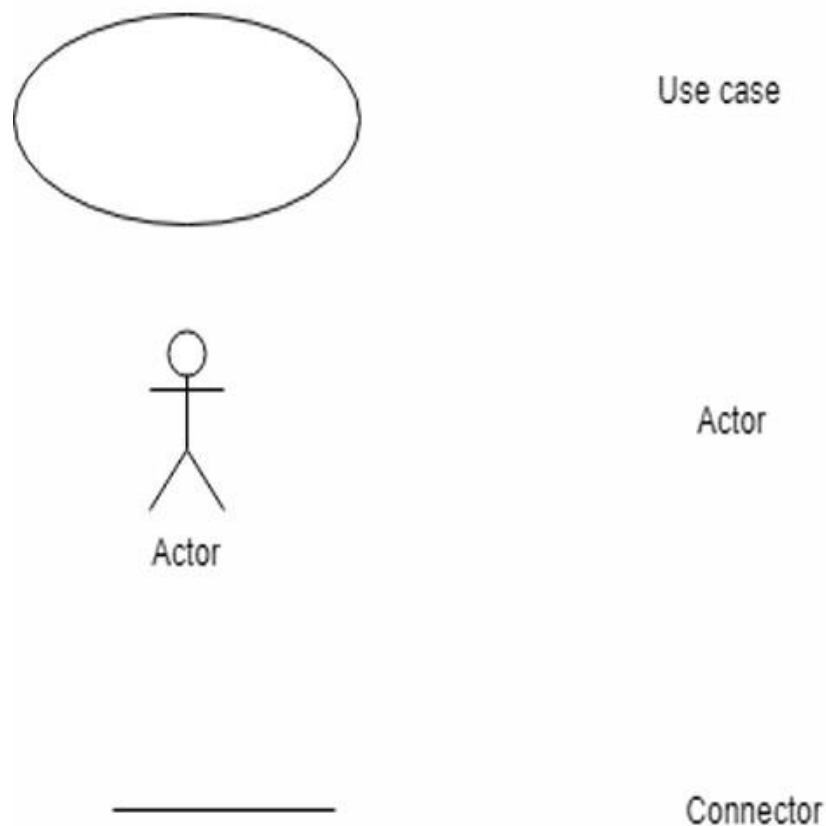
- Development Machine (Minimum Specifications)
 - Processor: Intel i5 (or equivalent AMD Ryzen)
 - RAM: 8 GB
 - Storage: 512 GB SSD
 - Operating System: Windows 10 / 11
- Client-Side Devices
 - The portal must run smoothly on basic smartphones, tablets, and low-end computers commonly used in rural areas.
 - Browser support: Chrome, Firefox, Edge, and mobile browsers.

5. SYSTEM DESIGN

5.1 Use Case Model:

A use case diagram is a representation of the application. Actors and use cases are the building blocks of the use case model. The use case diagram shows the interaction between use cases along with their actors.

The following are the notations used in the use case:



The Use Case Model describes how different users (actors) interact with the Smart Study Planner and what services or features they can access. It provides a visual and descriptive representation of the system's functionality, making it easier to understand the roles of learners and admins.

Smart Study Planner System Design

1. Entities and Roles

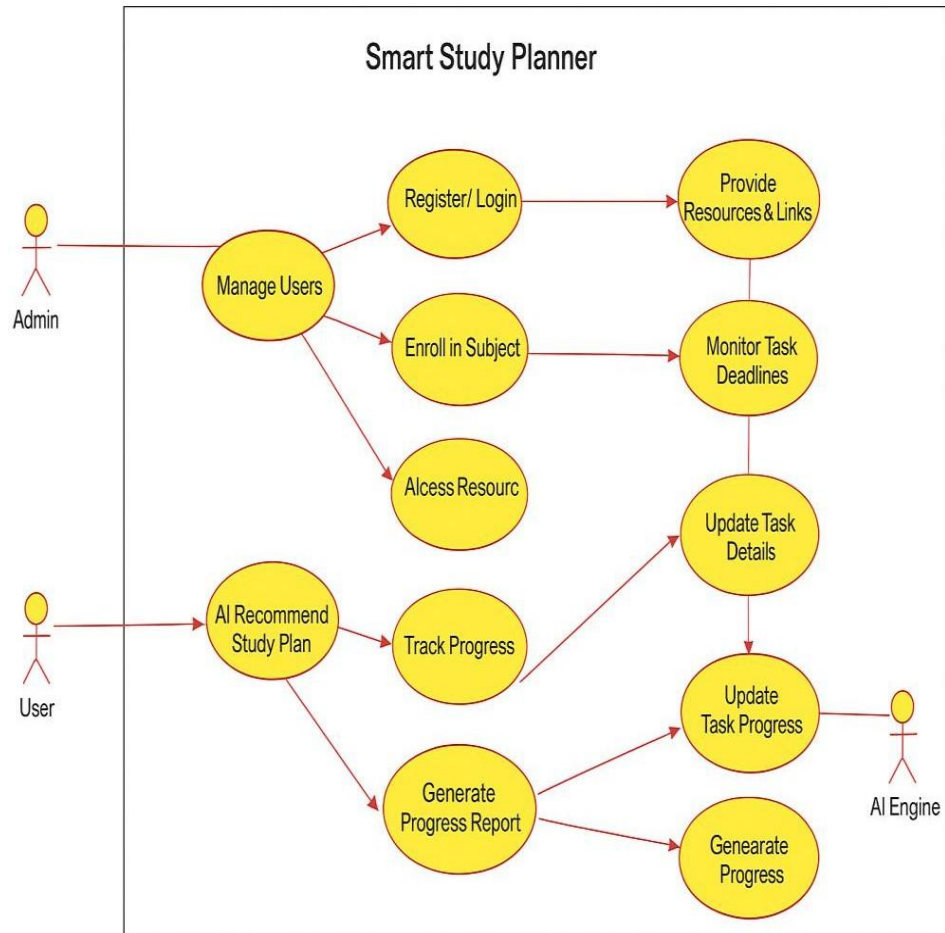
- Admin: Manages and monitors users in the system.
- User: Represents students/learners who create subjects and plans.
- Subject: A course or topic chosen by the user.
- Study Plan: Defines the user's learning path and goals for a subject.
- Task: Individual activities under a study plan with deadlines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

