

DESIGN THINKING LAB



“STUDENT PORTAL”

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A Design Thinking Report
On
STUDENT PORTAL
Submitted in partial fulfillment of the
Requirements for the award of degree of
Bachelor of Technology
in
Computer Science and Engineering
By
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Department of Computer Science and Engineering

ANURAG UNIVERSITY
(Formerly Anurag Group of Institutions)
(An Autonomous Institution, Approved by AICTE and NBA Accredited)
Venkatapur (V), Ghatkesar (M), Medchal (D), T.S-500088 (2023-2027)



**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

CERTIFICATE

This is to certify that the prototype in Design Thinking Lab entitled **STUDENT PORTAL** being submitted by **SOLOMON MANISH** bearing the Hall Ticket number **23EG105R03** and **N NITHIN** bearing the Hall Ticket number **23EG105R20** and **T AJAY** bearing Hall Ticket number **23EG105R44** and **B SAI PRANEETH** bearing the Hall Ticket Number **23EG105R46** and **S PRASHANTH** bearing Hall Ticket number **23EG105R47** and **B VENKAT NARSIMULU** bearing the Hall Ticket Number **23EG105R63** in partial fulfillment of the requirements for the award of the degree of the **Bachelor of Technology in Computer Science and Engineering** to Anurag University is a record of bonafide work carried out by them under my guidance and supervision from Nov 2024 to March 2025.

The prototype presented in this lab have been verified and found to be satisfactory. The results embodied in this report have not been submitted to any other University for the award of any other degree or diploma.

Internal Guide
Mrs. T. ANUHYA,
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CONTENTS

S NO		PAGE NO
1	TITLE AND INTRODUCTION	5
2	PROBLEM STATEMENT	7
3	RESEARCH & EMPATHY	9
4	DEFINE	11
5	IDEATION	13
6	PROTOTYPE	16
7	TESTING & FEEDBACK	16
8	FINAL SOLUTION	17
9	REFLECTIONS AND NEXT STEPS	20

STUDENT PORTAL

5 STAGES OF DESIGN THINKING PROCESS

Design Thinking is a human-centered, iterative problem-solving approach that focuses on understanding user needs, challenging assumptions, and developing innovative solutions. It encourages creativity, collaboration, and experimentation to address complex problems in various fields, including business, technology, healthcare, and education .It has 5 stages: Empathize, Define, Ideate, Prototype and Test.

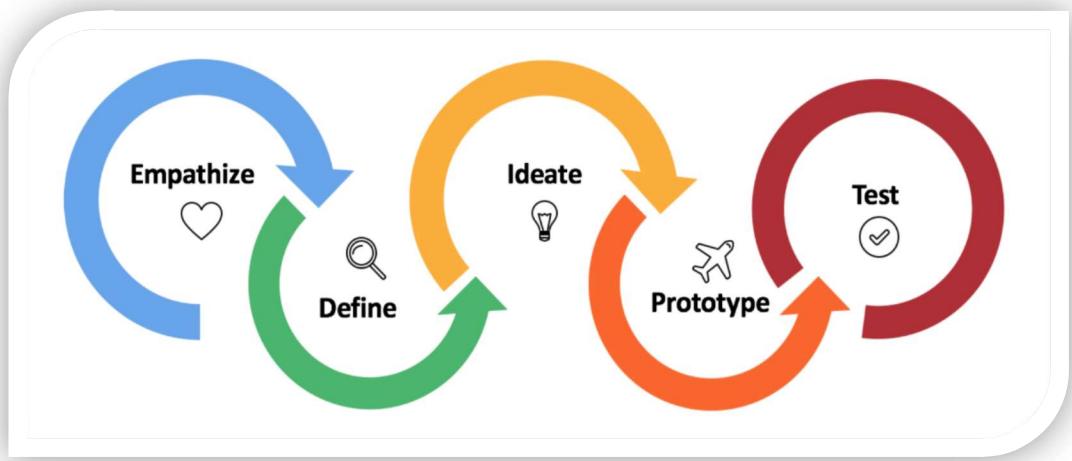


FIG . 1.1

Coming up with an idea is easy. Coming up with the right one takes work. With design thinking, throwing out what you think you know and starting from scratch opens up all kinds of possibilities.

