**Product Management System Documentation**

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**1. Introduction**

The **Product Management System** is a web application designed to allow users to manage products with features like adding, editing, deleting, and viewing a list of products. The system uses a RESTful backend API for data management and a modern Angular frontend for the user interface.

**2. Backend (API)**

**Technologies Used**

* ASP.NET Core 6.0
* Entity Framework Core
* SQL Server
* Swagger for API Documentation

**Setup and Installation**

1. **Clone the Repository**:
2. git clone <https://github.com/username/ProductManagementSystem.API.git>
3. **Navigate to API Directory**:
4. cd ProductManagementSystem/ProductManagementSystem.API
5. **Restore Dependencies**:
6. dotnet restore
7. **Update Database**:
8. dotnet ef database update
9. **Run the Application**:
10. dotnet run
11. **Access Swagger Documentation**: Open http://localhost:<port>/swagger in your browser.

**Endpoints**

| **Method** | **Endpoint** | **Description** |
| --- | --- | --- |
| GET | /api/products | Get all products |
| GET | /api/products/{id} | Get product by ID |
| POST | /api/products | Add new product |
| PUT | /api/products | Update a product |
| DELETE | /api/products/{id} | Delete a product |

**Validation Rules**

* **Name**: Required, Max 100 characters
* **Description**: Required, Max 500 characters
* **Price**: Required, Must be a positive number

**3. Frontend (UI)**

**Technologies Used**

* Angular 15
* Tailwind CSS for styling
* PrimeNG for UI components

**Setup and Installation**

1. **Navigate to UI Directory**:
2. cd ProductManagementSystem/ProductManagementSystem.UI
3. **Install Dependencies**:
4. npm install
5. **Run the Application**:
6. ng serve
7. **Access the Application**: Open http://localhost:4200 in your browser.

**Features**

* Add a new product
* Edit an existing product
* Delete a product
* Search products
* Sort products by columns

**Component Details**

**1. Product List Component (product-list):**

* Displays a list of products
* Provides options to search, sort, and delete products
* Opens a modal for adding/editing products

**2. Product Form Component (product-form):**

* Used for adding or editing a product
* Validates input fields (Name, Description, Price)

**4. Common Functionalities**

* **Data Refresh**: The product list updates automatically after adding, editing, or deleting a product.
* **Validation**: Backend and frontend validations ensure data integrity.

**5. Deployment Steps**

**Backend:**

1. Publish the API using Visual Studio or CLI:
2. dotnet publish -c Release -o ./publish
3. Deploy the published files to a web server or cloud service (e.g., IIS, Azure).

**Frontend:**

1. Build the Angular application:
2. ng build --prod
3. Deploy the contents of the dist folder to a web server (e.g., Apache, Nginx).

**6. Version Control and Repository Structure**

* **Main Repository**: ProductManagementSystem
  + The backend project is located in ProductManagementSystem.API repository, and the frontend project is located in ProductManagementSystem.UI repository, each managed separately.
* **Branches**:
  + master: Production-ready code