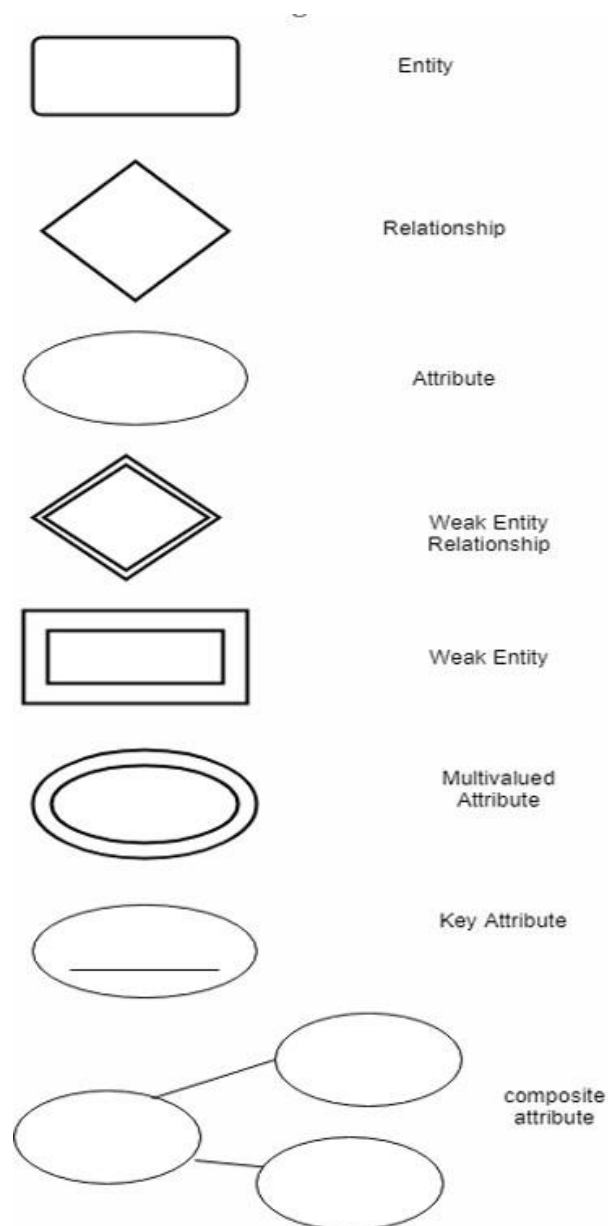
Diagram:

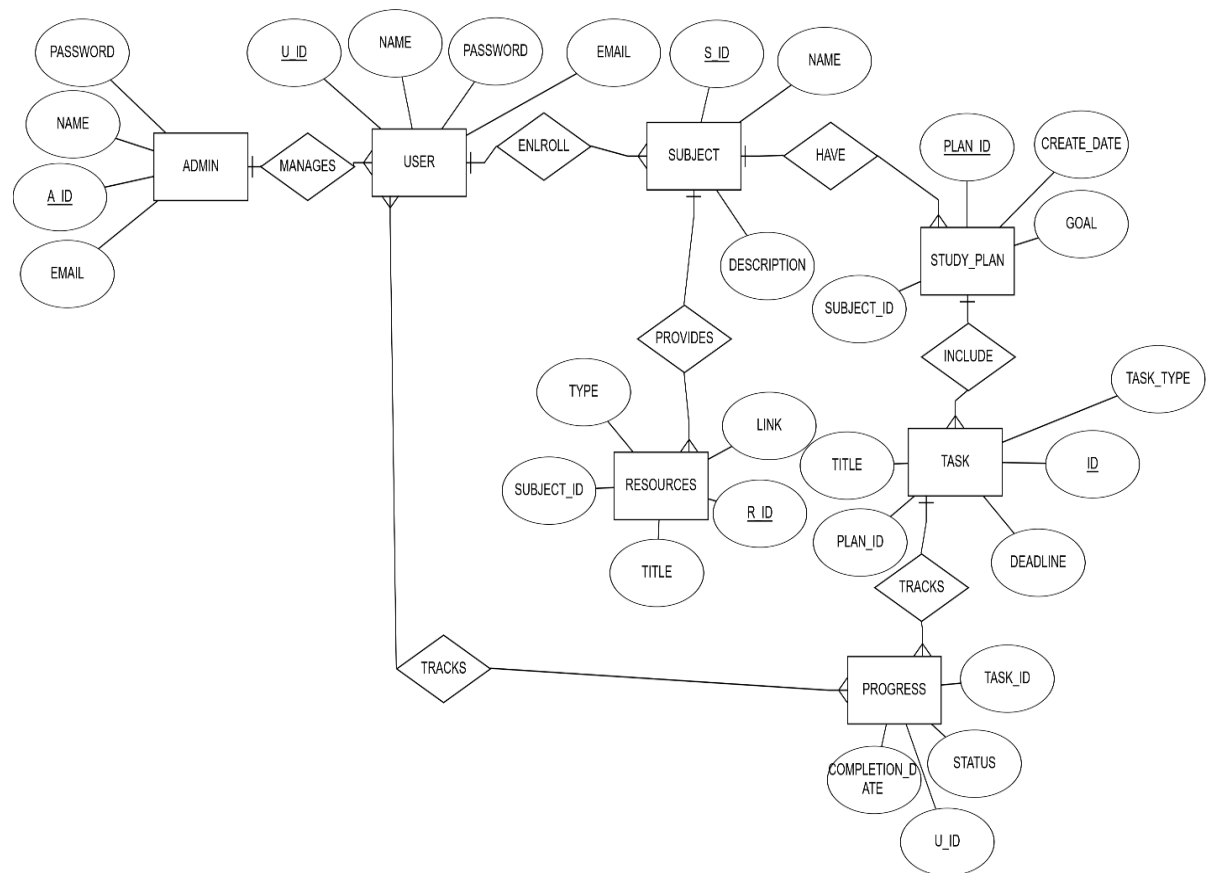
6. DETAILED DESIGN

6.1 High-level Design

- **ER Model:**

ER-Diagram is one of the data modelling methods that is used to provide information about the system and the entities that give relations between these entities.



ER DIAGRAM**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, and videos linked to subjects.
- Tracks: Maintains the record of which user follows which plan.

