3.1 Routing

This section will guide you to:

* Define application routes and register them with the Router module
* Understand and use various routing related directives like <router-outlet>, routerLink, routerLinkActive, etc.

This lab has nine subsections, namely:

3.1.1 Defining *customers* component for the store app

3.1.2 Defining *nav* component for the store app

3.1.3 Defining *home* component for the store app

3.1.4 Defining *customer* and *product* models for the store app

3.1.5 Defining *not-found* component for the store app

3.1.6 Defining *product* component for the store app

3.1.7 Defining services to handle customers, logging, and products

3.1.8 Implementing component interaction

3.1.9 Running the app in your local browser

**Step 3.1.1:** Defining *customers* component for the store app

* Open the terminal
* Run the command, *ng new store-app-routing* to create a new angular app
* Navigate to the *src* folder inside the *store-app-routing* directory in your file explorer
* Run the command *ng generate component customers*
* Navigate within the generated folder, customers and open the file named customers.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**@Component({**

**selector: 'app-customers',**

**templateUrl: './customers.component.html',**

**styleUrls: ['./customers.component.css']**

**})**

**export class CustomersComponent implements OnInit {**

**constructor() { }**

**ngOnInit() { }**

**}**

* Open the file named customers.component.html
* Enter the code below and save the file

**<div class="row">**

**<div class="col-sm-12 text-success">**

**<h3>Customers</h3>**

**</div>**

**</div>**

**<div class="row">**

**<div class="col-sm-4">**

**<app-customer-list></app-customer-list>**

**</div>**

**<div class="col-sm-6">**

**<app-customer-detail></app-customer-detail>**

**<hr>**

**<app-customer-form></app-customer-form>**

**</div>**

**</div>**

* Run the command *ng generate component customer-detail*
* Navigate to the newly generated folder, customer-detail and open the file named customer-detail.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { Customer } from '../../models/customer';**

**import { CustomersService } from '../../services/customers.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-customer-detail',**

**templateUrl: './customer-detail.component.html',**

**styleUrls: ['./customer-detail.component.css']**

**})**

**export class CustomerDetailComponent implements OnInit {**

**customer: Customer;**

**id: number = 2;**

**constructor(**

**private customersService: CustomersService,**

**private loggingService: LoggingService**

**) {}**

**ngOnInit() {**

**this.customer = this.customersService.getCustomer(this.id);**

**}**

**onEdit() {**

**this.loggingService.logMessage('Customer Detail - Edit button clicked.');**

**}**

**onDelete() {**

**this.loggingService.logMessage('Customer Detail - Delete button clicked.');**

**}**

**}**

* Open the file named customer-detail.component.html
* Enter the code below and save the file

**<h4 class="text-success">Customer Details</h4>**

**<div class="card mb-3 border-success">**

**<div class="card-header">**

**<h3>{{ customer.name }}</h3>**

**</div>**

**<ul class="list-group list-group-flush">**

**<li class="list-group-item">Phone: {{ customer.phone }}</li>**

**<li class="list-group-item">Email: {{ customer.email }}</li>**

**<li class="list-group-item">City: {{ customer.city }}</li>**

**</ul>**

**</div>**

**<p>**

**<button class="btn btn-success mr-2" (click)="onEdit()">Edit</button>**

**<button class="btn btn-success" (click)="onDelete()">Delete</button>**

**</p>**

* Navigate back to the customers folder
* Run the command *ng generate component customer-form*
* Navigate to the newly generated folder, customer-form and open the file named customer-form.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { Customer } from '../../models/customer';**

**import { CustomersService } from '../../services/customers.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-customer-form',**

**templateUrl: './customer-form.component.html',**

**styleUrls: ['./customer-form.component.css']**

**})**

**export class CustomerFormComponent implements OnInit {**

**customer: Customer;**

**id: number = 4;**

**constructor(**

**private customersService: CustomersService,**

**private loggingService: LoggingService**

**) {}**

**ngOnInit() {**

**this.customer = this.customersService.getCustomer(this.id);**

**}**

**onSave() {**

**this.loggingService.logMessage('Customer Form - Save button clicked.');**

**}**

**}**

* Open the file named customer-form.component.html
* Enter the code below and save the file

