



Full-Stack Web Development

III CSE/AI-ML NBKRIST VIDYANAGAR.....

PROBLEM STATEMENT: 2

Design and develop a functional inventory management system for a Dell E-commerce application using **JavaScript arrays** to manage a catalog of Dell products. The system should serve as a foundational backend component for a website, ensuring product information is accurate and up-to-date.

Core Information Requirements

The system must handle the following information:

- **Product Names:** A list of product names stored as strings.
- **Inventory Status:** Whether a product is in stock or not.

Functional Requirements

The inventory management system must perform the following actions:

- **Add New Items:** The user can add a new product name to the inventory. The system should prevent duplicate entries.
- **Delete Items:** The user can remove an existing product name from the inventory.

Technical Specifications

- **Data Structure:** The core of the inventory system must be implemented using a **JavaScript array**. Each item in the array will be a **string** representing a Dell product.
- **User Interface:** An interface built with **HTML and CSS** to allow user interaction.
- **Programming Language:** **JavaScript** for all application logic.



Full-Stack Web Development

III CSE/AI-ML NBKRIST VIDYANAGAR.....

Testing Requirements

The following test cases must be performed to ensure the system functions correctly:

1. Add Item Test:

- **Test Case 2.1:** Add a new, unique product.
- **Expected Result:** The product is added to the array and displayed in the inventory list.
- **Test Case 2.2:** Attempt to add a product that already exists.
- **Expected Result:** The product is not added, and an error message is displayed.

2. Remove Item Test:

- **Test Case 3.1:** Remove an existing product.
- **Expected Result:** The product is removed from the array and no longer displayed.
- **Test Case 3.2:** Attempt to remove a non-existent product.
- **Expected Result:** No changes are made to the array, and an error message is displayed.

Learning Objectives

Upon completion of this project, students will be able to:

- **Core Concepts:** Understand and apply the fundamental concepts of **JavaScript arrays**, including creating, modifying, and iterating over them.
- **JavaScript Functions:** Write and use **JavaScript functions (non-arrow functions)** to encapsulate logic and organize code.
- **Event Handling:** Use **event handling** to make the web application interactive, responding to user actions like button clicks and form submissions.
- **CRUD Operations:** Implement basic **CRUD** (Create, Read, Update, Delete) operations on an array data structure.



Full-Stack Web Development

III CSE/AI-ML NBKRIST VIDYANAGAR.....

- **HTML/CSS/JS Integration:** Integrate **HTML** for structure, **CSS** for styling, and **JavaScript** for dynamic functionality to create a working web application.
- **Problem-Solving:** Break down a larger problem (inventory management) into smaller, manageable tasks and implement solutions for each.
- **Logic and Conditionals:** Utilize conditional statements (if/else) to handle different scenarios, such as checking for existing items or handling invalid inputs.