2. Relationships

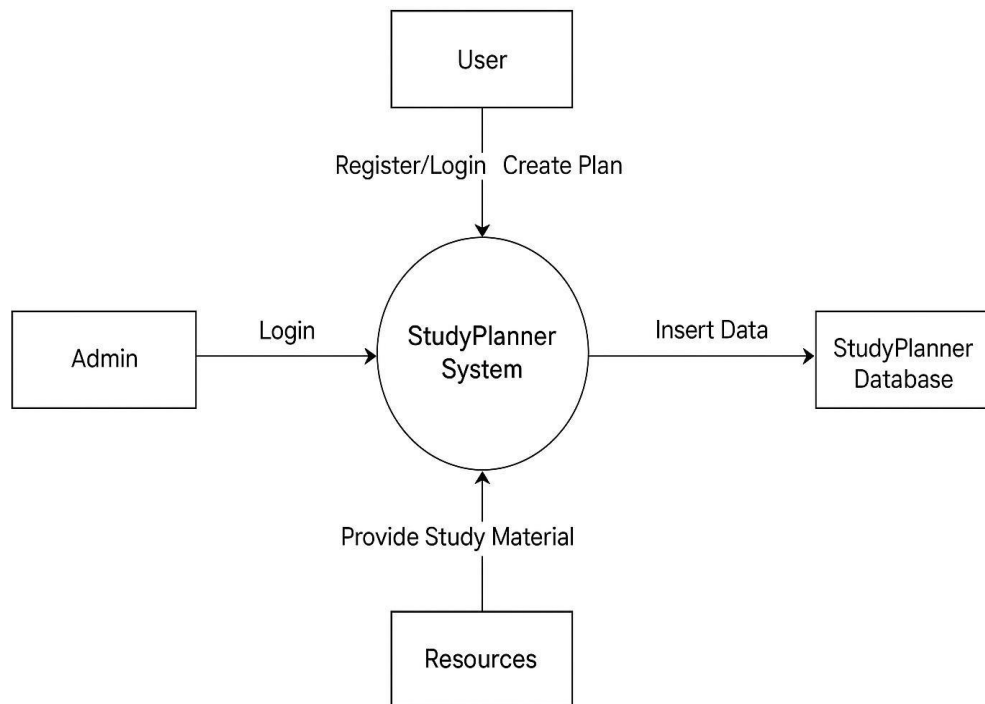
- An Admin can manage multiple Users.
- A User can create multiple Subjects.
- Each Subject can have one or more Study Plans.
- A Study Plan consists of multiple Tasks.
- Progress links tasks and users to track completion.
- Resources are attached to subjects for additional support.

Tracks connect users to the study plans they follow.

3. Purpose of the ER Model

- Clearly defines the **data flow and storage**.
- Ensures **consistency** between complaints, donations, and fund usage.
- Establishes **primary and foreign key relationships** for efficient database implementation.
- Helps the developer team design a **normalised database** to minimise redundancy.

- **Data Flow Diagram (DFD)**

**Key Components:**

1. **User:** Individuals who use the platform to register or log in and create personalised study plans.
2. **Admin:** Responsible for managing the platform. Admins log in to oversee user activity, update content, and monitor system performance.
3. **Study Planner Database:** Stores all relevant data, including user profiles, study plans, progress records, and resource links.
4. **Resources:** External or internal study materials that are linked to the system. These resources are provided to users as part of their study plans, enhancing the learning experience.

Data Flow in Study Planner System

- **User → System**
 - Registers or logs in
 - Creates a personalised study plan

- **System → Database**
 - Inserts user data, study plans, and progress records
 - Retrieves stored information when needed

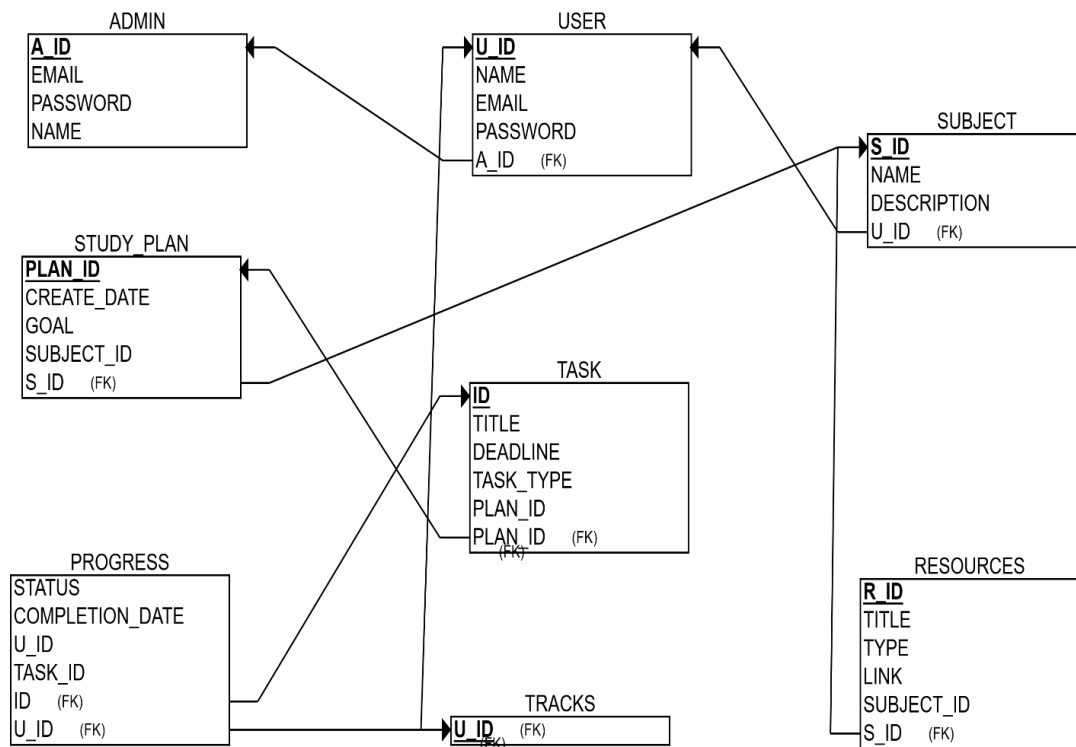
- **Admin → System**
 - Logs in to manage platform operations
 - Views user activity and updates content

- **Resources → System**
 - Provides study materials linked to user plans
 - Supports content delivery for learning

- **System → User/Admin**
 - Sends notifications, reminders, and updates
 - Displays dashboards and progress tracking

6.2 Low-level Design

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 visualise 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.

