

Angular

Anil K

Routing

- ▶ The “Routing” concept is used to create page navigation in angular 2+ applications.
- ▶ “Routing” includes the process of mapping between the “route (url)” and corresponding component. Ex:
 - ▶ `http://localhost:4200/home` → HomeComponent
 - ▶ `http://localhost:4200/about` → AboutComponent
- ▶ The “@angular/router” package provides essential API to create routing.
- ▶ Angular 2+ supports two types of routing.
 - ▶ 1. Hash-less routing Ex: `/home`
 - ▶ 2. Hash routing Ex: `#/home`

- ▶ Steps for working with Routing
- ▶ Import “@angular/router” package in “package.json” file:
“dependencies”: {
 “@angular/router”: “latest”
}
- ▶ Set the base location of the application on server:
<base href=“/”>
- ▶ Import “Router” from “@angular/router” package:
Import { Routes } from “@angular/router”;
- ▶ Create routes:
var variable1 : Routes = [
 { path: “path here”, component: ComponentClassName },
 { path: “path here”, component: ComponentClassName },

];

- ▶ Import “RouterModule” from “@angular/router” package:
Import { RoutesModule } from “@angular/router”;
- ▶ Combine “your routes” and “RouterModule”:
var variable2 = RouterModule.forRoot(variable1, { useHash: true/false });
- ▶ Import both “routes” and “RouterModule” in “AppModule”:
@NgModule({ ..., imports: [..., variable2] })
class AppModule() { }
- ▶ Create hyperlink to route:
Link text
- ▶ Create placeholder to display route content:
<router-outlet> </router-outlet>

Routing - Example

- ▶ **Creating Application**
- ▶ Open Command Prompt and enter the following commands:
- ▶ `cd c:\angular`
- ▶ `ng new app1`
- ▶ `cd c:\angular\app1`
- ▶ `ng g component Home`
- ▶ `ng g component About`
- ▶ `ng g component Contact`

c:\angular\app1\src\app\app.module.ts

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { AppComponent } from './app.component';
import { FormsModule } from "@angular/forms";
import { Routes, RouterModule } from "@angular/router";
import { HomeComponent } from './home/home.component';
import { AboutComponent } from './about/about.component';
import { ContactComponent } from './contact/contact.component';
```

```
var myroutes: Routes = [
  { path: "", component: HomeComponent },
  { path: "home", component: HomeComponent },
  { path: "about", component: AboutComponent },
  { path: "contact", component: ContactComponent }
];
var myroutes2 = RouterModule.forRoot(myroutes);
```

```
@NgModule({
  declarations: [ AppComponent, HomeComponent, AboutComponent,
    ContactComponent ],
  imports: [ BrowserModule, FormsModule, myroutes2 ],
  providers: [],
  bootstrap: [AppComponent]
})

export class AppModule { }

c:\angular\app1\src\app\app.component.ts
import { Component } from "@angular/core";
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})

export class AppComponent { }
```

c:\angular\app1\src\app\app.component.html

```
<div class="class1">
```

```
<h4>Routing</h4>
```

```
<a routerLink="home">Home</a>
```

```
<a routerLink="about">About</a>
```

```
<a routerLink="contact">Contact</a>
```

```
<div id="container">
```

```
<router-outlet> </router-outlet>
```

```
</div>
```

```
</div>
```


c:\angular\app1\src\app\home\home.component.ts

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

```
@Component({
```

```
  selector: 'app-home',
```

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

```
  styleUrls: ['./home.component.css'] })
```

```
export class HomeComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\home\home.component.html

```
<div class="class1">
```

```
<h5>Home</h5>
```

```
</div>
```

c:\angular\app1\src\app\about\about.component.ts

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

```
@Component({
```

```
  selector: 'app-about',
```

```
  templateUrl: './about.component.html',
```

```
  styleUrls: ['./about.component.css']
```

```
})
```

```
export class AboutComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\about\about.component.html

