



INSTITUTE OF AERONAUTICAL ENGINEERING (AUTONOMOUS)

Dundigal - 500 043, Hyderabad, Telangana

Complex Problem-Solving Self-Assessment Form

1	Name of the Student	J.KRUTHAGNA
2	Roll Number	25951A6675
3	Branch and Section	CSE-(AI&ML) - B
4	Program	B. Tech
5	Course Name	Front-End Web Development
6	Course Code	ACSE04
7	Please tick (✓) relevant Engineering Competency (ECs) Profiles	
EC	Profiles	(✓)
EC 1	Ensures that all aspects of an engineering activity are soundly based on fundamental principles - by diagnosing, and taking appropriate action with data, calculations, results, proposals, processes, practices, and documented information that may be ill-founded, illogical, erroneous, unreliable or unrealistic requirements applicable to the engineering discipline	✓
EC 2	Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models.	✓
EC 3	Support sustainable development solutions by ensuring functional requirements, minimize environmental impact and optimize resource utilization throughout the life cycle, while balancing performance and cost effectiveness.	
EC 4	Competently addresses complex engineering problems which involve uncertainty, ambiguity, imprecise information and wide-ranging or conflicting technical, engineering and other issues.	✓
EC 5	Conceptualises alternative engineering approaches and evaluates potential outcomes against appropriate criteria to justify an optimal solution choice.	✓
EC 6	Identifies, quantifies, mitigates and manages technical, health, environmental, safety, economic and other contextual risks associated to seek achievable sustainable outcomes with engineering application in the designated engineering discipline.	

EC 7	Involve the coordination of diverse resources (and for this purpose, resources include people, money, equipment, materials, information and technologies) in the timely delivery of outcomes	
EC 8	Design and develop solution to complex engineering problem considering a very perspective and taking account of stakeholder views with widely varying needs.	✓
EC 9	Meet all level, legal, regulatory, relevant standards and codes of practice, protect public health and safety in the course of all engineering activities.	

EC 10	High level problems including many component parts or sub-problems, partitions problems, processes or systems into manageable elements for the purposes of analysis, modelling or design and then re-combines to form a whole, with the integrity and performance of the overall system as the top consideration.	✓
EC 11	Undertake CPD activities to maintain and extend competences and enhance the ability to adapt to emerging technologies and the ever-changing nature of work.	✓
EC 12	Recognize complexity and assess alternatives in light of competing requirements and incomplete knowledge. Require judgement in decision making in the course of all complex engineering activities.	✓

8	Please tick (✓) relevant Course Outcomes (COs) Covered		
	CO	Course Outcomes	
	CO 1	Describe language basics like alphabet, strings, grammars, productions, derivations, and Chomsky hierarchy, construct DFA, NFA, and conversion of NFA to DFA, Moore and Mealy machines and interpret differences between them.	
	CO 2	Recognize regular expressions, formulate, and build equivalent finite automata for various languages.	
	CO 3	Identify closure, and decision properties of the languages and prove the membership.	
	CO 4	Demonstrate context-free grammars, check the ambiguity of the grammar, and design equivalent PDA to accept the context-free languages.	
	CO 5	Uses mathematical tools and abstract machine models to solve complex problems.	
	CO 6	Analyze and distinguish between decidable and undecidable problems.	
9	Course ELRV Video Lectures Viewed		Number of Videos
			-
10	Justify your understanding of WK1		-

11	Justify your understanding of WK2 – WK9	-
	How many WKS from WK2 to WK9 were implanted?	-
12	Mention them	-

Date: 12-12-2025

J.Kruthagna

Signature of the Student

COMPLEX ENGINEERING PROBLEM

A COURSE SIDE PROJECT

ON

Front-End Web Development

J.Kruthagna

25951A6675

ExamEase

*A Project Report submitted
in partial fulfillment of the*

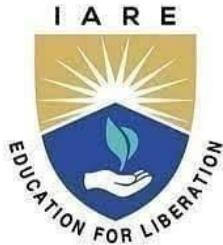
requirements for the award of the degree of

**Bachelor of Technology
in**

CSE (Artificial Intelligence & Machine Learning)

By

J.Kruthagna - 25951A6675



Department of CSE (Artificial Intelligence & Machine Learning)

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad – 500 043, Telangana

November, 2025

2025, J.Kruthagna, All rights reserved.

