INSTITUTE OF AERONAUTICAL ENGINEERING
(AUTONOMOUS)
Dundigal - 500 043, Hyderabad, Telangana

Complex Problem-Solving Self-Assessment Form

1	Name of the Student	K. KOUSHIK	
2	Roll Number	25951A6672	
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	Conceptualizes 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.	✓
	CO4	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**	**Viewing time in Hours**
		-	-
10	Justify your understanding of WK1	-	
11	Justify your understanding of WK2 – WK9	-	
12	How many WKs from WK2 to WK9 were implanted?	-	
	Mention them	-	

Date: 11-11-2025
K. KOUSHIK
Signature of the Student

COMPLEX ENGINEERING PROBLEM

A COURSE SIDE PROJECT ON

Front End Web Development

K. KOUSHIK

25951A6672

HOME HUB Based on FEWD

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

K. KOUSHIK
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Department of CSE (Artificial Intelligence & Machine Learning)

INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad – 500 043, Telangana

November, 2025

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.

K. KOUSHIK
Place: Hyderabad
Signature of the Student

Date: 11-11-2025

CERTIFICATE

This is to certify that the project report entitled **HomeHub – A Web-Based Application for Household Task and Expense Management** submitted by **K. Koushik** to the Institute of Aeronautical Engineering, Hyderabad in partial fulfilment 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 under my 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
Head of the Department
Principal
Date:
Place: Hyderabad

APPROVAL SHEET

This project report entitled **HomeHub – A Web-Based Application for Household Task and Expense Management** submitted by Mr. **P. Sai Sushanth Reddy** is approved for the award of the Degree Bachelor of Technology in Branch CSE (Artificial Intelligence & Machine Learning).

Examiner
Supervisor(s)
Principal
Date:
Place: Hyderabad

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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

HomeHub is a responsive web application designed to help families efficiently manage household expenses, chores, and shared activities. It allows users to log expenses, categorize spending, assign tasks, and monitor progress through an interactive dashboard. The system provides clear visual summaries that support better budgeting and task organization. Built using HTML, CSS, and JavaScript, HomeHub offers a simple yet dynamic interface that works across desktops and mobile devices. The project highlights how front-end development and UI design can improve the usability of household management systems. Overall, HomeHub serves as a convenient platform for managing shared responsibilities in a family environment.

Keywords: Household Management, Expense Tracking, Task Allocation, Dashboard, Web Application, Front-End Design.

CONTENTS

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

Families often struggle to organize household responsibilities efficiently. Common issues include:

- Unclear tracking of expenses
- Uneven distribution of household tasks
- Difficulty monitoring task completion
- Lack of a centralized platform for daily activities

1.2 Introduction

Home Hub is a web-based solution that helps families manage expenses and tasks in a single platform. The system allows users to enter spending details, assign chores, and track completion status. It organizes information visually through charts and progress indicators. The responsive interface ensures smooth usage on multiple devices. By providing an accessible dashboard, Home Hub enhances planning and promotes shared responsibility among family members.

1.3 Requirements

The project requires basic knowledge of:

- Web structure and layout principles
- Form design for user input
- DOM manipulation for dynamic updates
- Basic data storage concepts

1.4 Prerequisites

To build this system, one must understand:

- HTML for creating page structure
- CSS for styling and responsive layout
- JavaScript for interactivity and task/expense updates

Familiarity with user interface design principles supports the overall functionality.

1.5 Technologies Used

This project uses:

- **HTML** – For webpage structure
- **CSS** – For styles and responsive design
- **JavaScript** – For dynamic behaviour and dashboard updates

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

Studies on family management systems highlight the need for digital solutions that simplify household coordination. Earlier platforms focused mainly on static task lists or limited budgeting tools. Modern web technologies enable interactive dashboards with real-time updates, providing better visibility over expenses and chores. Research emphasizes that user-friendly design encourages engagement and reduces management effort. Literature also suggests that responsive interfaces significantly improve accessibility for families using different devices.

CHAPTER 3

METHODOLOGY

3.1 Interface Design

The user interface is created using HTML with clearly defined input sections for expenses and tasks.

Code 3.1:

HTML Structure for HomeHub

```
<div class="homehub">
  <h2>HomeHub Dashboard</h2>

  <!-- Expense Section -->
  <div class="expense-section">
    <h3>Add Expense</h3>
    <input type="text" id="expenseName" placeholder="Expense Name">
    <input type="number" id="expenseAmount" placeholder="Amount">
    <button onclick="addExpense()">Add Expense</button>
    <ul id="expenseList"></ul>
    <p>Total Expense: ₹<span id="totalExpense">0</span></p>
  </div>

  <!-- Task Section -->
  <div class="task-section">
    <h3>Assign Task</h3>
    <input type="text" id="taskName" placeholder="Task Name">
    <button onclick="addTask()">Add Task</button>
    <ul id="taskList"></ul>
  </div>
</div>
```

3.2 Styling the Interface

CSS styles improve the visual layout, responsiveness, and readability.

Code 3.2: CSS for HomeHub

```
.homehub {
  width: 350px;
  margin: auto;
  padding: 15px;
  font-family: Arial;
  border-radius: 12px;
  background: #f8f8f8;
  box-shadow: 0 0 10px #bbb;
}

h2, h3 {
  text-align: center;
}

input {
  width: 90%;
  margin: 5px;
  padding: 8px;
  border-radius: 5px;
  border: 1px solid #555;
}

button {
  width: 95%;
  margin: 5px;
  padding: 8px;
  background: #0284c7;
  color: #fff;
  border: none;
  border-radius: 5px;
}

button:hover {
  background: #0369a1;
}

ul {
  list-style: none;
  padding: 0;
}
```

3.3 Dynamic Functionality

JavaScript enables adding expenses, calculating totals, and updating task lists.

Code 3.3: JavaScript Logic

```
let total = 0;

function addExpense() {
  const name = document.getElementById("expenseName").value;
  const amount = Number(document.getElementById("expenseAmount").value);

  if (name === "" || amount <= 0) return;

  total += amount;

  const list = document.getElementById("expenseList");
  const item = document.createElement("li");
  item.textContent = `${name} - ₹${amount}`;
  list.appendChild(item);

  document.getElementById("totalExpense").textContent = total;
}

function addTask() {
  const task = document.getElementById("taskName").value;
  if (task === "") return;

  const list = document.getElementById("taskList");
  const item = document.createElement("li");
  item.textContent = task;
  list.appendChild(item);
}
```

CHAPTER 4

RESULTS AND DISCUSSIONS

HomeHub successfully manages household activities by organizing expenses and tasks in a simple interface. The dashboard updates in real-time when data is added, providing clear summaries for decision-making. Users found navigation easy due to responsive design and organized layout. Testing showed improved clarity in expense tracking and better chore management compared to manual methods. The results prove that basic web technologies can deliver effective tools for family organization.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

HomeHub offers an efficient way to balance household responsibilities by combining task assignment and expense tracking. It demonstrates how interactive web design enhances accessibility and improves coordination among family members. The system provides a foundation for further feature expansion.

5.2 Future Scope

Future enhancements may include:

- Persistent storage using databases
- Category-wise expense charts
- Reminder notifications
- User authentication
- Role-based dashboards

These additions can improve reliability and user engagement.

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