5 Stages of the Design Thinking Process

- 1. Empathize – Understand users' needs through research, interviews, and observations.**
- 2. Define – Clearly articulate the problem statement based on gathered insights.**
- 3. Ideate – Brainstorm creative solutions without limitations.**
- 4. Prototype – Build simple models to test different ideas.**
- 5. Test – Gather feedback, refine solutions, and improve the design.**

Design thinking also inspires new ways to measure the success of our efforts,

Desirable – Do customers and end-users want the solution? Feasible – Can we

deliver the right solution through a combination of build, buy, partner, or acquire activities?

Viable – Is the way we build and offer the solution creating more value than cost? For example, in a for-profit enterprise, are we profitable?

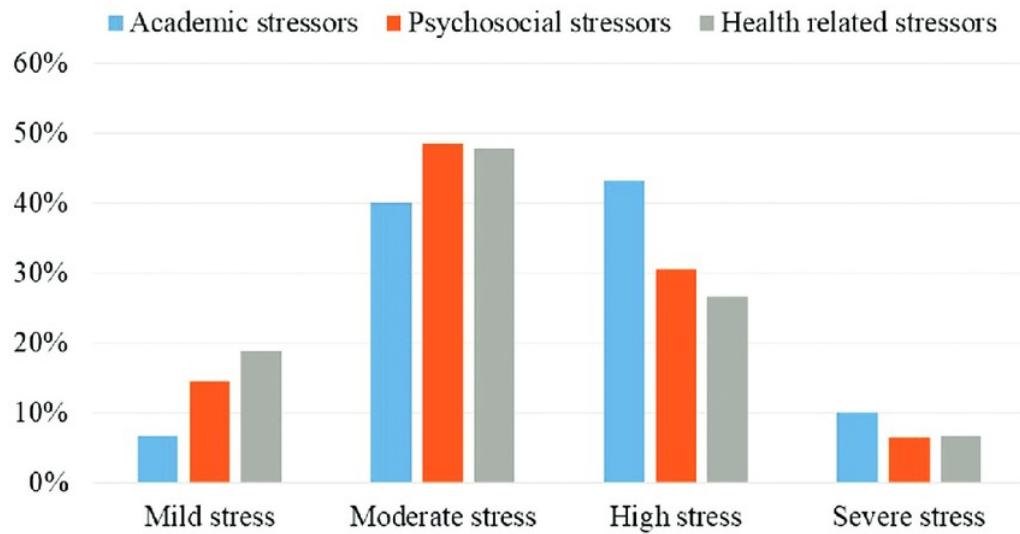
Sustainable – Are we proactively managing our solution to account for its expected product-market lifecycle.

2 PROBLEM STATEMENT

Students face multiple challenges in the education system, including excessive homework, outdated evaluation methods, a lack of focus on practical skills, limited access to digital resources, and ineffective channels for addressing concerns. These issues contribute to increased stress, reduced engagement, and inadequate real-world preparation. A holistic approach that reduces unnecessary workload, integrates digital tools, emphasizes hands-on learning, ensures reliable internet access, and provides an efficient issue resolution platform can create a more effective, student-friendly, and future-ready education system.

EXISTING PROBLEM

- Excessive homework and assignments increase student stress and reduce time for personal development, extracurricular activities, and deep learning.**
- Traditional paper-based assignments require extensive handwriting, making evaluations slow and inefficient for both students and teachers.**
- Lack of focus on practical and technical skills leaves students unprepared for real-world job requirements, prioritizing theory over hands-on experience.**
- Limited access to Wi-Fi and internet prevents students from utilizing digital learning resources, hindering research, collaboration, and academic progress.**
- No dedicated issue resolution platform makes it difficult for students to voice academic and personal concerns, leading to unresolved problems and dissatisfaction.**
- Current educational systems emphasize rote learning rather than fostering critical thinking, creativity, and problem-solving skills needed for future careers.**



3 RESEARCH & EMPATHY

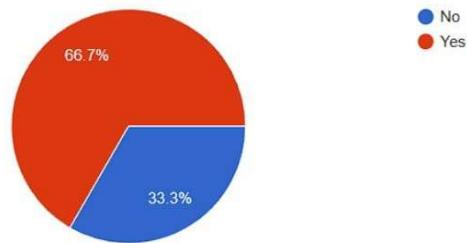
The "empathize" phase is a crucial step in design thinking, a problem-solving methodology commonly used in various fields such as product design, user experience design, and innovation. In this phase, designers seek to understand the users they are designing for deeply. This involves putting themselves in the users' shoes, empathizing with their experiences, needs, motivations, and challenges.