Purpose of the Schema

- Provides a **clear database structure**.
- Ensures **data consistency and accuracy** with primary–foreign key relationships.
- Supports **system functionalities** like complaint tracking, donation management, fund usage monitoring, and communication.

7. IMPLEMENTATION

Creation of Database: The database plays a crucial role in storing and organising information in a structured manner. For the development of the Smart Study Planner, a Relational Database Management System (RDBMS) is used. This type of system allows data to be stored across multiple related tables, making it easier to manage, retrieve, and update information efficiently.

Each table in the database is designed with a primary key to uniquely identify records and may include **foreign keys** to establish relationships between different tables. This relational structure ensures data consistency and supports smooth coordination across various components of the application.

The following are the terms that are used for designing the database of the application.

- **Database:** A structured collection of related data, organised in tables for easy access and management.
- **Tables:** Also known as relations, tables store data in rows and columns, with each table representing a specific entity in the system.
- **Columns:** Represent individual data fields within a table, defining the type of information stored (e.g., user name, email, task title).
- **Rows:** Each row, or tuple, contains a complete set of related data corresponding to a single record in the table.
- **Primary Key:** A unique identifier for each record in a table. Every table must have one primary key to ensure that no two records are identical.
- **Foreign Key:** A field in one table that links to the primary key of another table. It helps maintain relationships between tables and ensures data integrity.

Admin Details:

↑ ↓ ↺ auth_user / 1

id 1 READONLY INTEGER	password pbkdf2_sha256\$1000000\$DcDfKbHbT7zl8R0ly79hk\$vvxpS0WinOZOL1dEz7bcViiS2Fw2pU4qxZNAuv1VSqI= READONLY VARCHAR(128)	last_login 2025-10-05 12:23:28.727762 READONLY DATETIME
is_superuser 1 READONLY BOOL	username admin READONLY VARCHAR(150)	last_name User READONLY VARCHAR(150)
email admin@gramseva.com READONLY VARCHAR(254)	is_staff 1 READONLY BOOL	is_active 1 READONLY BOOL
date_joined 2025-10-01 14:09:52.552312 READONLY DATETIME	first_name Admin	

Upgrade to SQLite Viewer PRO to unlock editing and export features

User Profile:

↑ ↓ ↺ auth_user / 3

id 3 READONLY INTEGER	password pbkdf2_sha256\$1000000\$TM2edeXwsnIVTZmXJUfgza\$V6Ah7OgxvC7KQqYMs82DybCHdiUAEMTijjPLugu9B14= READONLY VARCHAR(128)
last_login NULL READONLY DATETIME	is_superuser 0 READONLY BOOL
username rohan READONLY VARCHAR(150)	last_name kore READONLY VARCHAR(150)

Upgrade to SQLite Viewer PRO to unlock editing and export features

The implementation phase is the process of transforming the system design into an actual working application.

This stage involves setting up the development environment, coding each module, integrating functionalities, testing, and finally deploying the system for real-time use. Below are the detailed steps followed for implementing the Smart Study Planner using **Python and the Django Framework**.

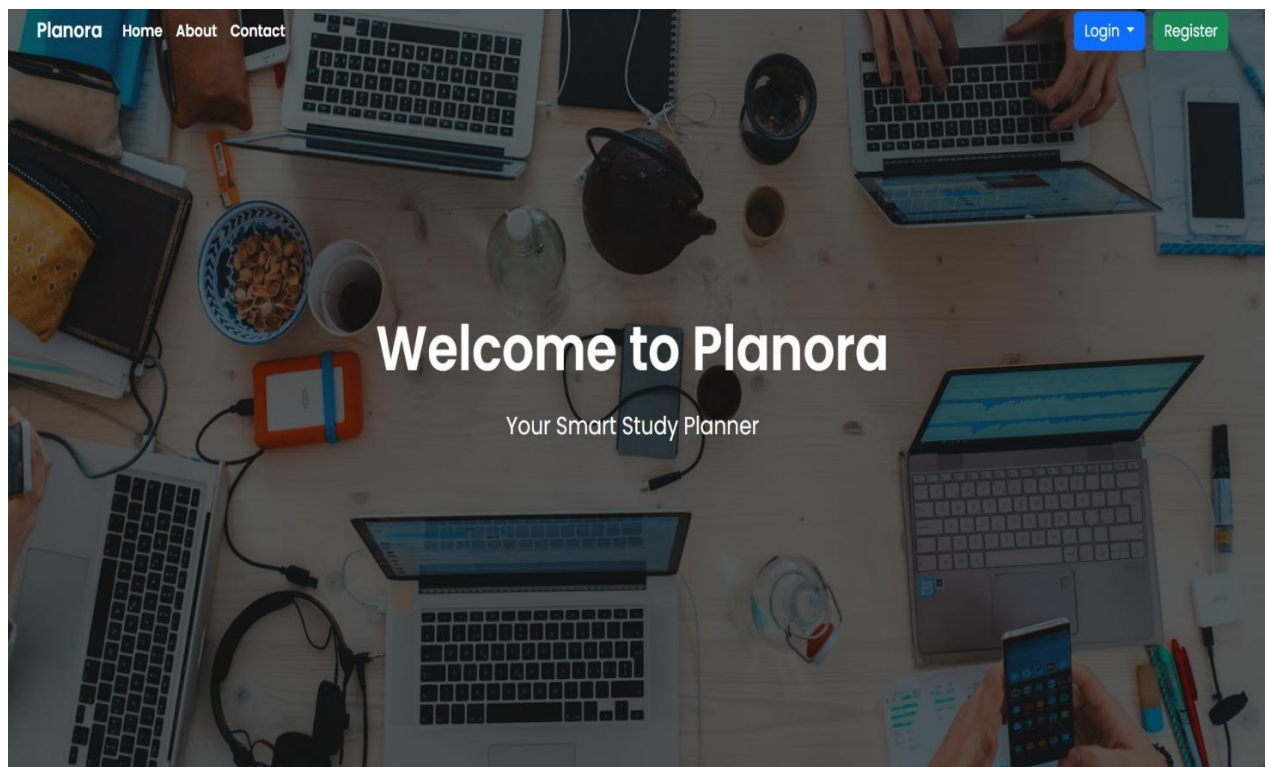
1. Environment Setup:

