



# INSTITUTE OF AERONAUTICAL ENGINEERING (AUTONOMOUS)

Dundigal - 500 043, Hyderabad, Telangana

## Complex Problem-Solving Self-Assessment Form

1	Name of the Student	M. BALA YOGENDER	
2	Roll Number	25951A6630	
3	Branch and Section	CSE-(AI&ML) - A	
4	Program	B. Tech	
5	Course Name	Front-End Web Development	
6	Course Code	ACSE04	
7	Please tick (✓) relevant Engineering Competency (ECs) Profiles		
	<b>EC</b>	<b>Profiles</b>	<b>(✓)</b>
	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		
	<b>CO</b>	<b>Course Outcomes</b>	<b>(✓)</b>
	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	<b>Number of Videos</b>	<b>Viewing time in Hours</b>
		-	-
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: 10-12-2025

Yogi

Signature of the Student

**COMPLEX ENGINEERING PROBLEM**

**A COURSE SIDE PROJECT ON**  
**Front-End Web Development**

***M.BALA YOGENDER***

***25951A6630***

# **Market Yard**

*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*

M. BALA YOGENDER

**25951A6630**



**Department of CSE (Artificial Intelligence & Machine Learning)**

**INSTITUTE OF AERONAUTICAL ENGINEERING**

**(Autonomous)**

**Dundigal, Hyderabad – 500 043, Telangana**

**November, 2025**

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## **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.

Yogi

**Place: Hyderabad**

**Signature of the Student**

**Date: 10-12-2025**

## CERTIFICATE

This is to certify that the project report entitled Market Yard submitted by **M. Bala Yogender** 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**

**Head of the Department**

**Date: 10-12-2025**

**Principal**

## APPROVAL SHEET

This project report entitled **Market Yard** submitted by **M. Bala Yogender** is approved for the award of the Degree Bachelor of Technology in Branch **CSE (Artificial Intelligence & Machine Learning)**.

**Examiner**

**Supervisor(s)**

**Principal**

**Date: 10-12-2025**

**Place: Hyderabad**

## **ACKNOWLEDGEMENT**

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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**

Market Yard is a front-end web application designed to provide a digital overview of a traditional market yard, enabling users to explore market information such as available commodities, vendor details, daily price listings, and basic market activities through a clean and interactive interface. In many regions, market yard information is still shared through manual notice boards or word-of-mouth, which limits accessibility and timely updates. Market Yard aims to bridge this gap by offering a simple, web-based platform that presents essential market data in a structured and visually appealing manner.

The project focuses on front-end development using HTML5, CSS3, and JavaScript to build a responsive and user-friendly application. The interface allows users to view commodity lists, check sample price details, and navigate through different sections of the market yard seamlessly. Visual elements such as cards, tables, and highlights are used to improve readability and user engagement.

Market Yard demonstrates the practical application of front-end web development skills in creating an informational system relevant to real-world scenarios. The project highlights the importance of usability, responsiveness, and organized data presentation in web applications, making it suitable for academic learning as well as basic digital awareness of market operations.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Problem Statement

Market yards play a crucial role in agricultural and local trade systems by acting as centralized locations for buying and selling commodities. However, information related to market yards—such as available products, vendor details, and daily price updates—is often not easily accessible to the general public in digital form. Farmers, traders, and consumers may face difficulties in obtaining timely and organized information, leading to inefficiencies and lack of transparency.

Traditional methods of information dissemination rely heavily on physical notice boards, manual records, or intermediaries. These methods are time-consuming, prone to errors, and inaccessible to remote users. There is a clear need for a simple, front-end-based digital platform that can present market yard information in an organized, accessible, and user-friendly manner.

### 1.2 Introduction

Market Yard is a web-based application developed to digitally represent the essential details of a traditional market yard. The application provides users with an overview of commodities available in the market, sample pricing information, and vendor listings through a structured interface. The goal of the project is to simplify access to market-related information using modern web technologies.

The application emphasizes clarity and ease of navigation, ensuring that users can quickly find relevant information. By using responsive design techniques, Market Yard ensures accessibility across desktops, tablets, and mobile devices. This project serves as an academic demonstration of front-end development concepts applied to a real-world market scenario.

### 1.3 Requirements

## 1. Functional Requirements (Front-End)

FR1: The application shall display a list of commodities available in the market yard. FR2: The system shall show sample daily price details for commodities. FR3: The application shall display vendor or trader information using cards or tables. FR4: Users shall be able to navigate between different sections such as commodities, prices, and vendors. FR5: The interface shall update content dynamically using JavaScript.

## 2. Non-Functional Requirements

NFR1: The application shall be responsive across mobile, tablet, and desktop devices. NFR2: The user interface shall be clean, simple, and easy to understand. NFR3: Page load time shall be minimal for smooth user experience. NFR4: Visual consistency shall be maintained throughout the application.

### 1.4 Pre-requisites

#### 1. Technical Pre-requisites

Basic knowledge of HTML5 for page structure. Knowledge of CSS3 for layout design and responsiveness. Basic JavaScript knowledge for interactivity and dynamic content. Understanding of DOM manipulation.