**<h4 class="text-success">Customer Form</h4>**

**<div class="card border-success mb-3">**

**<div class="card-body">**

**<form>**

**<div class="form-group">**

**<label for="customerName">Name</label>**

**<input type="text" class="form-control" id="customerName" name="customerName" [(ngModel)]="customer.name">**

**</div>**

**<div class="form-group">**

**<label for="customerPhone">Phone</label>**

**<input type="text" class="form-control" id="customerPhone" name="customerPhone" [(ngModel)]="customer.phone">**

**</div>**

**<div class="form-group">**

**<label for="customerEmail">Email</label>**

**<input type="text" class="form-control" id="customerEmail" name="customerEmail" [(ngModel)]="customer.email">**

**</div>**

**<div class="form-group">**

**<label for="customerCity">City</label>**

**<input type="text" class="form-control" id="customerCity" name="customerCity" [(ngModel)]="customer.city">**

**</div>**

**<button name="save" class="btn btn-success" (click)="onSave()">**

**Save**

**</button>**

**</form>**

**</div>**

**</div>**

**<div class="alert alert-success" \*ngIf="showMessage">**

**Customer saved successfully!**

**</div>**

* Navigate back to the customers folder
* Run the command *ng generate component customer-list*
* Navigate to the newly generated folder, customer-list and open the file named customer-list.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { Customer } from '../../models/customer';**

**import { CustomersService } from '../../services/customers.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-customer-list',**

**templateUrl: './customer-list.component.html',**

**styleUrls: ['./customer-list.component.css']**

**})**

**export class CustomerListComponent implements OnInit {**

**customers: Customer[];**

**constructor(**

**private customersSerivce: CustomersService,**

**private loggingService: LoggingService**

**) { }**

**ngOnInit() {**

**this.customers = this.customersSerivce.getCustomers();**

**}**

**onAdd() {**

**this.loggingService.logMessage('Customer List - Add button clicked.')**

**}**

**}**

* Open the file named customer-list.component.html
* Enter the code below and save the file

**<p>**

**<button class="btn btn-success" (click)="onAdd()">Add</button>**

**</p>**

**<div class="list-group">**

**<a href="#" class="list-group-item list-group-item-action" \*ngFor="let customer of customers">**

**{{ customer.name }}**

**</a>**

**</div>**

**Step 3.1.2:** Defining nav component for the store app

* Open the terminal
* Navigate to the app folder within the src folder
* Run the command, *ng generate component nav*
* Navigate to the newly generated nav folder and open the file nav.component.ts in your code editor
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**@Component({**

**selector: 'app-nav',**

**templateUrl: './nav.component.html',**

**styleUrls: ['./nav.component.css']**

**})**

**export class NavComponent implements OnInit {**

**constructor() { }**

**ngOnInit() {**

**}**

**}**

* Navigate to the newly generated nav folder and open the file nav.component.html in your code editor
* Enter the code below and save the file

**<ul class="nav nav-tabs">**

**<li class="nav-item">**

**<a class="nav-link" routerLink="/" routerLinkActive="active" [routerLinkActiveOptions]="{exact: true}">Home</a>**

**</li>**

**<li class="nav-item">**

**<a class="nav-link" routerLink="/products" routerLinkActive="active">Products</a>**

**</li>**

**<li class="nav-item">**

**<a class="nav-link" routerLink="/customers" routerLinkActive="active">Customers</a>**

**</li>**

**</ul>**

**Step 3.1.3:** Defining home component for the store app

* Open the terminal
* Navigate to the app folder within the src folder
* Run the command, *ng generate component home*
* Navigate to the newly generated home folder and open the file home.component.ts in your code editor
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { Router } from '@angular/router';**