- Install **Python (version 3.8 or above)** on the system.
- Install **Django Framework** using the command:
pip install Django
- Install additional required libraries:
pip install pillow mysqlclient crispy-bootstrap5
- Install **MySQL / SQLite** database for data storage.
- Create a new Django project using:
django-admin startproject Planora
- Create a new app within the project:
python manage.py startapp portal

2. Database Design and Configuration

- Define all entities and relationships based on the ER Diagram — Admin, User, Resource, Progress, Course, Updates.
- Configure settings.py to connect the project with the chosen database (e.g., MySQL).
- Create models in models.py representing the database tables.
- Apply migrations to create tables:
python manage.py makemigrations
python manage.py migrate
python manage.py runserver

Home Page



Login Pages

Admin Login Page

The Admin Login page has a purple background. It contains a white rounded rectangle with the title 'Admin Login' in bold. Below the title are two input fields: 'Username' and 'Password'. Below these fields is a purple 'Login' button. At the bottom of the white rectangle is a link that says 'Back to Home'.

Student Login Page

The Student Login page has a purple background. It contains a white rounded rectangle with the title 'Welcome Back' in bold. Below the title is the text 'Sign in to continue your learning journey'. There are two input fields: 'Username' and 'Password'. Below the Password field is a link that says 'Forgot Password?'. Below these fields is a purple 'Sign In' button. At the bottom of the white rectangle is a link that says 'Don't have an account? Create Account'.

Student Registration Page:

Join Planora

Start your learning journey today

First Name

Last Name

@Username

Username must be 3-30 characters (letters, numbers, underscores only)

Email

Please enter a valid email address

• At least 8 characters

• One uppercase letter

• One lowercase letter

• One number

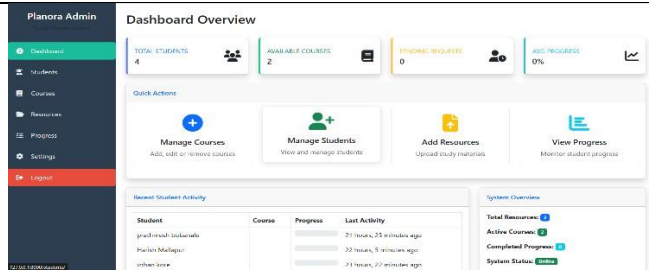
• One special character

Confirm Password

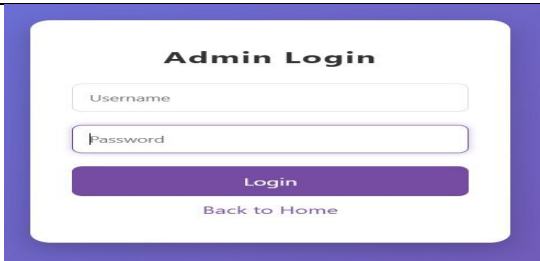
8. TESTING AND RESULT

1. Authentication Module (Common for all users)

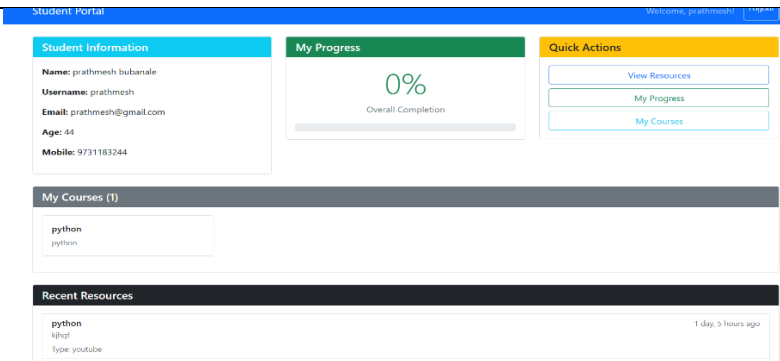
Test case 1: If both the username/email ID and password of the user are correct, then the login will be successful, and the user will be navigated to their dashboard home page for further activity.

Test case No	1
Module	Admin
User form	Login Form
Input	Valid user email ID and Valid Password
Expected Output	Admin is logged in and redirected to the dashboard.
Observed Output	Successful login to the admin dashboard page
Remark	Pass
Output Screening	

Test case 2: If the username is correct but the password is incorrect, the login will be invalid, and a message will be displayed indicating an invalid email and password.

Test case No	2
Module	Admin
User form	Login Form
Input	Valid User email id and Invalid Password
Expected Output	Invalid User ID or Password.
Observed Output	Invalid User ID or Password.
Remark	Pass
Output Screening	

Test case 3: If all the fields of the registration form are correct, the registration will be successful, and the user will be directed to the Learner dashboard.

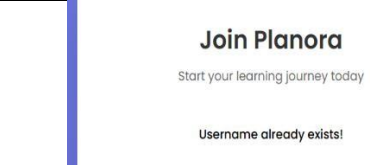
Test case No	3
Module	Learner/User
User form	Registration Form
Input	All the registration fields are valid.
Expected Output	Registration successful and going to the dashboard.
Observed Output	Registration successful and welcome message.
Remark	Pass
Output Screening	 <p>The screenshot shows the 'Student Portal' dashboard for a user named 'prathmesh'. The top navigation bar includes 'Student Portal', 'Welcome, prathmesh!', and a 'Logout' button. The main content area is divided into three sections: 'Student Information' (Name: prathmesh bhanale, Username: prathmesh, Email: prathmesh@gmail.com, Age: 44, Mobile: 9731183244), 'My Progress' (0% Overall Completion), and 'Quick Actions' (View Resources, My Progress, My Courses). Below these are sections for 'My Courses (1)' (python) and 'Recent Resources' (python, k8s, Type: youtube, 1 day, 5 hours ago).</p>

Test case 4: If all the fields of the registration form are blank, then it will show a message, and then it will display fill the required fields.