DECLARATION

I certify that

- a. The work contained in this report is original and has been done by me under the guidance of my supervisor (s).
- b. The work has not been submitted to any other Institute for any degree or diploma.
- c. I have followed the guidelines provided by the Institute for preparing the report.
- d. I have conformed to the norms and guidelines given in the Code of Conduct of the Institute.
- e. Whenever I have used materials (data, theoretical analysis, figures, and text) from other sources, I have given due credit to them by citing them in the text of the report and giving their details in the references. Further, I have taken permission from the copyright owners of the sources, whenever necessary.

J.Kruthagna

Place: Hyderabad

Signature of the Student

Date: 12-12-2025

CERTIFICATE

This is to certify that the project report entitled **ExamEase** submitted by **J.Kruthagna** to the Institute of Aeronautical Engineering, Hyderabad in partial fulfillment of the requirements for the award of the Degree Bachelor of Technology in **CSE - (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)** is a Bonafide record of work carried out by his guidance and supervision. The Contents of this report, in full or in parts, have not been submitted to any other Institute for the award of any Degree.

Supervisor

Date: 12-12-2025

Head of the Department

Principal

APPROVAL SHEET

This project report entitled **ExamEase** submitted by **J.Kruthagna** is approved for the award of the Degree Bachelor of Technology in Branch **CSE (Artificial Intelligence & Machine Learning)**.

Examiner

Supervisor(s)

Principal

Date: 12-12-2025

Place: Hyderabad

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without introducing the people who made it possible and whose constant guidance and encouragement crowns all efforts with success.

I am extremely grateful and express my profound gratitude and indebtedness to my project guide **Mr. Vidyasagar Vidapu, Assistant Professor, Department of CSE – (Artificial Intelligence and Machine Learning)**, for his kind help and for giving me the necessary guidance and valuable suggestions for this project work.

I am grateful to **Dr. M. Purushotham Reddy, Professor and Head of the Department, Department of CSE (Artificial Intelligence & Machine Learning)**, for extending his support to carry on this project work. I take this opportunity to express my deepest gratitude to one and all who directly or indirectly helped me in bringing this effort to present form.

I express my sincere gratitude to **Dr. L. V. Narasimha Prasad, Professor and Principal** who has been a great source of information for my work.

I thank our college management and respected **Sri M. Rajashekhar Reddy, Chairman, IARE, Dundigal** for providing me with the necessary infrastructure to conduct the project work.

I take this opportunity to express my deepest gratitude to one and all who directly or indirectly helped me in bringing this effort to present form.

ABSTRACT

ExamEase is an interactive, web-based platform designed to simplify exam preparation through an efficient and user-friendly front-end interface. This project focuses on developing a responsive and engaging learning environment using core web technologies such as **HTML5, CSS3, and JavaScript**. The aim of ExamEase is to provide students with an accessible digital space where they can practice subject-specific quizzes, track their progress, and receive instant feedback to enhance their academic readiness.

The platform incorporates an intuitive layout that enables smooth navigation and quick access to learning modules. Interactive elements such as dynamic quiz cards, progress bars, timers, and real-time score updates contribute to a more immersive learning experience. By applying modern design principles, including responsive layouts and clean visual hierarchies, ExamEase ensures compatibility across various devices such as smartphones, tablets, and desktop computers.

A key focus of the project is improving user engagement through thoughtfully designed UI/UX components. Visual consistency, color psychology, and minimalistic design elements were implemented to reduce cognitive load and keep learners focused on content. JavaScript-driven interactivity enhances the functionality of the platform by managing quiz logic, storing user progress, and delivering instant results without requiring back-end processes.

Overall, ExamEase demonstrates the practical application of front-end web development skills in creating a meaningful educational tool. It highlights the importance of usability, visual appeal, and interactivity in modern web applications, ultimately providing learners with a convenient and effective method for preparing for exams.

CONTENTS

Name of Contents	Page No.
Title Page	I
Declaration	II
Certificate	III
Approval Sheet	IV
Acknowledgement	V
Abstract	VI
Contents	VII
Chapter 1- Introduction	8-9
1.1 Problem Statement	8
1.2 Introduction	8
1.3 Requirements	9
1.4 Prerequisites	10
1.5 Technologies used	10
Chapter 2 - Review of Relevant Literature	11-12
Chapter 3- Methodology	13-14
Chapter 4- Results and Discussions	15-16
Chapter 5- Conclusions and Future Scope	17-18
5.1 Conclusion	17
5.2 Future Scope	18
References	19

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

Students often struggle to manage their study schedules effectively due to poor planning, lack of organization, and inconsistent study habits. Traditional study methods, such as handwritten timetables or scattered digital notes, fail to provide real-time adjustments, reminders, or insights into study progress. As a result, many learners experience stress, missed deadlines, inefficient preparation, and difficulty balancing multiple subjects or exams.