```
<div class="class1">
```

```
<h5>About</h5>
```

```
</div>
```

c:\angular\app1\src\app\contact\contact.component.ts

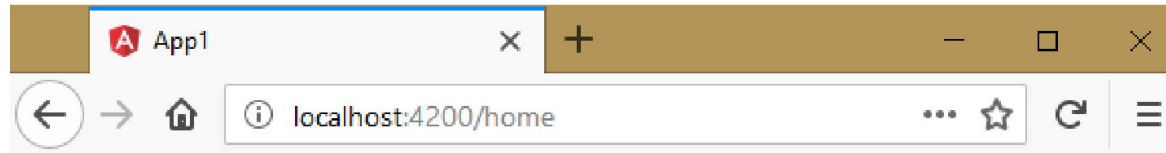
```
import { Component, OnInit } from '@angular/core';  
@Component({  
  selector: 'app-contact',  
  templateUrl: './contact.component.html',  
  styleUrls: ['./contact.component.css']  
})  
export class ContactComponent implements OnInit {  
  constructor() { }  
  ngOnInit() { }  
}
```

c:\angular\app1\src\app\contact\contact.component.html

```
<div class="class1">  
<h5>Contact</h5>  
</div>
```

Executing the application:

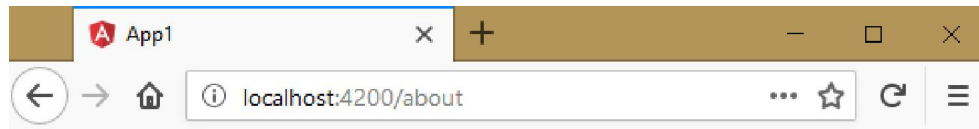
- ▶ Open Command Prompt and enter the following commands:
- ▶ `cd c:\angular\app1` `ng serve`
- ▶ Open the browser and enter the following URL: `http://localhost:4200`



Routing

[Home](#) [About](#) [Contact](#)

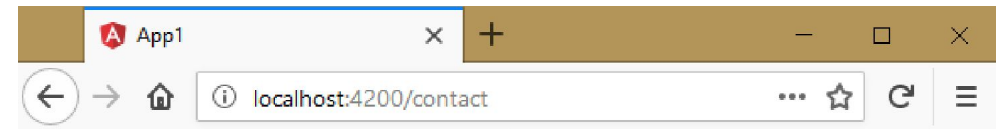
Home



Routing

[Home](#) [About](#) [Contact](#)

About



Routing

[Home](#) [About](#) [Contact](#)

Contact

Route Parameters

- ▶ You can pass parameters to the route.
- ▶ Route parameter is represented as “:parametername” syntax.
- ▶ You can get the value of the parameter in the component using “ActivatedRoute” service.
- ▶ **Steps for Working with Route Parameters**
- ▶ **Create parameter in the route:**
 - ▶ `{ path: "pathname/:parametername", component: ComponentClassname }`
- ▶ **Import the "ActivatedRoute" service:**
 - ▶ `import { ActivatedRoute } from "@angular/router";`
- ▶ **Get an object of "ActivatedRoute" service:**
 - ▶ `constructor(@Inject(ActivatedRoute) private route : ActivatedRoute) { }`
- ▶ **Get the value of parameter:**
 - ▶ `this.route.snapshot.params["parametername"]`
- ▶ **(or) Get the value of parameter with updates:**
 - ▶ `this.route.params.subscribe(params => { params["parametername"] });`

Route Parameters - Example

- ▶ Creating Application
- ▶ Open Command Prompt and enter the following commands:
- ▶ `cd c:\angular ng new app1`
- ▶ `cd c:\angular\app1 ng g component Home`
- ▶ `ng g component About`
- ▶ `ng g component Contact`
- ▶ `ng g component Products`
- ▶ `ng g class Product`
- ▶ `ng g service Products`

c:\angular\app1\src\product.ts

```
export class Product {  
  productId: number;  
  productName: string;  
  cost: number;  
  brand: string;  
  constructor(productId: number, productName: string, cost: number, brand:  
    string) {  
    this.productId = productId;  
    this.productName = productName;  
    this.cost = cost;  
    this.brand = brand;  
  }  
}
```


c:\angular\app1\src\products.service.ts

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