It involves truly grasping the emotions and perspectives of the people for whom you're designing. Designers often employ various techniques such as user interviews, observation, immersion in the users' environment, and creating personas to capture the diversity of user experiences. By empathizing with users, designers can gain valuable insights that inform the subsequent phases of the design process, ultimately leading to more effective and user-centered solutions.

Can you calculate attendance or backlog related things?

 Copy chart

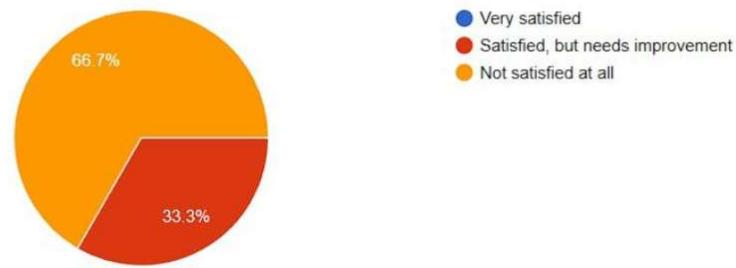
33 responses



How satisfied are you with the internet connectivity on campus?

 Copy chart

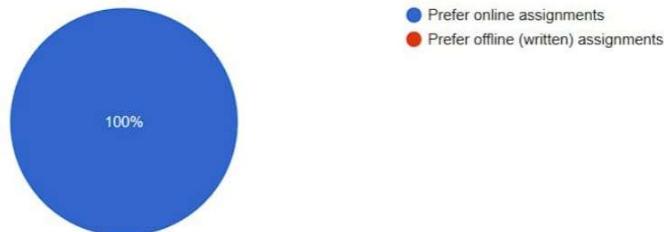
33 responses



Do you prefer online assignments, or do you find offline (written) assignments better?

 Copy chart

33 responses



4 DEFINE

The Define stage is critical in the design thinking process as it consolidates insights gathered during the empathize phase to clarify the core problem affecting the target users. This step shifts focus from merely understanding user pain points to formulating a problem statement that accurately captures user needs and challenges. A well-defined problem statement helps the design team create targeted solutions by emphasizing the essential aspects of the user experience that require improvement.

The current education system faces significant challenges, including excessive homework, outdated evaluation methods, and a lack of emphasis on practical skills. These issues contribute to student stress, inefficient learning, and inadequate preparation for real-world applications. Limited access to digital resources further hinders academic progress, while the absence of a dedicated platform for student concerns leads to unresolved issues and dissatisfaction. A clear problem definition, centered on reducing unnecessary workload, integrating digital tools, and improving student support systems, helps sharpen the focus of innovation efforts. This clarity ensures that every step in the design process—whether ideation, prototyping, or implementation—aims to create a more balanced, engaging, and future-ready education system. By streamlining assignments, enhancing hands-on learning, expanding digital access, and fostering better communication between students and institutions, the solution empowers learners to achieve academic success with reduced stress and greater efficiency.

Point of View (POV):

Who:

Students, teachers, educational institutions, parents, and policymakers facing challenges like excessive academic workload, inefficient evaluation methods, limited digital access, and inadequate practical skill development.

What:

The overemphasis on rote learning, excessive homework, and traditional pen-and-paper assignments leads to student burnout, inefficient learning, and poor real-world preparedness. Additionally, limited internet access and a lack of structured platforms for student concerns hinder academic progress and well-being.

Where:

Schools, colleges, and universities, particularly in regions where digital infrastructure is underdeveloped, students are burdened with heavy workloads, and practical learning opportunities are scarce.

When:

Throughout the academic year, students struggle with high assignment loads, inefficient learning processes, and restricted access to digital resources, especially during exam seasons and project deadlines.

Why:

- Excessive Workload & Stress:** Heavy assignments reduce students' ability to focus on understanding concepts, leading to memorization over learning.
- Inefficient Evaluation Methods:** Traditional handwritten assignments slow down grading and limit quick feedback.