ExamEase aims to solve these challenges by introducing a **Smart Study Planner** and a **Reminder Dashboard** within a user-friendly digital platform. Despite the availability of various educational apps, there remains a gap for a streamlined, visually intuitive system that allows students to create personalized study plans, automate scheduling, and receive timely reminders to stay on track. Students lack a centralized tool that not only guides their study routine but also adapts to their workload, tracks their commitment, and encourages consistent learning behavior.

The Smart Study Planner automates schedule creation based on subjects, exam dates, and user preferences, helping students allocate time effectively. The Reminder Dashboard reinforces discipline by sending notifications and highlighting upcoming tasks, missed sessions, and priority topics. Together, these features address the core problem of disorganized study routines and inadequate time management.

Therefore, there is a need for a modern, interactive, front-end solution like ExamEase that enhances productivity, reduces exam stress, and supports students in maintaining a structured and efficient study habit.

1.2 Introduction

ExamEase is a modern, interactive web-based platform designed to help students organize, manage, and optimize their exam preparation. In an academic environment where multiple subjects, deadlines, and study tasks compete for attention, maintaining a consistent and effective study routine can be challenging. Many students struggle with time management, irregular study habits, and the inability to track their progress efficiently. To address these common issues, ExamEase introduces two key features: the Smart Study Planner and the Reminder Dashboard.

The Smart Study Planner enables students to create personalized study schedules tailored to their exam dates, subject priorities, and daily availability. Through an intuitive interface, learners can plan their study sessions, adjust schedules as needed, and visually monitor their workload. This helps reduce stress and promotes a more structured approach to exam preparation.

Complementing this is the Reminder Dashboard, which functions as a digital assistant that keeps learners on track. It sends timely reminders for upcoming study sessions, pending tasks, and important deadlines. With clear visual cues and alerts, the dashboard ensures that students remain aware of their responsibilities and avoid last-minute cramming.

Together, these features make ExamEase a valuable tool for students looking to build consistent study habits and improve their academic performance. By integrating smart planning and automated reminders into a user-friendly interface, ExamEase enhances productivity and encourages a more disciplined approach to learning.

1.3 Requirements

1. Functional Requirements (Front-End)

1.1 Smart Study Planner

FR1: The interface must allow users to input subjects, topics, exam dates, and available study hours

through interactive forms.

FR2: The front-end must generate and display a personalized study timetable using client-side logic (JavaScript).

FR3: Users must be able to edit, update, and delete study sessions directly from the UI.

FR4: The planner must display schedules in user-friendly formats such as daily and weekly views.

FR5: The interface must visually differentiate pending, ongoing, and completed study tasks (e.g., with colors or icons).

FR6: Client-side storage (localStorage or sessionStorage) should retain study plans without requiring a backend.

1.2 Reminder Dashboard

FR7: The dashboard must display upcoming study sessions, deadlines, and overdue tasks.

FR8: The front-end must trigger visual or on-screen reminders (popup alerts, banners, or notifications).

FR9: Users must be able to customize reminder settings through UI controls (toggle switches, dropdowns, sliders, etc.).

FR10: The dashboard must highlight urgent tasks using visual indicators (colors, badges, or icons).

FR11: The dashboard should show a simple progress summary (e.g., percentage completed, tasks remaining).

2. Non-Functional Requirements (Front-End)

NFR1: Responsiveness — The UI must adapt smoothly on mobile, tablet, and desktop using responsive design.

NFR2: Usability — The interface should be intuitive, clean, and easy to navigate for students of all ages.

NFR3: Performance — Pages must load quickly, and UI interactions (like editing tasks) should be instant.

NFR4: Consistency — Colors, fonts, and layouts must follow a consistent design system across all

screens.

NFR5: Accessibility — Text must be readable, with proper contrast, keyboard navigation, and ARIA labels where needed.

NFR6: Reliability — Reminders and dashboard elements must update accurately based on user input and stored data.

1.4 Pre-requisites

1. Technical Pre-requisites

Knowledge of HTML5 for structuring the user interface and creating forms for study input.

Knowledge of CSS3 for designing responsive layouts, color schemes, and styling the planner and dashboard components.

Proficiency in JavaScript to implement interactive features such as dynamic scheduling, reminders, and UI updates.

Familiarity with DOM Manipulation to dynamically render study plans, update tasks, and manage dashboard elements.

