Case Study: Product Management System (PMS)

1. db.json (for JSON Server backend)

json

```json
{
  "users": [
    {
      "id": 1,
      "name": "Admin User",
      "email": "admin@pms.com",
      "password": "admin123",
      "role": "admin"
    }
  ],
  "products": [
    {
      "id": 1,
      "name": "Smartphone",
      "description": "Latest model with advanced features",
      "price": 699,
      "image": "images/smartphone.png"
    }
  ],
  "carts": []
}
```

---

2. Welcome Page (index.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>PMS - Welcome</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body class="text-center p-5">
  <h1>Welcome to Product Management System</h1>
  <p><img src="assets/logo.png" width="150"></p>
  <div><a class="btn btn-primary" href="login.html">Login</a>
      <a class="btn btn-success" href="signup.html">Signup</a></div>
</body>
</html>
```

3. Signup Page (signup.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Signup | PMS</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body class="container mt-5">
  <h2>Signup</h2>
  <form id="signupForm">
```

```html
    <input class="form-control mb-2" type="text" id="name" placeholder="Full Name" required>

    <input class="form-control mb-2" type="email" id="email" placeholder="Email" required>

    <input class="form-control mb-2" type="password" id="password" placeholder="Password" required>

    <select class="form-select mb-2" id="role" required>

      <option value="user">User</option>

      <option value="admin">Admin</option>

    </select>

    <button class="btn btn-success w-100">Signup</button>

  </form>


  <script src="assets/js/auth.js"></script>

</body>

</html>
```

---

4. Login Page (login.html)

```html
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <title>Login | PMS</title>

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body class="container mt-5">

  <h2>Login</h2>
```

```html
<form id="loginForm">

  <input class="form-control mb-2" type="email" id="email" placeholder="Email" required>

  <input class="form-control mb-2" type="password" id="password" placeholder="Password" required>

  <button class="btn btn-primary w-100">Login</button>

</form>

<script src="assets/js/auth.js"></script>
</body>

</html>
```

---

5. Auth Logic (assets/js/auth.js)

Handles **Signup, Login, Logout, Session**.

```javascript
const API_URL = "http://localhost:3000";


// --------- SIGNUP ---------

if (document.getElementById("signupForm")) {

  document.getElementById("signupForm").addEventListener("submit", async (e) => {

    e.preventDefault();

    let user = {

      name: document.getElementById("name").value,

      email: document.getElementById("email").value,

      password: document.getElementById("password").value,

      role: document.getElementById("role").value

    };


    let res = await fetch(`${API_URL}/users?email=${user.email}`);

    let existing = await res.json();
```

```javascript
    if (existing.length > 0) {

      alert("Email already exists!");

      return;

    }


    await fetch(`${API_URL}/users`, {

      method: "POST",

      headers: { "Content-Type": "application/json" },

      body: JSON.stringify(user)

    });


    alert("Signup successful! Please login.");

    window.location.href = "login.html";

  });

}


// --------- LOGIN ---------
if (document.getElementById("loginForm")) {

  document.getElementById("loginForm").addEventListener("submit", async (e) => {

    e.preventDefault();

    let email = document.getElementById("email").value;

    let password = document.getElementById("password").value;


    let res = await fetch(`${API_URL}/users?email=${email}&password=${password}`);

    let data = await res.json();


    if (data.length === 0) {
```

```javascript
      alert("Invalid credentials");
      return;
    }


    let loggedInUser = data[0];
    localStorage.setItem("user", JSON.stringify(loggedInUser));


    if (loggedInUser.role === "admin") {
      window.location.href = "admin-dashboard.html";
    } else {
      window.location.href = "user-dashboard.html";
    }
  });
}


// --------- LOGOUT ---------
function logout() {
  localStorage.removeItem("user");
  localStorage.removeItem("cart");
  window.location.href = "login.html";
}
```

6. Admin Dashboard (admin-dashboard.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
```

```html
    <title>Admin Dashboard</title>
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body onload="checkAdmin()">
  <nav class="navbar navbar-dark bg-dark">
    <div class="container-fluid">
      <span class="navbar-brand">Admin Dashboard</span>
      <div>
        <a href="add-product.html" class="btn btn-success btn-sm">Add Product</a>
        <a href="product-list.html" class="btn btn-info btn-sm">Product List</a>
        <button onclick="logout()" class="btn btn-danger btn-sm">Logout</button>
      </div>
    </div>
  </nav>
  <div class="container mt-5">
    <h3>Welcome Admin!</h3>
  </div>
  <script src="assets/js/auth.js"></script>
  <script>
    function checkAdmin(){
      let user = JSON.parse(localStorage.getItem("user"));
      if(!user || user.role!=="admin") window.location.href="login.html";
    }
  </script>
</body>
</html>
```

7. User Dashboard (user-dashboard.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>User Dashboard</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body onload="loadProducts()">
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <div class="container-fluid">
      <a class="navbar-brand">User Dashboard</a>
      <a href="cart.html" class="btn btn-warning">Cart (<span id="cartCount">0</span>)</a>
      <button onclick="logout()" class="btn btn-danger">Logout</button>
    </div>
  </nav>


  <div class="container mt-4">
    <div class="row" id="productContainer"></div>
  </div>


  <script src="assets/js/auth.js"></script>
  <script src="assets/js/user.js"></script>
</body>
</html>
```