#### 2. Tool Pre-requisites

Code editor such as Visual Studio Code. Modern web browsers like Chrome or Edge. Optional design tools such as Figma or Canva. Version control using Git and GitHub.

### 1.5 Technologies Used

HTML5 – Used for structuring web pages and content. CSS3 – Used for styling, layout, and responsive design. JavaScript – Used for dynamic content updates and basic interactivity.

## CHAPTER 2

### REVIEW OF RELEVANT LITERATURE

Digital transformation in agricultural and local trade systems has been widely discussed in recent literature. Researchers emphasize that digitization of market information improves transparency, reduces dependency on intermediaries, and empowers farmers and small traders with timely data. Market information systems that provide commodity prices, availability, and vendor details help stakeholders make informed decisions and reduce exploitation.

Several studies highlight the role of web-based information portals in improving accessibility to market data. Simple front-end applications are particularly effective in rural and semi-urban contexts where users may have limited technical literacy. Clean interfaces, minimal text, and visual representations such as cards and tables are recommended for better usability.

User interface and user experience (UI/UX) research stresses the importance of consistency, readability, and responsive design. Applications that adapt to different screen sizes ensure inclusivity, as users may access platforms via mobile phones, tablets, or desktop systems. Literature also supports the use of client-side scripting for lightweight applications where backend infrastructure is unavailable.

The reviewed literature validates the approach used in the Market Yard project, which focuses on front-end technologies to present market-related information clearly and efficiently. The project aligns with best practices suggested in academic and industry research on digital information systems.

## CHAPTER 3

## METHODOLOGY

The Market Yard project was developed using a systematic front-end development methodology. The initial phase involved requirement analysis to identify essential features such as commodity display, price listing, and vendor information. Based on these requirements, a simple and intuitive layout was designed.

The design phase focused on wireframing the user interface to determine the placement of headers, content cards, and navigation elements. Emphasis was placed on readability and ease of navigation. Color schemes were chosen to reflect an agricultural theme, promoting a natural and user-friendly appearance.

Implementation was carried out using HTML5 for structuring content, CSS3 for styling and responsiveness, and JavaScript for adding interactivity. The application logic was kept minimal to ensure fast loading and ease of understanding. Sample data was used to represent commodities and prices.

Testing was performed to verify responsiveness, browser compatibility, and correctness of displayed information. Minor refinements were made based on test observations to improve alignment, spacing, and overall usability.

Below is a sample HTML implementation used in the project:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8">
```

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

```
<title>Market Yard</title>
```

```
<style>
```

```
body {
```

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

```
background: #f5f5f5;
```

```
margin: 0;
```

```
}
```

```
.container {
```

```
max-width: 900px;
```

```
margin: auto;
```

```
padding: 20px;
```

```
}
```

```
h1 {
```

```
text-align: center;
```

```
color: #2e7d32;
```

```
}
```

```
.card {
```

```
background: #ffffff;
```

```
padding: 15px;
```



margin: 15px 0;

border-radius: 8px;

box-shadow: 0 2px 5px rgba(0,0,0,0.1);

}

</style>

</head>

<body>

<div class="container">

<h1>Market Yard</h1>

<div class="card">

<h3>Rice</h3>

<p>Price: ₹45 per kg</p>

</div>

<div class="card">

<h3>Wheat</h3>

<p>Price: ₹35 per kg</p>

</div>

<div class="card">

<h3>Vegetables</h3>

```
<p>Price: ₹20 – ₹60 per kg</p>
```

```
</div>
```

```
</div>
```

```
</body>
```

```
</html>
```

Output:

The output displays a Market Yard web page listing commodities and their prices in a card-based layout.

The interface is responsive and easy to understand.



## CHAPTER 4

### RESULTS AND DISCUSSIONS

The Market Yard application successfully fulfilled its objectives of presenting market-related information in a digital format. Users could view commodity details and price information clearly. The card-based UI enhanced readability and reduced information clutter.

The responsive design ensured consistent performance across desktops, tablets, and smartphones. Testing confirmed that the application loaded quickly and displayed content accurately. Although the system used static sample data, the structure allows easy future integration with real-time data sources.

The project demonstrates that even without backend integration, front-end technologies can deliver meaningful and practical applications. Market Yard serves as a foundational model for more advanced market information systems.

## CHAPTER 5

### CONCLUSIONS AND FUTURE SCOPE

#### 5.1 Conclusion

The Market Yard project illustrates the effective use of front-end web development techniques to create an informative and user-friendly application. By presenting market data in a clean and organized manner, the application enhances accessibility and understanding of market yard operations. The project successfully applies HTML5, CSS3, and JavaScript concepts in a real-world context.

## 5.2 Future Scope

The Market Yard application can be further enhanced by adding backend support for real-time price updates, search and filtering options, vendor registration modules, multilingual interfaces, and data analytics dashboards. Integration with agricultural databases and government portals could significantly increase the application's usefulness.

## REFERENCES

1. Digital Market Information Systems – Research Journals.
2. Front-End Web Development Documentation.
3. Studies on UI/UX Design for Data-Driven Applications.