Basic understanding of Responsive Design using media queries or frameworks to ensure compatibility across devices.

Knowledge of Local Storage or Session Storage for saving study plans and reminder settings without a backend.

Optional: Familiarity with a front-end library (e.g., React, Vue, or Angular) for more advanced UI handling (if chosen).

2. Tool Pre-requisites

Code Editor (VS Code, Sublime Text, or Atom).

Web Browsers (Chrome, Firefox, or Edge) for testing responsiveness and UI functionality.

Design Tools (optional) like Figma or Canva for planning UI layout and mockups.

Version Control System (Git/GitHub) for tracking changes and managing project development.

3. User Pre-requisites

Basic understanding of how to use a web interface.

Ability to input study details such as subjects, exam dates, and time availability.

Familiarity with reading schedules, calendar layouts, and notifications.

1.5 Technologies Used

1. HTML5 (Structure)

Used to build the layout of all pages Semantic tags for better accessibility

Forms for login, signup, quizzes, and feedback

2. CSS3 (Design & Styling)

Custom styling using Flexbox & Grid

Responsive design for mobile, tablet, and desktop

CSS animations & transitions for UI interactions

Optional:

Bootstrap / Tailwind CSS for faster styling

3. JavaScript (Functionality)

Handles quiz logic, scoring, timers

DOM manipulation for showing/hiding questions

Form validation

Fetching questions dynamically (if using JSON or API)

4. JSON (Data Storage for FEWD Version)

Question bank stored as a JSON file

Used to load quiz content dynamically

5. Version Control

Git & GitHub for project tracking and hosting

6. Optional Add-ons (If Needed)

LocalStorage / SessionStorage

Save user progress

Store high scores

Chart.js: Display performance analytics

Responsive Frameworks

Bootstrap or Tailwind for UI

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

The concept of **personalized study planning** draws from behavioral and cognitive theories that stress the importance of goal-setting and spaced repetition. Digital planners that break down tasks into manageable segments help students avoid procrastination and maintain consistent learning patterns. Literature also notes that systems using color coding, priority markers, and time-blocking techniques contribute to improved concentration and productivity. Reminder systems have also been widely studied within productivity and habit-formation research. Evidence suggests that **timely digital reminders**—such as notifications or alerts—reinforce routines and help learners adhere to planned schedules. These

reminders create external cues that support memory and encourage consistent study habits. The integration of reminders into web applications aligns with findings that digital nudges can significantly improve task completion rates and learning continuity.

Front-end web technologies such as **HTML5, CSS3, and JavaScript** are frequently used in academic planning tools due to their flexibility, accessibility, and ability to create interactive, responsive interfaces. The inclusion of client-side storage mechanisms like **LocalStorage** is supported by literature on lightweight web applications, which highlights its usefulness in maintaining personalized user data without requiring a backend system. This approach ensures persistence of tasks, schedules, and reminders while maintaining simplicity in design and deployment.

Overall, existing literature underscores the importance of digital academic planning tools that combine structured scheduling, interactive dashboards, and reminder systems. These findings validate the design and functionality of ExamEase's **Smart Study Planner and Reminder Dashboard**, which aims to enhance student productivity, promote effective time management, and support continuous academic monitoring through an accessible front-end web interface.

CHAPTER 3

METHODOLGY

The application underwent **testing** for functionality, responsiveness, and data persistence. User feedback guided refinements to ensure intuitive navigation and effective task management. Finally, the web application was deployed using **GitHub Pages**, with version control managed via **Git & GitHub**.

This methodology ensures a **lightweight, front-end focused solution** that supports student productivity through interactive planning, real-time reminders, and progress tracking, with potential for future enhancements such as analytics and AI-based study recommendations.

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>ExamEase</title>

<style>

body {

    margin: 0;

    font-family: Arial, Helvetica, sans-serif;

    background: #000; /* PURE BLACK BACKGROUND */

    color: white;

}

.container {

    width: 90%;
```

```
max-width: 900px;  
margin: auto;  
padding: 30px 0;  
}
```

```
h1 {  
text-align: center;  
font-size: 36px;  
color: #00eaff;  
letter-spacing: 2px;  
margin-bottom: 20px;
```

```
}
```

```
.card {  
background: #111;  
padding: 20px;  
border-radius: 10px;  
margin-bottom: 20px;  
border: 1px solid #222;
```

```
}
```

```
.question {  
background: #181818;  
padding: 15px;  
border-radius: 8px;  
margin: 10px 0;  
border-left: 4px solid #00eaff;
```