Test case No	4
Module	Learner/User
User form	Registration Form
Input	All the registration fields are blank.
Expected Output	Fill out the required fields.
Observed Output	Fill out the required fields.
Remark	Pass

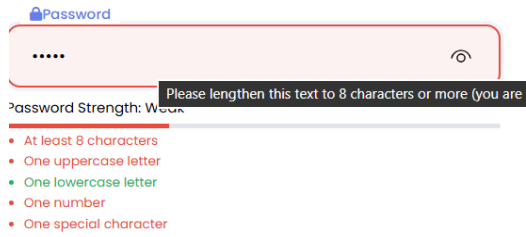
Output Screening	
-------------------------	--

Test case 5: If all the fields of the registration form are duplicates, then it will display a message indicating that the user is trying to register with an existing email. / System shows “User already exists”.

Test case No	5
Module	Learner/User
User form	Registration Form
Input	Enter existing User details.
Expected Output	A user with this email already exists.
Observed Output	A user with this email already exists.
Remark	Pass
Output Screening	

Test case 6: If all the fields of the registration form are valid, but the password is too short or common, then it will show a message that it must contain at least 8 characters.

Test case No	6
Module	Learner/Users
User form	Registration Form
Input	Enter a short-length password.
Expected Output	This password is too short. It must contain at least 8 characters.

Observed Output	This password is too short. It must contain at least 8 characters.
Remark	Pass
Output Screening	

2. Learner/Student Module:

Test Case	Test Scenario	Test Steps	Expected Result
01	Register as a student	Fill the registration form & submit	Student data is stored in the database, and confirmation is shown
02	Log in to the system	Enter credentials and submit	Student dashboard loads successfully
03	Create a study plan	Fill in plan details and save	Plan saved and visible in the student dashboard
04	View progress	Open the “My Progress” section	Progress data displayed correctly
05	Submit feedback	Fill the feedback form	Feedback stored successfully

Student Portal

Welcome, prathmesh! [Logout](#)

Student Information

Name: prathmesh bubanale

Username: prathmesh

Email: prathmesh@gmail.com

Age: 44

Mobile: 9731183244

My Progress

0%

Overall Completion

Quick Actions

View Resources

My Progress

My Courses

My Courses (1)

python

python

Recent Resources

python

kjhgf

Type: youtube

1 day, 5 hours ago

3. Admin Module:

Test Case	Test Scenario	Test Steps	Expected Result
01	Manage student plans	View, edit, or delete student study plans	Changes are reflected accurately in the student dashboard
02	Monitor progress	Access student progress reports	Progress data displayed correctly
03	Upload resources	Add new study materials to the system	Resources are available to students immediately
04	Send notifications	Send reminders or updates to students	Target users receive a notification
05	Generate reports	Select filters and generate a performance report	Students receive timely alerts

Planora Admin

Study Planner System

Dashboard

Students

Courses

Resources

Progress

Settings

Logout

Dashboard Overview

TOTAL STUDENTS
4

AVAILABLE COURSES
2

PENDING REQUESTS
0

AVG PROGRESS
0%

Quick Actions

Manage Courses
Add, edit or remove courses

Manage Students
View and manage students

Add Resources
Upload study materials

View Progress
Monitor student progress

Recent Student Activity

Student	Course	Progress	Last Activity
prathmesh bubanale			21 hours, 25 minutes ago
Harish Mallapur			22 hours, 5 minutes ago
rohan kore			23 hours, 22 minutes ago

System Overview

Total Resources: 2

Active Courses: 2

Completed Progress: 0

System Status: Online

127.0.0.1:8000/students/

9. CONCLUSION

The Smart Study Planner offers a practical and user-friendly solution for students to organise their learning activities efficiently. By combining personalised study plans, progress tracking, resource integration, and timely notifications, the system empowers learners to stay focused and manage their time effectively.

Administrators benefit from tools that allow them to monitor student performance, upload materials, and generate reports, creating a structured and supportive learning environment. The platform is designed to be scalable and adaptable, making it suitable for individual use, educational institutions, and online learning communities.

This project aligns with the broader goals of digital education by promoting self-directed learning and improving academic productivity through technology. Overall, the Smart Study Planner contributes to smarter learning habits, better academic outcomes, and a more organised approach to education.

10. FUTURE ENHANCEMENT

- **Mobile App Support- Development** of dedicated mobile applications for Android and iOS platforms to make the planner more accessible and user-friendly.
- **SMS-Based Notifications-** Integration of SMS alerts to keep users informed about upcoming tasks or deadlines, especially useful for those with limited internet access.
- **Student Recognition System-** Introducing digital badges, certificates, or leaderboard rankings to motivate students and acknowledge consistent performance.
- **Location-Based Study-** Suggestions: Use of location data to recommend nearby libraries, study groups, or events that support academic growth.
- **Integration with Educational Schemes-** Linking the platform with government or institutional learning programs to provide students with additional resources and support.
- **Advanced Security Features Implementation-** of biometric login options such as fingerprint or facial recognition, along with strong data encryption to protect user information.

11. References

Books

- Lutz, M. Learning Python, O'Reilly, 5th Ed., 2013
- 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>