```
import { Product } from './product';
```

```
@Injectable() export class ProductService {
```

```
  products: Product[] = [];
```

```
  constructor() {
```

```
    this.products = [
```

```
      new Product(101, "Samsung S8", 40000, "Samsung"),
```

```
      new Product(101, "Samsung S9", 62000, "Samsung"),
```

```
      new Product(101, "iPhone 8", 60000, "Apple"),
```

```
      new Product(101, "iPhone 10", 98000, "Apple"),
```

```
      new Product(101, "Pixel 2", 53000, "Google"),
```

```
      new Product(101, "Pixel 3", 95000, "Google"),
```

```
    ];
```

```
  }
```

```
}
```

```
getProductsByBrand(brandName: string): Product[] {  
    var selectedProducts : Product[] = [];  
    for (var i = 0; i < this.products.length; i++) {  
        if (this.products[i].brand == brandName) {  
            selectedProducts.push(this.products[i]);  
        }  
    }  
    return selectedProducts;  
}
```

c:\angular\app1\src\app\app.module.ts

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { AppComponent } from './app.component';
import { FormsModule } from "@angular/forms";
import { Routes, RouterModule } from "@angular/router";
import { HomeComponent } from './home/home.component';
import { AboutComponent } from './about/about.component';
import { ContactComponent } from './contact/contact.component';
import { ProductsComponent } from './products/products.component';
import { ProductsService } from './products.service';
var myroutes: Routes = [
  { path: "", component: HomeComponent },
  { path: "home", component: HomeComponent },
  { path: "about", component: AboutComponent },
  { path: "contact", component: ContactComponent },
  { path: "products/:brandname", component: ProductsComponent }
];
var myroutes2 = RouterModule.forRoot(myroutes);
```

```
@NgModule({
  declarations: [ AppComponent, HomeComponent, AboutComponent,
    ContactComponent, ProductsComponent ],
  imports: [ BrowserModule, FormsModule, myroutes2 ],
  providers: [ ProductsService ],
  bootstrap: [AppComponent] })
export class AppModule { }
```

c:\angular\app1\src\app\app.component.ts

```
import { Component } from "@angular/core";
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent { }
```

c:\angular\app1\src\app\app.component.html

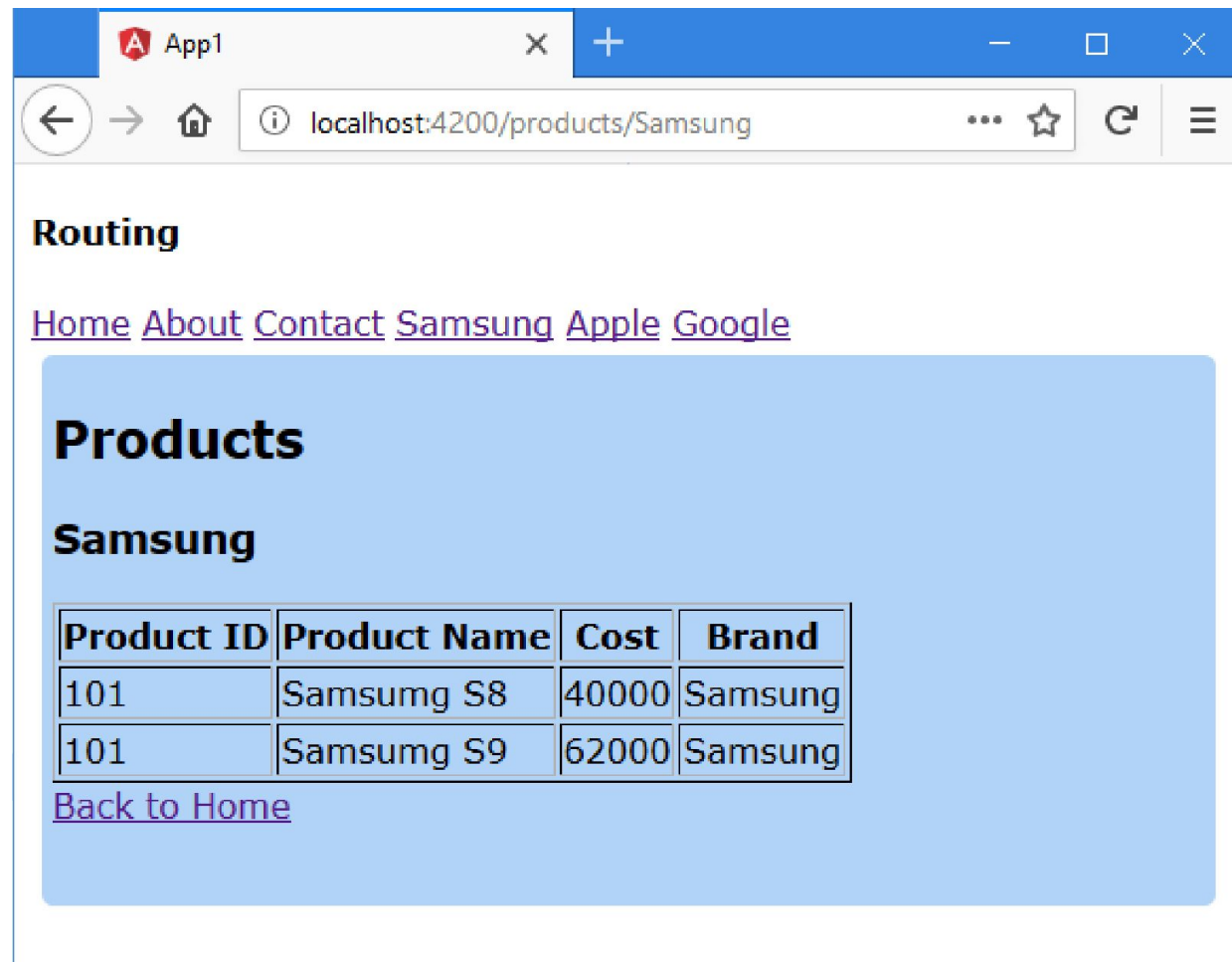
```
<div class="class1">
  <h4>Routing</h4>
  <a routerLink="home">Home</a>
  <a routerLink="about">About</a>
  <a routerLink="contact">Contact</a>
  <a routerLink="products/Samsung">Samsung</a>
  <a routerLink="products/Apple">Apple</a>
  <a routerLink="products/Google">Google</a>
  <div id="container">
    <router-outlet> </router-outlet>
  </div>
</div>
```

```
c:\angular\app1\src\app\products\products.component.ts
import { Component, OnInit, Inject } from '@angular/core';
import { Product } from '../product';
import { ProductsService } from "../products.service";
import { ActivatedRoute } from "@angular/router";
@Component({
  selector: 'app-products',
  templateUrl: './products.component.html',
  styleUrls: ['./products.component.css']
})
export class ProductsComponent implements OnInit {
  brand: string;
  matchingproducts: Product[] = [];
  constructor(@Inject(ProductsService) private prodService : ProductsService,
    @Inject(ActivatedRoute) private route: ActivatedRoute) { }
```

```
ngOnInit() {  
  this.route.params.subscribe(params => {  
    var selectedBrand = params["brandname"];  
    this.brand = selectedBrand;  
    this.matchingproducts =  
    this.prodService.getProductsByBrand(selectedBrand);  
  });  
}  
}
```