**import { LoggingService } from '../services/logging.service';**

**@Component({**

**selector: 'app-home',**

**templateUrl: './home.component.html',**

**styleUrls: ['./home.component.css']**

**})**

**export class HomeComponent implements OnInit {**

**constructor(**

**private loggingService: LoggingService,**

**private router: Router**

**) { }**

**ngOnInit() { }**

**onGoToProducts() {**

**this.router.navigate(['/products']);**

**this.loggingService.logMessage('Home - Go To Products button clicked.');**

**}**

**onGoToCustomers() {**

**this.router.navigate(['/customers']);**

**this.loggingService.logMessage('Home - Go To Customers button clicked.');**

**}**

**}**

* Open file named home.component.html
* Enter the code below and save the file

**<h3>Welcome to My Product Store</h3>**

**<p>**

**<button type="button" class="btn btn-primary btn-lg mr-2" (click)="onGoToProducts()">Go to Products</button>**

**<button type="button" class="btn btn-success btn-lg" (click)="onGoToCustomers()">Go to Customers</button>**

**</p>**

**Step 3.1.4:** Defining customer and product models for the store app

* Navigate to the app folder within the src folder
* Create a new folder called models and navigate within it
* Create a new file named customer.ts
* Enter the code below and save the file

**export class Customer {**

**id: number;**

**name: string;**

**phone: string;**

**email: string;**

**city: string;**

**}**

* Create a new file named product.ts
* Enter the code below and save the file

**export class Product {**

**id: number;**

**name: string;**

**description: string;**

**isAvailable: boolean;**

**price: number;**

**}**

**Step 3.1.5:** Defining not-found component for the store app

* Open the terminal
* Navigate to the app folder within the src folder
* Run the command, *ng generate component not-found*
* Navigate to the newly generated not-found folder and open the file not-found.component.ts in your code editor
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**@Component({**

**selector: 'app-not-found',**

**templateUrl: './not-found.component.html',**

**styleUrls: ['./not-found.component.css']**

**})**

**export class NotFoundComponent implements OnInit {**

**constructor() { }**

**ngOnInit() {**

**}**

**}**

* Open the file not-found.component.html in your code editor
* Enter the code below and save the file

**<h3>Not Found</h3>**

**Step 3.1.6:** Defining product component for the store app

* Open the terminal
* Navigate to the app folder within the src folder
* Run the command, *ng generate component products*
* Navigate to the newly generated products folder and open the file products.component.ts in your code editor
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**@Component({**

**selector: 'app-products',**

**templateUrl: './products.component.html',**

**styleUrls: ['./products.component.css']**

**})**

**export class ProductsComponent implements OnInit {**

**constructor() { }**

**ngOnInit() { }**

**}**

* Open the file named products.component.html
* Enter the code below and save the file

**<div class="row">**

**<div class="col-sm-12 text-primary">**

**<h3>Products</h3>**

**</div>**

**</div>**

**<div class="row">**

**<div class="col-sm-4">**

**<app-product-list></app-product-list>**

**</div>**

**<div class="col-sm-6">**

**<router-outlet></router-outlet>**

**</div>**

**</div>**

* Run the command *ng generate component product-detail*
* Navigate to the newly generated folder, product-detail and open the file named product-detail.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { ActivatedRoute, Router } from '@angular/router';**

**import { Product } from '../../models/product';**

**import { ProductsService } from '../../services/products.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-product-detail',**

**templateUrl: './product-detail.component.html',**

**styleUrls: ['./product-detail.component.css']**

**})**

**export class ProductDetailComponent implements OnInit {**

**product: Product;**

**id: number;**

**constructor(**

**private productsService: ProductsService,**

**private loggingService: LoggingService,**

**private route: ActivatedRoute,**

**private router: Router**

**) { }**

**ngOnInit() {**

**this.route.paramMap.subscribe((map) => {**

**this.id = +map.get('id');**

**this.product = this.productsService.getProduct(this.id);**

**});**

**}**

**onEdit() {**

**this.router.navigate(['/products', this.id, 'edit']); // http://localhost:4200/products/1/edit**

**this.loggingService.logMessage('Product Detail - Edit button clicked.');**

**}**

**onDelete() {**

**this.loggingService.logMessage('Product Detail - Delete button clicked.');**

**}**

**}**

* Open the file named product-detail.component.html
* Enter the code below and save the file