- **Lack of Practical Skill Development:** Education systems prioritize theoretical knowledge over hands-on experience, leaving students unprepared for real-world challenges.
- **Limited Digital Access:** Many students face barriers to online learning due to the lack of internet connectivity and digital tools.
- **No Centralized Issue Resolution Platform:** Students struggle to voice academic or personal concerns effectively, leading to unresolved issues and frustration.

How:

- **Optimized Workload Management:** Reducing unnecessary homework to allow for deeper comprehension and personal growth.
- **Digital & Automated Assignments:** Online platforms to streamline submissions, grading, and feedback, making the process more efficient.
- **Emphasis on Practical Learning:** Introducing hands-on projects, skill-based training, and real-world applications to bridge the gap between education and industry needs.
- **Universal Digital Access:** Providing reliable internet connectivity in educational institutions to support research, collaboration, and e-learning.
- **Student Support & Feedback Platform:** A structured system where students can raise concerns, seek academic help, and receive timely resolutions.

5 IDEATION

Enhanced Ideation for Improving Education Efficiency and Student Well-Being

1. AI-Powered Smart Assignment Management (*Reducing Homework and Assignments*)

- Implement AI-driven workload optimization to ensure balanced assignments and prevent student burnout.
- Use data analytics to identify and reduce redundant homework while maintaining learning outcomes.
- Introduce self-paced learning modules that allow students to focus on understanding concepts rather than completing excessive tasks.
- Provide real-time progress tracking for teachers and students to adjust workload based on comprehension levels.

2. Digital & AI-Assisted Assignment Systems (*Online Assignments with Limited Writing*)

- Transition to AI-based digital platforms that auto-evaluate objective assignments, reducing manual grading efforts.
- Enable voice-to-text and multimedia-based responses to allow students to present ideas creatively.

- **Integrate plagiarism detection and smart feedback tools to enhance learning quality.**
- **Offer cloud storage for seamless access to past assignments, reducing the need for repetitive handwriting tasks.**

3. Industry-Integrated Practical Learning & Skill Development (*Focusing on Practical and Technical Skills*)

- **Replace excessive theoretical assignments with project-based learning, industry simulations, and internships.**
- **Collaborate with industries and universities to create real-world problem-solving challenges within the curriculum.**
- **Leverage virtual labs and interactive learning platforms to enhance hands-on experiences.**
- **Reduce outdated manual documentation to allow students to focus on skill development and innovation.**

4. Universal Digital Access & Smart Learning Hubs (*Providing Wi-Fi and Internet Access*)

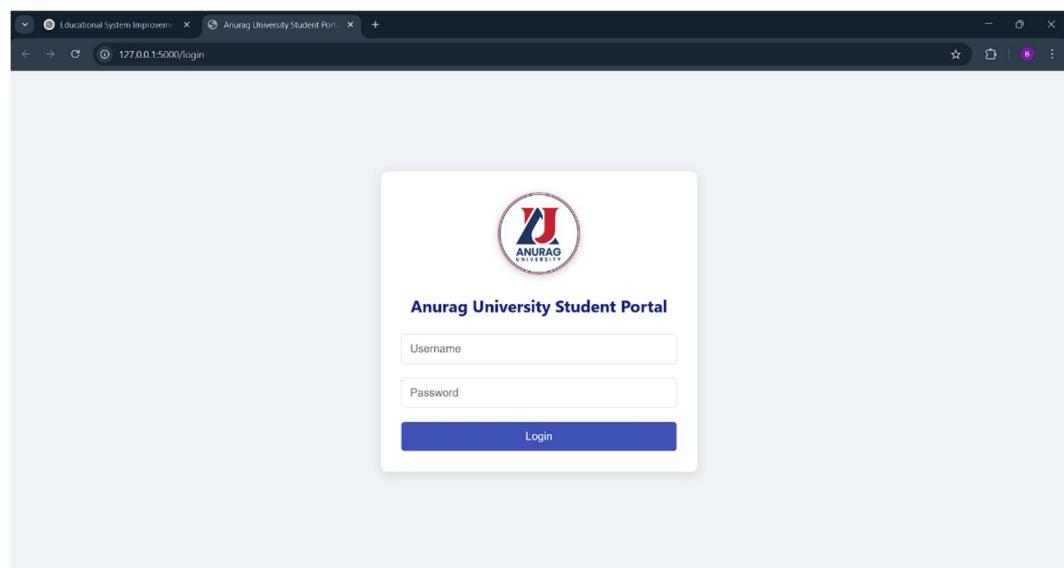
- **Implement government and corporate-sponsored Wi-Fi access programs for educational institutions and remote learners.**
- **Create digital learning hubs in underprivileged areas to bridge the digital divide.**