c:\angular\app1\src\app\products\products.component.html

```
<div>
  <h2>Products</h2>
  <h3>{{brand}}</h3>
  <table border="1">
    <tr>
      <th>Product ID</th>
      <th>Product Name</th>
      <th>Cost</th>
      <th>Brand</th>
    </tr>
    <tr *ngFor="let product of matchingproducts">
      <td>{{product.productId}}</td>
      <td>{{product.productName}}</td>
      <td>{{product.cost}}</td>
      <td>{{product.brand}}</td>
    </tr>
  </table>
  <a routerLink="/home">Back to Home</a>
</div>
```

App1

localhost:4200/products/Google

[Home](#) [About](#) [Contact](#) [Samsung](#) [Apple](#) [Google](#)

Products

Google

Product ID	Product Name	Cost	Brand
101	Pixel 2	53000	Google
101	Pixel 3	95000	Google

[Back to Home](#)

App1

localhost:4200/products/Apple

[Home](#) [About](#) [Contact](#) [Samsung](#) [Apple](#) [Google](#)

Products

Apple

Product ID	Product Name	Cost	Brand
101	iPhone 8	60000	Apple
101	iPhone 10	98000	Apple

[Back to Home](#)

Child Routes

- ▶ Route can have child routes up to unlimited no. of nested levels.
- ▶ Ex: "Funds Transfer" menu has "Transfer", "Add Payee", "Activate Payee" etc.

- ▶ Steps for Working with Child Routes

- ▶ **Create Child Routes:**

```
{  
  path: "parentpath ", component: ComponentClassname,  
  children: [  
    { path: "childpath ", component: ComponentClassname },  
    { path: "childpath ", component: ComponentClassname },  
    ...  
  ]  
}
```

- ▶ **Create hyperlink for the child route:**

```
<a href="/parentpath/childpath">Link text</a>
```

- ▶ **Create router outlet for child routes (in the parent route component's template):**

```
<router-outlet> </router-outlet>
```