**<h4 class="text-primary">Product Details</h4>**

**<div class="card mb-3 border-primary">**

**<div class="card-header">**

**<h3>{{ product.name }}</h3>**

**</div>**

**<div class="card-body">**

**<p class="card-text">{{ product.description }}</p>**

**</div>**

**<ul class="list-group list-group-flush">**

**<li class="list-group-item">Available: {{ product.isAvailable ? 'Yes' : 'No' }}</li>**

**<li class="list-group-item">Price: {{ product.price }}</li>**

**</ul>**

**</div>**

**<p>**

**<button class="btn btn-primary mr-2" (click)="onEdit()">Edit</button>**

**<button class="btn btn-primary" (click)="onDelete()">Delete</button>**

**</p>**

* Navigate back to the products folder
* Run the command *ng generate component product-list*
* Navigate to the newly generated folder, product-list and open the file named product-list.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { Product } from '../../models/product';**

**import { ProductsService } from '../../services/products.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-product-list',**

**templateUrl: './product-list.component.html',**

**styleUrls: ['./product-list.component.css']**

**})**

**export class ProductListComponent implements OnInit {**

**products: Product[];**

**constructor(**

**private productsService: ProductsService,**

**private loggingService: LoggingService**

**) { }**

**ngOnInit() {**

**this.products = this.productsService.getProducts();**

**}**

**onAdd() {**

**this.loggingService.logMessage('Product List - Add button clicked.');**

**}**

**}**

* Open the file named product-list.component.html
* Enter the code below and save the file

**<p>**

**<button class="btn btn-primary" (click)="onAdd()">Add</button>**

**</p>**

**<div class="list-group">**

**<a class="list-group-item list-group-item-action" \*ngFor="let product of products"**

**[routerLink]="['/products', product.id]">**

**{{ product.name }}**

**</a>**

**</div>**

* Navigate back to the products folder
* Run the command *ng generate component product-form*
* Navigate to the newly generated folder, product-form and open the file named product-form.component.ts
* Enter the code below and save the file

**import { Component, OnInit } from '@angular/core';**

**import { ActivatedRoute, Router } from '@angular/router';**

**import { Product } from '../../models/product';**

**import { ProductsService } from '../../services/products.service';**

**import { LoggingService } from '../../services/logging.service';**

**@Component({**

**selector: 'app-product-form',**

**templateUrl: './product-form.component.html',**

**styleUrls: ['./product-form.component.css']**

**})**

**export class ProductFormComponent implements OnInit {**

**product: Product;**

**id: number;**

**constructor(**

**private productsService: ProductsService,**

**private loggingService: LoggingService,**

**private route: ActivatedRoute,**

**private router: Router**

**) { }**

**ngOnInit() {**

**this.route.paramMap.subscribe((map) => {**

**this.id = +map.get('id');**

**this.product = this.productsService.getProduct(this.id);**

**});**

**}**

**onSave() {**

**this.loggingService.logMessage('Product Form - Save button clicked.');**

**this.productsService.updateProduct(this.id, this.product);**

**this.router.navigate(['/products']);**

**}**

**}**

* Open the file named product-form.component.html
* Enter the code below and save the file

**<h4 class="text-primary">Product Form</h4>**

**<div class="card border-primary mb-3">**

**<div class="card-body">**

**<form>**

**<div class="form-group">**

**<label for="productName">Name</label>**

**<input type="text" class="form-control" id="productName" name="productName" [(ngModel)]="product.name">**

**</div>**

**<div class="form-group">**

**<label for="productDescription">Description</label>**

**<textarea name="productDescription" class="form-control" id="productDescription" cols="30" rows="4"**

**[(ngModel)]="product.description">**

**</textarea>**

**</div>**

**<div class="form-group">**

**<label for="productPrice">Price</label>**

**<input type="text" class="form-control" id="productPrice" name="productPrice" [(ngModel)]="product.price">**

**</div>**

**<div class="checkbox">**

**<label>**

**<input type="checkbox" name="isAvailable" value="true" [(ngModel)]="product.isAvailable"> Available**

**</label>**

**</div>**

**<button name="save" type="button" class="btn btn-primary" (click)="onSave()">**

**Save**

**</button>**

**</form>**

**</div>**

**</div>**

**<div class="alert alert-success" \*ngIf="showMessage">**

**Product saved successfully!**

**</div>**

**Step 3.1.7:** Defining services to handle customers, logging, and products

* Open the terminal
* Navigate to the src folder within the app directory
* Run *ng g service services/customers* to generate the service for customers
* Run *ng g service services/products* to generate the service for customers
* Run *ng g service services/logging* to generate the service for customers
* Navigate to the newly generated services folder
* Open the file *customers.service.ts*
* Enter the code below and save the file