8. User Logic (assets/js/user.js)

Handles **product listing, cart add/remove**.

javascript

```javascript
async function loadProducts() {
  let res = await fetch(`${API_URL}/products`);
  let products = await res.json();

  let container = document.getElementById("productContainer");
  container.innerHTML = "";
  products.forEach(p => {
    container.innerHTML += `
    <div class="col-md-4">
      <div class="card mb-4">
        <img src="${p.image}" class="card-img-top" height="200">
        <div class="card-body">
          <h5>${p.name}</h5>
          <p>${p.description}</p>
          <p><strong>$${p.price}</strong></p>
          <button class="btn btn-primary" onclick="addToCart(${p.id})">Add to Cart</button>
        </div>
      </div>
    </div>`;
  });

  updateCartCount();
```

```
}


function addToCart(productId) {

  let cart = JSON.parse(localStorage.getItem("cart")) || [];

  cart.push(productId);

  localStorage.setItem("cart", JSON.stringify(cart));

  updateCartCount();

}


function updateCartCount() {

  let cart = JSON.parse(localStorage.getItem("cart")) || [];

  document.getElementById("cartCount").innerText = cart.length;

}
```

---

9. Cart Page (cart.html)

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <title>Cart</title>

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"
rel="stylesheet">

</head>

<body onload="loadCart()">

  <nav class="navbar navbar-dark bg-dark">

    <div class="container-fluid">

      <span class="navbar-brand">Your Cart</span>
```

```html
    <button onclick="logout()" class="btn btn-danger">Logout</button>
  </div>
</nav>

<div class="container mt-4">
  <table class="table table-bordered">
    <thead><tr><th>Name</th><th>Price</th></tr></thead>
    <tbody id="cartTable"></tbody>
    <tfoot><tr><td><strong>Total</strong></td><td id="totalPrice"></td></tr></tfoot>
  </table>
  <button class="btn btn-success" onclick="checkout()">Place Order</button>
</div>

<script src="assets/js/auth.js"></script>
<script>
  async function loadCart() {
    let cart = JSON.parse(localStorage.getItem("cart")) || [];
    let res = await fetch(`${API_URL}/products`);
    let products = await res.json();

    let cartItems = products.filter(p => cart.includes(p.id));
    let table = document.getElementById("cartTable");
    let total = 0;
    table.innerHTML = "";
    cartItems.forEach(i => {
      table.innerHTML += `<tr><td>${i.name}</td><td>$${i.price}</td></tr>`;
      total += i.price;
```

```
    });
    document.getElementById("totalPrice").innerText = "$" + total;
  }


  function checkout() {
    alert("Order placed successfully!");
    localStorage.removeItem("cart");
    window.location.href="user-dashboard.html";
  }
  </script>
</body>
</html>
```

10. Add Product Page (add-product.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Add Product | Admin</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body onload="checkAdmin()">
  <nav class="navbar navbar-dark bg-dark">
    <div class="container-fluid">
      <span class="navbar-brand">Admin - Add Product</span>
      <div>
```

```html
      <a href="admin-dashboard.html" class="btn btn-info btn-sm">Dashboard</a>

      <a href="product-list.html" class="btn btn-secondary btn-sm">Product List</a>

      <button onclick="logout()" class="btn btn-danger btn-sm">Logout</button>

    </div>

  </div>

</nav>


<div class="container mt-5">

  <h3>Add New Product</h3>

  <form id="addProductForm">

    <input type="text" class="form-control mb-2" id="name" placeholder="Product Name" required>

    <textarea class="form-control mb-2" id="description" placeholder="Description" required></textarea>

    <input type="number" class="form-control mb-2" id="price" placeholder="Price" required>

    <input type="text" class="form-control mb-2" id="image" placeholder="Image URL" required>

    <button class="btn btn-success">Add Product</button>

  </form>

</div>


<script src="assets/js/auth.js"></script>
<script src="assets/js/admin.js"></script>
</body>
</html>
```