- ▶ **Child Routes - Example**
- ▶ Creating Application
- ▶ Open Command Prompt and enter the following commands:
- ▶ `cd c:\angular`
- ▶ `ng new app1`
- ▶ `cd c:\angular\app1`
- ▶ `ng g component OnlineShopping`
- ▶ `ng g component Appliances`
- ▶ `ng g component Electronics`
- ▶ `ng g component Fashion`
- ▶ `ng g component Furniture`
- ▶ `ng g component Lighting`
- ▶ `ng g component Mobiles`
- ▶ `ng g component Laptops`
- ▶ `ng g component Men`
- ▶ `ng g component Women`
- ▶ `ng g component Furniture`

c:\angular\app1\src\app\app.module.ts

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { AppComponent } from './app.component';
import { FormsModule } from "@angular/forms";
import { Routes, RouterModule } from "@angular/router";
import { AppliancesComponent } from './appliances/appliances.component';
import { ElectronicsComponent } from './electronics/electronics.component';
import { FashionComponent } from './fashion/fashion.component';
import { FurnitureComponent } from './furniture/furniture.component';
import { LaptopsComponent } from './laptops/laptops.component';
import { LightingComponent } from './lighting/lighting.component';
import { MenComponent } from './men/men.component';
import { MobilesComponent } from './mobiles/mobiles.component';
import { OnlineShoppingComponent } from
'./online-shopping/online-shopping.component';
import { WomenComponent } from './women/women.component';
```

```
var myroutes: Routes = [  
  { path: "", component: OnlineShoppingComponent },  
  { path: "electronics", component: ElectronicsComponent,  
    children: [{ path: "mobiles", component: MobilesComponent },  
              { path: "laptops", component: LaptopsComponent }]  
  },  
  { path: "appliances", component: AppliancesComponent,  
    children: [{ path: "lighting", component: LightingComponent },  
              { path: "furniture", component: FurnitureComponent }]  
  },  
  { path: "fashion", component: FashionComponent,  
    children: [ { path: "men", component: MenComponent },  
              { path: "women", component: WomenComponent } ]  
  }  
];  
var myroutes2 = RouterModule.forRoot(myroutes);
```

```
@NgModule({
  declarations: [ AppComponent,    AppliancesComponent,
  ElectronicsComponent,    FashionComponent,    FurnitureComponent,
  LaptopsComponent,    LightingComponent,    MenComponent,
  MobilesComponent,    OnlineShoppingComponent,    WomenComponent  ],
  imports: [    BrowserModule, FormsModule, myroutes2  ],
  providers: [ ],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

c:\angular\app1\src\app\app.component.ts

```
import { Component } from "@angular/core";
```

```
@Component({
```

```
  selector: 'app-root',
```

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

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

```
})
```

```
export class AppComponent { }
```

c:\angular\app1\src\app\app.component.html

```
<div class="class1">
```

```
<h4>Child Routes</h4>
```

```
<div id="container">
```

```
<router-outlet> </router-outlet>
```

```
</div>
```

```
</div>
```


c:\angular\app1\src\app\online-shopping\online-shopping.component.ts

```
import { Component, OnInit } from '@angular/core';  
@Component({  
  selector: 'app-online-shopping',  
  templateUrl: './online-shopping.component.html',  
  styleUrls: ['./online-shopping.component.css']  
}) export class OnlineShoppingComponent implements OnInit {  
  constructor() { }  
  ngOnInit() { }  
}
```

c:\angular\app1\src\app\online-shopping\online-shopping.component.html

```
<div>  
<h4>Online Shopping</h4>  
<a routerLink="electronics">Electronics</a><br>  
<a routerLink="appliances">Appliances</a><br>  
<a routerLink="fashion">Fashion</a><br>  
</div>
```

c:\angular\app1\src\app\appliances\appliances.component.ts

```
import { Component, OnInit } from '@angular/core';
@Component({
  selector: 'app-appliances',
  templateUrl: './appliances.component.html',
  styleUrls: ['./appliances.component.css']
})
export class AppliancesComponent implements OnInit {
  constructor() { }
  ngOnInit() { }
}
```

c:\angular\app1\src\app\appliances\appliances.component.html

```
<div>
<h4>Appliances</h4>
<a routerLink="lighting">Lighting</a><br>
<a routerLink="furniture">Furniture</a><br>
<a routerLink="/">Home</a><br>
<div class="container2">
<router-outlet>    </router-outlet>
</div>
</div>
```

c:\angular\app1\src\app\electronics\electronics.component.ts

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

```
@Component({
```

```
  selector: 'app-electronics',
```

```
  templateUrl: './electronics.component.html',
```

```
  styleUrls: ['./electronics.component.css']
```

```
})
```

```
export class ElectronicsComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\electronics\electronics.component.html