**import { Injectable } from '@angular/core';**

**import { Customer } from '../models/customer';**

**import { LoggingService } from './logging.service';**

**@Injectable()**

**export class CustomersService {**

**private customers: Customer[] = [**

**{ id: 1, name: 'John', phone: '9988776655', email: 'john@abc.xyz', city: 'Pasedena' },**

**{ id: 2, name: 'Asif', phone: '1122334455', email: 'asif@abc.xyz', city: 'Utah' },**

**{ id: 3, name: 'Harry', phone: '3355776644', email: 'harry@abc.xyz', city: 'Manchester' },**

**{ id: 4, name: 'Sarah', phone: '2244668800', email: 'sarah@abc.xyz', city: 'New York' }**

**];**

**constructor(private loggingService: LoggingService) {}**

**getCustomers(): Customer[] {**

**return this.customers;**

**}**

**getCustomer(id: number): Customer {**

**this.loggingService.logMessage('Get Product, id: ' + id);**

**const customer = this.customers.find(**

**customer => customer.id === id**

**)**

**return customer;**

**}**

**addCustomer(customer: Customer) {**

**const newCustomer = new Customer();**

**newCustomer.id = this.generateId();**

**newCustomer.name = customer.name;**

**newCustomer.email = customer.email;**

**newCustomer.phone = customer.phone;**

**newCustomer.city = customer.city;**

**this.customers.push(newCustomer);**

**}**

**private generateId(): number {**

**let id = 1;**

**let lastItemIndex = this.customers.length - 1;**

**if(lastItemIndex > -1) {**

**id = this.customers[lastItemIndex].id + 1;**

**}**

**return id;**

**}**

**updatecustomer(id: number, customerInfo: Customer) {**

**const customer = this.getCustomer(id);**

**if(customer) {**

**customer.name = customerInfo.name;**

**customer.email = customerInfo.email;**

**customer.phone = customerInfo.phone;**

**customer.city = customerInfo.city;**

**}**

**}**

**deletecustomer(id: number) {**

**const index = this.customers.findIndex(**

**customer => customer.id === id**

**)**

**if(index >= 0) {**

**this.customers.splice(index, 1);**

**}**

**}**

**}**

* Open the file *products.service.ts*
* Enter the code below and save the file

**import { Injectable } from '@angular/core';**

**import { Product } from '../models/product';**

**import { LoggingService } from './logging.service';**

**@Injectable()**

**export class ProductsService {**

**private products: Product[] = [**

**{ id: 1, name: 'Data Structures and Algorithms', description: 'An ideal book for first course on data structures and algorithms, its text ensures a style and content relevant to present-day programming.', isAvailable: true, price: 285 },**

**{ id: 2, name: 'Premsons 608 Four Bearing Fidget Spinner', description: 'Perfect toy for fidgeters.', isAvailable: false, price: 160 },**

**{ id: 3, name: 'MacBook Air', description: 'Apple MacBook Air Core i5 5th Gen - 8 GB/128 GB SSD/Mac OS Sierra MQD32HN/A A1466,13.3 inch, Silver, 1.35 kg', isAvailable: true, price: 2680 }**