---

11. Product List Page (product-list.html)

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Product List | Admin</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body onload="checkAdmin(); loadProducts();">
  <nav class="navbar navbar-dark bg-dark">
    <div class="container-fluid">
      <span class="navbar-brand">Admin - Product List</span>
      <div>
        <a href="admin-dashboard.html" class="btn btn-info btn-sm">Dashboard</a>
        <a href="add-product.html" class="btn btn-success btn-sm">Add Product</a>
        <button onclick="logout()" class="btn btn-danger btn-sm">Logout</button>
      </div>
    </div>
  </nav>

  <div class="container mt-4">
    <h3>Product Catalog</h3>
    <table class="table table-striped">
      <thead>
        <tr>
          <th>ID</th><th>Name</th><th>Description</th><th>Price</th><th>Actions</th>
```

```html
          </tr>
        </thead>
        <tbody id="productTable"></tbody>
      </table>
    </div>


    <!-- Edit Modal -->
    <div class="modal fade" id="editProductModal" tabindex="-1">
      <div class="modal-dialog">
        <div class="modal-content">
          <div class="modal-header"><h5>Edit Product</h5></div>
          <div class="modal-body">
            <form id="editProductForm">
              <input type="hidden" id="editId">
              <input class="form-control mb-2" id="editName" placeholder="Product Name">
              <textarea class="form-control mb-2" id="editDescription" placeholder="Description"></textarea>
              <input type="number" class="form-control mb-2" id="editPrice" placeholder="Price">
              <input class="form-control mb-2" id="editImage" placeholder="Image URL">
              <button class="btn btn-primary w-100">Update</button>
            </form>
          </div>
        </div>
      </div>
    </div>


    <script src="assets/js/auth.js"></script>
```

```html
<script src="assets/js/admin.js"></script>

<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>
```

---

12 . Admin Logic (assets/js/admin.js)

javascript

```javascript
// Ensure only admins access admin pages
function checkAdmin() {
  let user = JSON.parse(localStorage.getItem("user"));
  if (!user || user.role !== "admin") {
    alert("Access denied!");
    window.location.href = "login.html";
  }
}


// -------- ADD PRODUCT ---------
if (document.getElementById("addProductForm")) {
  document.getElementById("addProductForm").addEventListener("submit", async (e) => {
    e.preventDefault();
    let product = {
      name: document.getElementById("name").value,
      description: document.getElementById("description").value,
      price: parseFloat(document.getElementById("price").value),
      image: document.getElementById("image").value
```

```javascript
  };

  await fetch(`${API_URL}/products`, {
    method: "POST",
    headers: { "Content-Type": "application/json" },
    body: JSON.stringify(product)
  });

  alert("Product added successfully!");
  window.location.href = "product-list.html";
 });
}


// -------- LIST PRODUCTS ---------
async function loadProducts() {
  let res = await fetch(`${API_URL}/products`);
  let products = await res.json();

  let table = document.getElementById("productTable");
  table.innerHTML = "";
  products.forEach(p => {
   table.innerHTML += `
    <tr>
     <td>${p.id}</td>
     <td>${p.name}</td>
     <td>${p.description}</td>
     <td>$${p.price}</td>
```

```
      <td>

        <button class="btn btn-sm btn-primary"
onclick="editProduct(${p.id})">Edit</button>

        <button class="btn btn-sm btn-danger"
onclick="deleteProduct(${p.id})">Delete</button>

      </td>

    </tr>`;

  });

}


// -------- DELETE PRODUCT ---------

async function deleteProduct(id) {

  if (confirm("Are you sure you want to delete this product?")) {

    await fetch(`${API_URL}/products/${id}`, { method: "DELETE" });

    loadProducts();

  }

}


// -------- EDIT PRODUCT ---------

let editModal = null;

if (typeof bootstrap !== "undefined") {

  editModal = new bootstrap.Modal(document.getElementById("editProductModal"));

}


async function editProduct(id) {

  let res = await fetch(`${API_URL}/products/${id}`);

  let p = await res.json();
```

```javascript
  document.getElementById("editId").value = p.id;

  document.getElementById("editName").value = p.name;

  document.getElementById("editDescription").value = p.description;

  document.getElementById("editPrice").value = p.price;

  document.getElementById("editImage").value = p.image;


  editModal.show();
}


if (document.getElementById("editProductForm")) {
  document.getElementById("editProductForm").addEventListener("submit", async (e)
=> {
    e.preventDefault();
    let id = document.getElementById("editId").value;
    let updated = {
      name: document.getElementById("editName").value,
      description: document.getElementById("editDescription").value,
      price: parseFloat(document.getElementById("editPrice").value),
      image: document.getElementById("editImage").value
    };


    await fetch(`${API_URL}/products/${id}`, {
      method: "PUT",
      headers: { "Content-Type": "application/json" },
      body: JSON.stringify(updated)
    });
```

```
      alert("Product updated!");

      editModal.hide();

      loadProducts();

    });

}
```