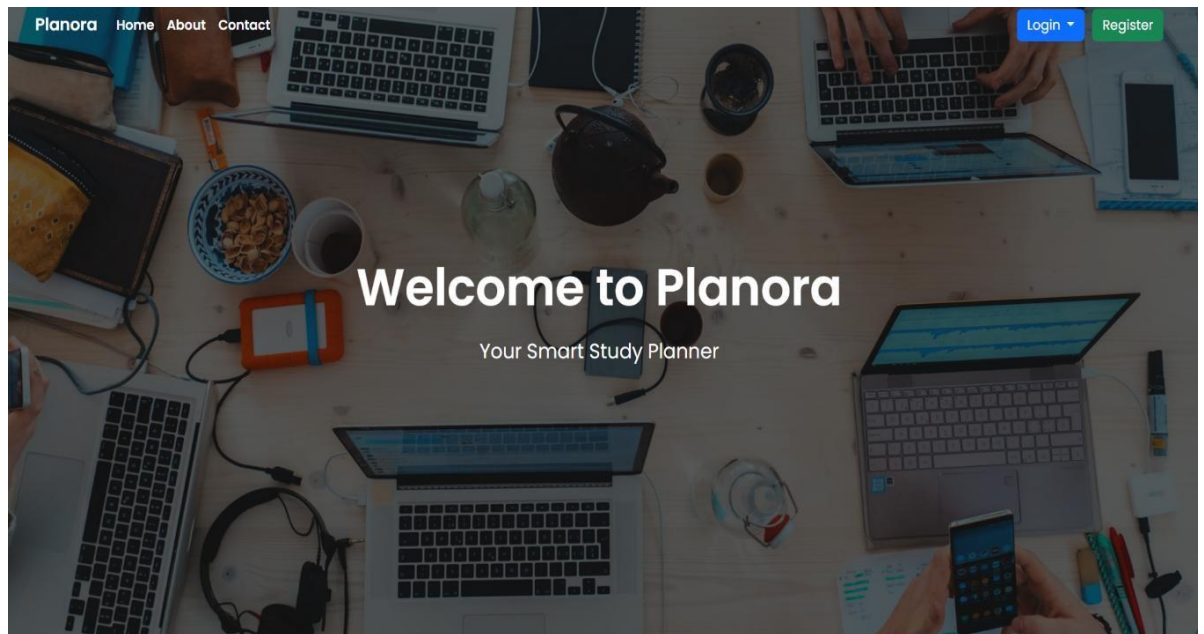
Other Resources

- 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)

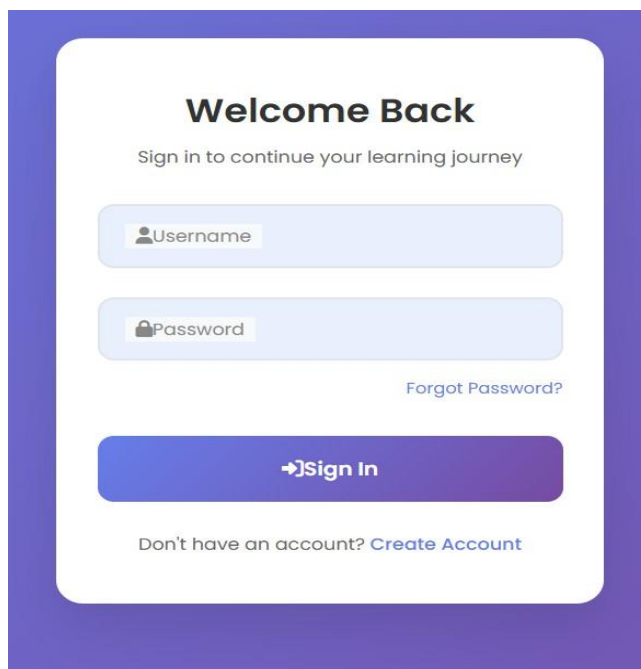
12. Appendices

User Manual

- Home Page



- Login Page



- Learner Registration Page

Join Planora

Start your learning journey today

First Name

prathmesh

Last Name

bubanale

@Username

prathmesh

Email

rohan@gmail.com

Password

.....

Password Strength: Strong

- At least 8 characters
- One uppercase letter
- One lowercase letter
- One number
- One special character

Confirm Password

.....

- Learner Dashboard

Student Portal

Welcome, prathmesh!Logout

Student Information

Name: prathmesh bubanale

Username: prathmesh

Email: prathmesh@gmail.com

Age: 44

Mobile: 9731183244

My Progress

0%

Overall Completion

Quick Actions

View Resources

My Progress

My Courses

My Courses (1)