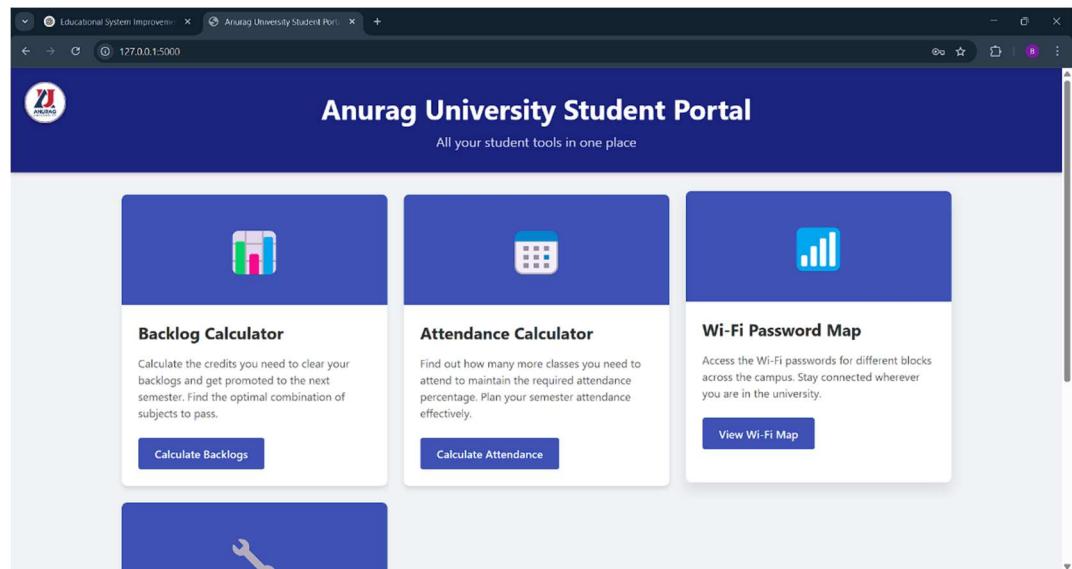
- Offer subsidized internet packages for students to ensure uninterrupted access to academic resources.
- Integrate cloud-based digital libraries for on-demand learning, research, and collaboration.

5. AI-Powered Student Support & Issue Resolution Platform (*Student Issue Resolution Platform*)

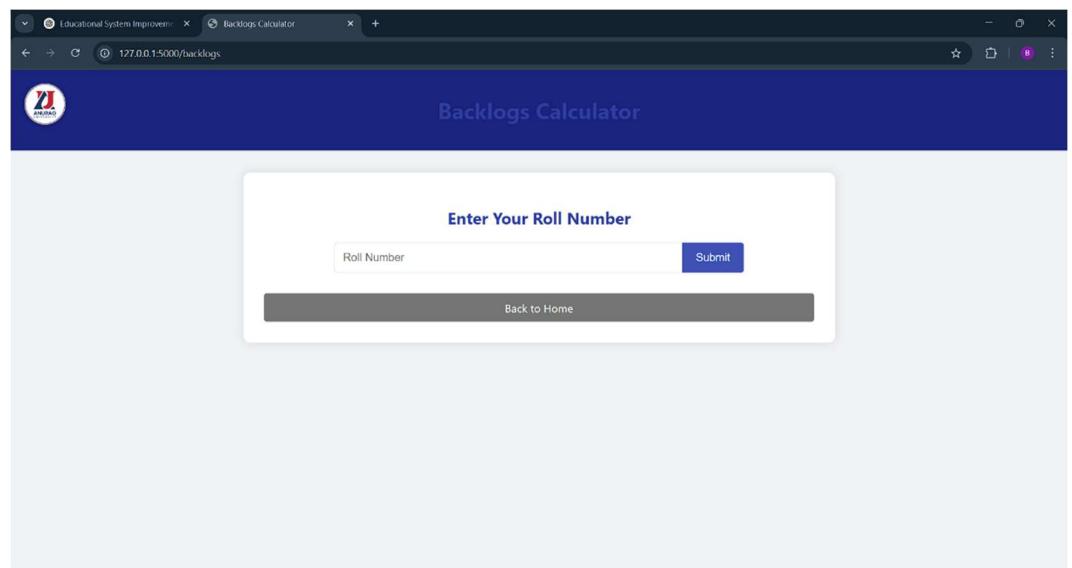
- Develop a centralized digital platform where students can report academic, administrative, and personal concerns anonymously.
- Use AI-driven chatbots and automated ticketing systems to ensure timely resolution of student issues.
- Introduce mental health and academic counseling through virtual sessions integrated within the platform.
- Provide a feedback mechanism where students can rate institutional responses and suggest improvements.