**];**

**constructor(private loggingService: LoggingService) {}**

**getProducts(): Product[] {**

**return this.products;**

**}**

**getProduct(id: number): Product {**

**this.loggingService.logMessage('Get Product, id: ' + id);**

**const product = this.products.find(**

**product => product.id === id**

**)**

**return product;**

**}**

**addProduct(product: Product) {**

**const newProduct = new Product();**

**newProduct.id = this.generateId();**

**newProduct.name = product.name;**

**newProduct.description = product.description;**

**newProduct.isAvailable = product.isAvailable;**

**newProduct.price = product.price;**

**this.products.push(newProduct);**

**}**

**private generateId(): number {**

**let id = 1;**

**let lastItemIndex = this.products.length - 1;**

**if(lastItemIndex > -1) {**

**id = this.products[lastItemIndex].id + 1;**

**}**

**return id;**

**}**

**updateProduct(id: number, productInfo: Product) {**

**const product = this.getProduct(id);**

**if(product) {**

**product.name = productInfo.name;**

**product.description = productInfo.description;**

**product.isAvailable = productInfo.isAvailable;**

**product.price = productInfo.price;**

**}**

**}**

**deleteProduct(id: number) {**

**const index = this.products.findIndex(**

**product => product.id === id**

**)**

**if(index >= 0) {**

**this.products.splice(index, 1);**

**}**

**}**

**}**

* Open the file *logging.service.ts*
* Enter the code below and save the file

**export class LoggingService {**

**logMessage(message: string) {**

**console.log('[LoggingService.logMessage()]', message);**

**}**

**}**

**Step 3.1.8:** Implementing component interaction

* Navigate to the app folder within the src directory
* Open the file app.component.ts
* Enter the code below and save the file

**import { Component } from '@angular/core';**

**@Component({**

**selector: 'app-root',**

**templateUrl: './app.component.html',**

**styleUrls: ['./app.component.css']**

**})**

**export class AppComponent {**

**title = 'app';**

**}**

* Open the file app.component.html
* Enter the code below and save the file

**<div class="container">**

**<div class="row">**

**<div class="col-sm-12">**

**<h2>My Product Store</h2>**

**<hr>**

**</div>**

**</div>**

**<div class="row">**

**<div class="col-sm-12">**

**<app-nav></app-nav>**

**</div>**

**</div>**

**<div class="row">**

**<div class="col-sm-12">**

**<router-outlet></router-outlet>**

**</div>**

**</div>**

**</div>**

* Open the file app.module.ts
* Enter the code below and save the file

**import { BrowserModule } from '@angular/platform-browser';**

**import { NgModule } from '@angular/core';**

**import { FormsModule } from '@angular/forms';**

**import { Routes, RouterModule } from '@angular/router';**

**import { AppComponent } from './app.component';**

**// Common components**

**import { HomeComponent } from './home/home.component';**

**import { NotFoundComponent } from './not-found/not-found.component';**

**import { NavComponent } from './nav/nav.component';**

**// Product components**

**import { ProductsComponent } from './products/products.component';**

**import { ProductListComponent } from './products/product-list/product-list.component';**

**import { ProductDetailComponent } from './products/product-detail/product-detail.component';**

**import { ProductFormComponent } from './products/product-form/product-form.component';**

**// Customer components**

**import { CustomersComponent } from './customers/customers.component';**

**import { CustomerListComponent } from './customers/customer-list/customer-list.component';**

**import { CustomerDetailComponent } from './customers/customer-detail/customer-detail.component';**

**import { CustomerFormComponent } from './customers/customer-form/customer-form.component';**

**// Services**

**import { LoggingService } from './services/logging.service';**

**import { ProductsService } from './services/products.service';**

**import { CustomersService } from './services/customers.service';**

**const appRoutes: Routes = [**

**{ path: '', component: HomeComponent }, // http://localhost:4200/**

**{**

**path: 'products', component: ProductsComponent, children: [**

**{ path: ':id', component: ProductDetailComponent }, // http://localhost:4200/products/1**

**{ path: ':id/edit', component: ProductFormComponent }, // http://localhost:4200/products/1/edit**

**]**

**}, // http://localhost:4200/products**

**{ path: 'customers', component: CustomersComponent }, // http://localhost:4200/customers**

**{ path: '\*\*', component: NotFoundComponent } // wildcard route**

**// { path: '\*\*', redirectTo: '' } // wildcard route**

**];**

**@NgModule({**

**declarations: [**

**AppComponent,**

**HomeComponent,**

**NotFoundComponent,**

**NavComponent,**

**ProductsComponent,**

**ProductListComponent,**

**ProductDetailComponent,**

**ProductFormComponent,**

**CustomersComponent,**

**CustomerListComponent,**

**CustomerDetailComponent,**

**CustomerFormComponent**

**],**

**imports: [**

**BrowserModule,**

**FormsModule,**

**RouterModule.forRoot(appRoutes)**

**],**

**providers: [LoggingService, ProductsService, CustomersService],**

**bootstrap: [AppComponent]**

**})**

**export class AppModule { }**

**Step 3.1.9:** Running the store app in your local browser

* Navigate to the app’s home directory
* Run *ng serve* to run the app
* The app will open in your default browser as shown below

