

# Lab: Angular CRUD Mastery with Template Forms and Services

## Objective

To assess your ability to create a basic Angular application that performs CRUD operations using template forms, validations, services, local storage, and routes.

## Requirements

### 1. Environment Setup

- Create a new Angular project.
- Set up routing in the application.

### 2. Component Creation

- Create the following components:
  - HomeComponent: Displays a welcome message.
  - ItemListComponent: Displays a list of items.
  - ItemFormComponent: Displays a form to create or edit an item.

### 3. Service Creation

- Create an ItemService to manage the CRUD operations. This service should use localStorage to store and retrieve items.

### 4. Model Creation

- Create an Item model with the following properties:
  - id: number
  - name: string
  - description: string
  - quantity: number

### 5. Routing Configuration

- Configure routes for the components:
  - /: HomeComponent
  - /items: ItemListComponent
  - /items/new: ItemFormComponent for creating a new item
  - /items/:id/edit: ItemFormComponent for editing an existing item

### 6. Item List Component

- Display a list of items retrieved from the ItemService.
- Provide buttons to edit and delete items.
- Provide a button to navigate to the ItemFormComponent for creating a new item.

## 7. Item Form Component

- Create a form using template-driven forms to add or edit an item.
- Implement form validations:
  - name: required, minLength 3
  - description: required
  - quantity: required, must be a positive number
- On form submission, save the item using the ItemService and navigate back to the item list.

## 8. Item Service

- Implement CRUD operations:
  - getItems(): Retrieve all items from localStorage.
  - getItemById(id: number): Retrieve a specific item by ID from localStorage.
  - addItem(item: Item): Add a new item to localStorage.
  - updateItem(item: Item): Update an existing item in localStorage.
  - deleteItem(id: number): Delete an item from localStorage by ID.

## Instructions

### 1. Set up the Angular Project

- Create a new Angular project using the Angular CLI.

ng new angular-crud-assessment

cd angular-crud-assessment

ng serve

### 2. Generate Components

- Generate the required components:

ng generate component Home

ng generate component ItemList

ng generate component ItemForm

### 3. Generate Service and Model

- Generate the service:

ng generate service Item

- Create the Item model in item.model.ts.

#### 4. **Configure Routing**

- Update the app-routing.module.ts file to configure routes.

#### 5. **Implement the Item Service**

- Implement the CRUD operations in item.service.ts.

#### 6. **Develop Item List Component**

- Display the list of items and implement the delete functionality.

#### 7. **Develop Item Form Component**

- Implement the form and handle create/edit operations.

#### 8. **Add Form Validations**

- Add the necessary form validations in the template.

#### **Submission**

- Ensure your application is free of errors and meets all the requirements.
- Submit the project files in a zip archive.

#### **Bonus Points**

- Implement sorting and filtering in the item list.
- Add more advanced form validations.
- Use Angular Material for a better UI.