6 PROTOTYPE





This screenshot displays the "Attendance Calculator" page. It has a title "Calculate Your Attendance Requirements" and three input fields: "Total Course Hours", "Hours Conducted So Far", and "Your Current Attendance Percentage". A large blue "Calculate" button is centered below these fields. At the bottom, there is a message box containing placeholder text and a "Back to Home" button.



The figure consists of two vertically stacked screenshots of a web-based application. The top screenshot shows a 'Report a Problem' form with a text area for describing the problem and a 'Submit Report' button. Below this is a section titled 'Unsolved Problems' with two items: 'So many Tests(unit tests)' and 'Assignments are too long', each with a 'Mark as Solved' button. The bottom screenshot shows a 'Wi-Fi Access' page with a grid of blocks labeled A through H, and 'Logout' and 'Back to Home' buttons.

Testing Process:

The proposed student support solutions were tested in various academic settings, including universities and colleges, to evaluate their effectiveness. The testing focused on usability, efficiency, and overall impact on student life. Key areas assessed included attendance tracking, backlog calculation, Wi-Fi accessibility, and issue resolution. Users provided insights on ease of use, reliability, and suggested improvements.

Feedback Summary:

Positive Feedback:

- Students appreciated the ease of tracking their attendance requirements, which helped them plan their class schedules better.
- The backlog calculator provided clear insights into the credits needed for promotion, making it easier for students to manage their academic progress.
- The Wi-Fi portal was found useful for quick access to campus internet passwords, improving connectivity.
- The issue reporting platform was well-received, as it gave students a structured way to raise academic and administrative concerns.

Improvements Suggested:

- Users suggested enhancing the Wi-Fi portal by adding automatic login features for convenience.
- Some students requested a mobile-friendly interface for better accessibility on smartphones.
- Many users recommended integrating a notification system for real-time updates on attendance status and backlog results.
- Some students suggested an anonymous reporting option for sensitive issues in the problem resolution platform.

8. Final Solution

How Our Student Support System Works

1. Attendance Calculator

-  Allows students to calculate required attendance based on total course hours.
-  Provides insights on how many classes need to be attended to meet attendance criteria.
-  Helps students manage their schedules effectively.

2. Backlog Calculator

-  Determines required credits for promotion based on failed subjects.
-  Provides a breakdown of subjects and credits needed to clear backlogs.
-  Helps students strategize their academic recovery.

3. Wi-Fi Access Portal

-  Displays Wi-Fi passwords for different campus blocks to improve accessibility.
-  Ensures students can stay connected to online resources.
-  Simple login interface for quick access.