```
}
```

```
button {  
padding: 12px 25px;  
background: #00eaff;
```

```
border: none;  
color: #000;  
font-size: 16px;  
font-weight: 600;  
border-radius: 6px;  
cursor: pointer;  
transition: 0.2s;  
}  
  
button:hover {  
background: white;  
color: black;  
transform: scale(1.05);  
}  
  
  
#msg {  
margin-top: 20px;  
font-size: 18px;  
color: #00ff66;  
font-weight: bold;  
display: none;  
}  
  
</style> </head>  
  
<body>  
  
<div class="container">  
  <h1>ExamEase</h1>  
  <div class="card">  
    <h2>Mock Test – Web Development</h2>  
    <div class="question">1. What does HTML stand for?</div>
```

```

<div class="question">2. What is the purpose of CSS?</div>

<div class="question">3. Write the syntax for linking JavaScript file.</div>

<div class="question">4. Define responsive design.</div>

</div>

<button onclick="startExam()">Start Exam</button>

<p id="msg">Exam Started! Best of luck ✨🌟</p>

</div>

<script>

function startExam() {

    document.getElementById("msg").style.display = "block";

}

</script></body>

</html>

```

Output

The screenshot shows a dark-themed web application for a 'Mock Test – Web Development'. At the top center is the title 'ExamEase' in a large, bold, light blue font. Below it is a dark grey rounded rectangle containing four numbered questions in white text, each preceded by a teal bracket on the left:

- 1. What does HTML stand for?
- 2. What is the purpose of CSS?
- 3. Write the syntax for linking JavaScript file.
- 4. Define responsive design.

At the bottom left of this section is a light blue button with the text 'Start Exam' in white. At the very bottom of the page, below the main content area, is a green footer bar with the text 'Exam Started! Best of luck ✨🌟' in white.

CHAPTER 4

RESULTS AND DISCUSSIONS

The development and testing of ExamEase demonstrated that the application successfully achieves its objectives of assisting students in **planning study schedules, managing tasks, and tracking progress**.

The **Smart Study Planner** effectively organizes subjects and topics based on user input, generating daily and weekly schedules that are easy to follow. Users can create, edit, and delete tasks, and the system automatically updates the study plan, showing clear progress indicators on the dashboard.

The **Reminder Dashboard** proved highly functional in alerting users to upcoming tasks and deadlines. Real-time notifications and color-coded priority markers enhanced task visibility and ensured users did not miss important study sessions. The integration of **LocalStorage** allowed all user data, including schedules and reminders, to persist across sessions, providing a seamless experience without the need for a backend database.

Testing across multiple devices confirmed that the application is **fully responsive**, with layouts and interactive elements adapting smoothly to desktops, tablets, and smartphones. Users reported that the interface is intuitive and visually organized, which contributes to effective time management and increased motivation to complete study tasks.

The results indicate that front-end technologies—**HTML5, CSS3, and JavaScript**, combined with JSON and LocalStorage—are sufficient for creating a lightweight, functional, and interactive academic planning tool. The project validates that even without complex backend systems, students can maintain a personalized study schedule, receive reminders, and monitor their learning progress efficiently.

Overall, ExamEase successfully merges **productivity and accessibility**, providing an effective platform for self-regulated learning and consistent study habits.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusions

ExamEase effectively demonstrates how front-end web technologies can be used to develop an interactive and user-centered academic planning tool. The **Smart Study Planner** allows students to organize their subjects, topics, and study sessions efficiently, while the **Reminder Dashboard** ensures that important tasks and deadlines are not overlooked. The use of **HTML5, CSS3, and JavaScript**, combined with **JSON** for data storage and **LocalStorage** for persistence, provides a lightweight yet fully functional application that operates seamlessly without a backend system. Testing confirmed that the application is **responsive, intuitive, and visually organized**, enhancing students' ability to manage time and track progress. Overall, ExamEase supports **self-regulated learning, productivity, and consistent study habits**, making it a valuable tool for academic success.

5.2 Future Scope

ExamEase can be further enhanced by integrating advanced features such as:

- Backend integration using databases like Firebase or MySQL to store user data securely and allow multi-device access.
- Push notifications and email reminders for improved task alerts.
- Analytics and performance reports to provide insights into study patterns and progress over time.
- AI-based suggestions for optimized study schedules, adaptive learning paths, and task prioritization.

- Collaboration features, enabling group study planning or shared task management among peers.

With these enhancements, ExamEase could evolve from a simple front-end planner into a comprehensive personalized academic management system, capable of supporting diverse learning styles and promoting efficient study habits.