python

python

Recent Resources

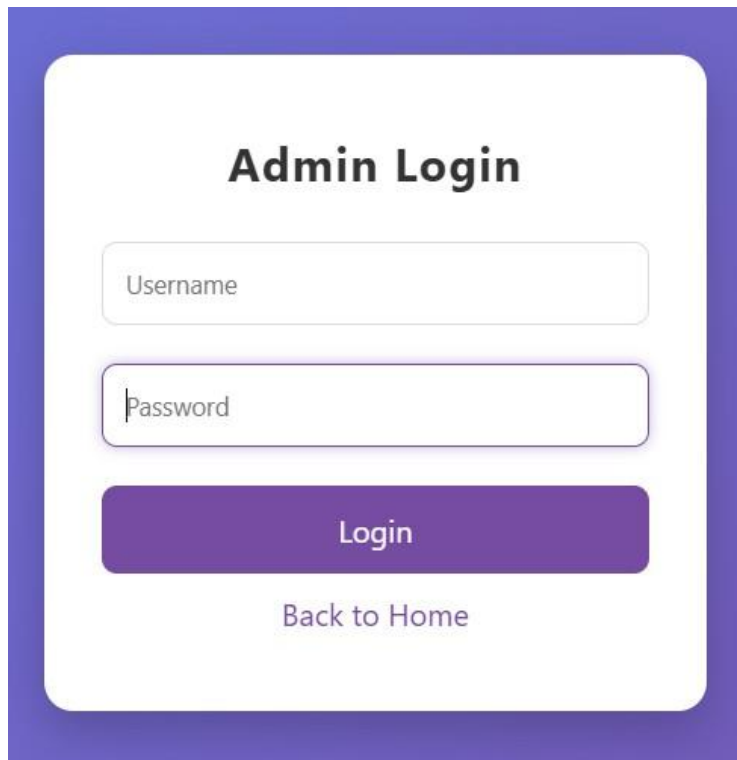
python

kjhgf

Type: youtube

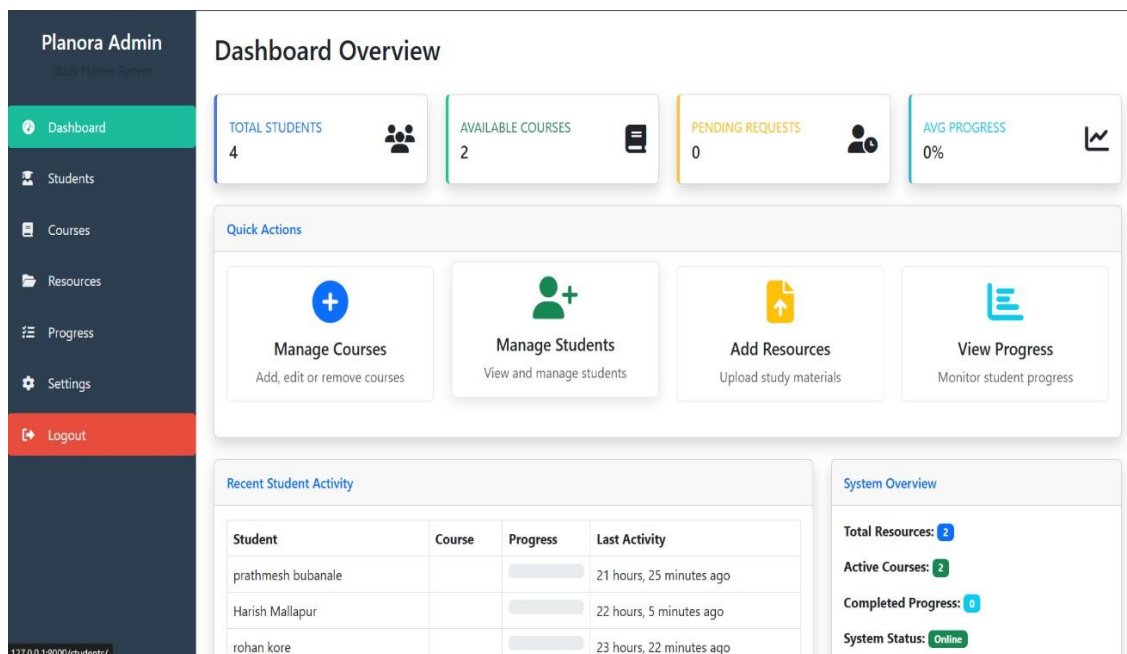
1 day, 5 hours ago

- Admin Login Page



The Admin Login page features a purple border and a white central area. At the top, the text "Admin Login" is displayed in a bold, black font. Below this, there are two input fields: "Username" and "Password". A purple "Login" button is positioned below the password field. At the bottom, there is a link labeled "Back to Home".

- Admin Dashboard



The Admin Dashboard Overview page has a dark blue sidebar on the left with the title "Planora Admin" and "Study Planner System". The sidebar contains a menu with items: Dashboard (highlighted), Students, Courses, Resources, Progress, Settings, and Logout. The main content area is titled "Dashboard Overview" and includes several sections:

- Summary Cards:** Four cards showing "TOTAL STUDENTS" (4), "AVAILABLE COURSES" (2), "PENDING REQUESTS" (0), and "AVG PROGRESS" (0%).
- Quick Actions:** Four action buttons: "Manage Courses" (Add, edit or remove courses), "Manage Students" (View and manage students), "Add Resources" (Upload study materials), and "View Progress" (Monitor student progress).
- Recent Student Activity:** A table with columns: Student, Course, Progress, and Last Activity.
- System Overview:** A section showing "Total Resources: 2", "Active Courses: 2", "Completed Progress: 6", and "System Status: Online".

Student	Course	Progress	Last Activity
prathmesh bubanale		<div></div>	21 hours, 25 minutes ago
Harish Mallapur		<div></div>	22 hours, 5 minutes ago
rohan kore		<div></div>	23 hours, 22 minutes ago

13. Plagiarism/Similarity Check Report



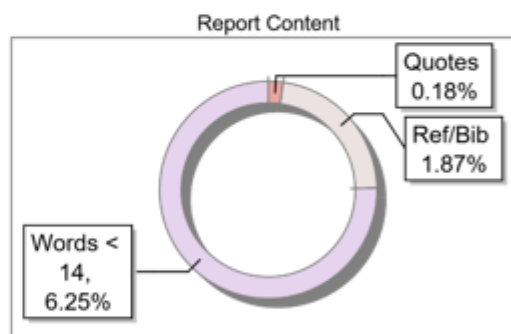
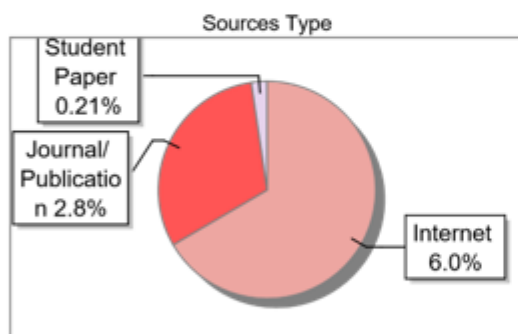
The Report is Generated by DrillBit Plagiarism Detection Software

Submission Information

Author Name	2BA23MC004_BASAVARAJ DYAMANGOUDAR_First
Title	PLANORA
Paper/Submission ID	4588387
Submitted by	becpg1963@gmail.com
Submission Date	2025-10-29 09:25:34
Total Pages, Total Words	48, 6724
Document type	Project Work

Result Information

Similarity **9 %**



Exclude Information

Quotes	Not Excluded	Language	English
References/Bibliography	Not Excluded	Student Papers	Yes
Source: Excluded < 14 Words	Not Excluded	Journals & publishers	Yes
Excluded Source	0 %	Internet or Web	Yes
Excluded Phrases	Not Excluded	Institution Repository	No

Database Selection

A Unique QR Code use to View/Download/Share Pdf File





DrillBit Similarity Report

B- 9 Upgrade (11-40%)		A-Satisfactory (0-10%)	
D-Unacceptable (61-100%)		C-Poor (41-60%)	
SIMILARITY %	MATCHED SOURCES	GRADE	
43		A	
LOCATION	MATCHED DOMAIN	%	SOURCE TYPE
1 www.ux4g.gov.in		<1	Publication
2 segment.com		<1	Internet Data
3 www.scribd.com		<1	Internet Data
4 medium.com		<1	Internet Data
5 encord.com		<1	Internet Data
6 pdfcookie.com		<1	Internet Data
7 www.bcg.com		<1	Internet Data
8 docplayer.net		<1	Internet Data
9 www.robotlab.com		<1	Internet Data
10 ipb.ac.id		<1	Internet Data
11 American Association of Pharmaceutical Scientists Article		<1	Publication

PROJECT CETIFICATION

PySpiders
BTM, Bengaluru
(MAIN BRANCH)

Certificate of Internship

This Certificate is Awarded to

BASAVARAJ M DYAMANGOUDAR

This is to certify that he has successfully undertaken a project titled "Planora" under our institution from June 5, 2025, to October 4, 2025.

During this period, he has shown sincerity, responsibility, and a professional approach toward his work. We appreciate his efforts and wish his success in all his future endeavors.

DATE : 03/11/2025



Manager Sign