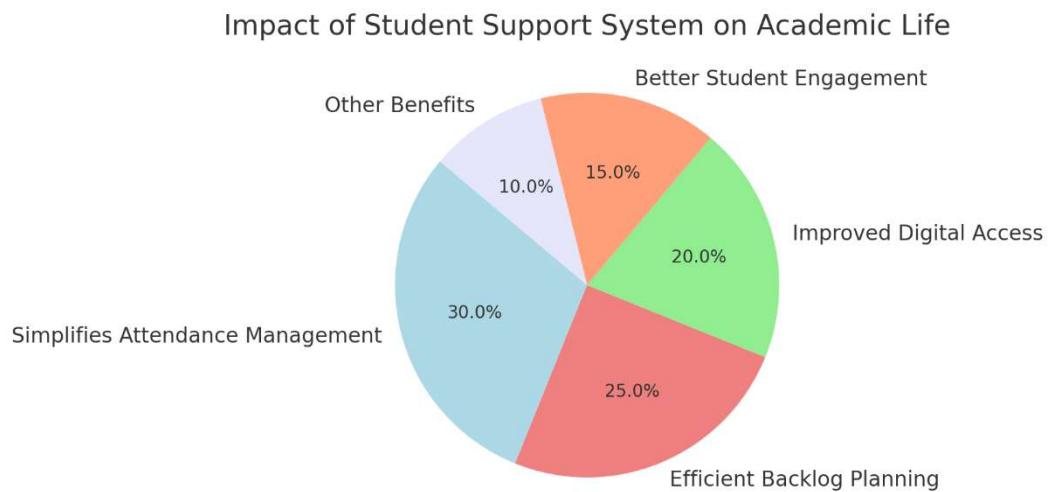
4. Student Issue Resolution Platform

-  Allows students to report academic and administrative problems.
 -  Provides a structured system to track and resolve reported issues.
 -  Enables colleges to address concerns efficiently.
-

Advantages of the Student Support System:

-  Simplifies Attendance Management – Helps students keep track of their required attendance.
-  Efficient Backlog Planning – Students can manage and clear academic backlogs effectively.
-  Improved Digital Access – Wi-Fi details ensure uninterrupted internet connectivity.

❖ Better Student Engagement – Issue resolution platform gives students a voice in academic matters.



Here is a pie chart representing the impact of the student support system on academic life, including factors like attendance management, backlog planning, digital access, and student engagement

9 REFLECTIONS AND NEXT STEPS

Reflections on Student Support & Academic Management Solutions

❖ Academic Stress Reduction:

Implementing digital tools and reducing excessive homework can lower student stress, improve mental well-being, and allow better focus on core learning concepts rather than rote memorization.

◊ **Efficiency & Productivity:**

A streamlined approach to attendance tracking, backlog management, and online assignments helps students save time, avoid unnecessary workload, and stay organized. Digital solutions make learning more efficient by reducing manual work.

◊ **Enhanced Accessibility:**

Providing Wi-Fi and internet access ensures uninterrupted learning opportunities, enabling students to research, submit assignments, and attend online lectures without barriers.

◊ **Student Engagement & Participation:**

A dedicated issue resolution platform encourages students to voice concerns, leading to quicker problem resolution and a more student-friendly academic environment. Increased participation fosters a more inclusive and interactive learning space.

◊ **Technology Integration for Better Learning:**

Leveraging AI-powered platforms, automated tracking systems, and interactive digital tools enhances the learning experience. These innovations promote self-paced education, better feedback mechanisms, and effective teacher-student collaboration.

Next Steps for Enhancing Student Support & Academic Management

Reducing Academic Burden & Improving Learning Quality:

- Optimize homework policies to balance learning and relaxation.
- Encourage practical, hands-on learning experiences over rote

memorization.

- **Implement AI-driven study assistants to provide personalized learning support.**

Enhancing Digital Learning Infrastructure:

- **Ensure all campuses provide high-speed Wi-Fi access to students.**
- **Expand the use of online assignments, reducing handwriting workload.**
- **Develop a centralized digital platform for attendance tracking, backlog management, and academic records.**

Better Student Support & Engagement:

- **Introduce a real-time issue resolution system to address student concerns efficiently.**
- **Organize mentorship programs to assist students with academic backlogs and stress management.**
- **Encourage interactive learning methods such as gamified quizzes, live discussions, and AI-powered tutoring.**

Technology & AI-Powered Solutions:

- **Utilize AI-based performance tracking to identify struggling students and provide targeted support.**
- **Enable smart notifications for assignment deadlines, class schedules, and academic progress reports.**
- **Integrate virtual classrooms with interactive features for better engagement.**

Collaboration with Institutions & Policy Makers:

- **Work with universities and policymakers to create academic policies that support mental well-being and reduce unnecessary workload.**

- Partner with ed-tech firms to provide advanced digital learning tools and smart attendance systems.
- Offer financial assistance or subsidies for students needing technological support for education.

Sustainability & Future-Proofing Education:

- Encourage paperless assignments and digital record-keeping to reduce environmental impact.
- Promote energy-efficient learning spaces with smart classrooms and digital resources.
- Explore AI-driven personalized learning paths to ensure a customized educational experience.

Thank you 😊