```
<div>
```

```
<h4>Electronics</h4>
```

```
<a routerLink="mobiles">Mobiles</a><br>
```

```
<a routerLink="laptops">Laptops</a><br>
```

```
<a routerLink="/">Home</a><br>
```

```
<div class="container2">
```

```
<router-outlet>    </router-outlet>
```

```
</div>
```

```
</div>
```

c:\angular\app1\src\app\fashion\fashion.component.ts

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

```
@Component({
```

```
  selector: 'app-fashion',
```

```
  templateUrl: './fashion.component.html',
```

```
  styleUrls: ['./fashion.component.css']
```

```
})
```

```
export class FashionComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\fashion\fashion.component.html

```
<div>
```

```
  <h4>Fashion</h4>
```

```
  <a routerLink="men">Men</a><br>
```

```
  <a routerLink="women">Women</a><br>
```

```
  <a routerLink="/">Home</a><br>
```

```
  <div class="container2">
```

```
    <router-outlet>    </router-outlet>
```

```
  </div>
```

```
</div>
```

c:\angular\app1\src\app\furniture\furniture.component.ts

```
import { Component, OnInit } from '@angular/core';  
@Component({  
  selector: 'app-furniture',  
  templateUrl: './furniture.component.html',  
  styleUrls: ['./furniture.component.css']  
})  
export class FurnitureComponent implements OnInit {  
  constructor() { }  
  ngOnInit() { }  
}
```

c:\angular\app1\src\app\furniture\furniture.component.html

```
<div>  
<h5>Furniture</h5>  
</div>
```

c:\angular\app1\src\app\lighting\lighting.component.ts

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

```
@Component({
```

```
  selector: 'app-lighting',
```

```
  templateUrl: './lighting.component.html',
```

```
  styleUrls: ['./lighting.component.css']
```

```
})
```

```
export class LightingComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\lighting\lighting.component.html

```
<div>
```

```
<h5>Lighting</h5>
```

```
</div>
```

c:\angular\app1\src\app\mobiles\mobiles.component.ts

```
import { Component, OnInit } from '@angular/core';  
@Component({  
  selector: 'app-mobiles',  
  templateUrl: './mobiles.component.html',  
  styleUrls: ['./mobiles.component.css']  
})  
export class MobilesComponent implements OnInit {  
  constructor() { }  
  ngOnInit() { }  
}
```

c:\angular\app1\src\app\mobiles\mobiles.component.html

```
<div>  
<h5>Mobiles</h5>  
</div>
```

c:\angular\app1\src\app\laptops\laptops.component.ts

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

```
@Component({
```

```
  selector: 'app-laptops',
```

```
  templateUrl: './laptops.component.html',
```

```
  styleUrls: ['./laptops.component.css']
```

```
})
```

```
export class LaptopsComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

```
}
```

c:\angular\app1\src\app\laptops\laptops.component.html

```
<div>
```

```
<h5>Laptops</h5>
```

```
</div>
```



```
c:\angular\app1\src\app\men\men.component.ts
import { Component, OnInit } from '@angular/core';
@Component({
  selector: 'app-men',
  templateUrl: './men.component.html',
  styleUrls: ['./men.component.css']
})
export class MenComponent implements OnInit {
  constructor() { }
  ngOnInit() { }
}
c:\angular\app1\src\app\men\men.component.html
<div>
<h5>Men</h5>
</div>
```

c:\angular\app1\src\app\women\women.component.ts

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

```
@Component({
```

```
  selector: 'app-women',
```

```
  templateUrl: './women.component.html',
```

```
  styleUrls: ['./women.component.css']
```

```
})
```

```
export class WomenComponent implements OnInit {
```

```
  constructor() { }
```

```
  ngOnInit() { }
```

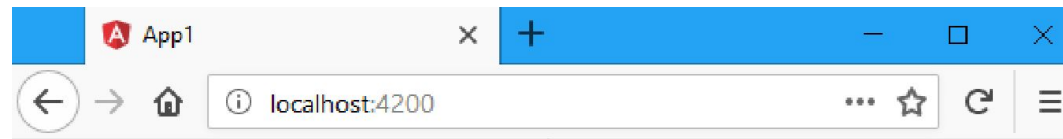
```
}
```

c:\angular\app1\src\app\women\women.component.html

```
<div>
```

```
<h5>Women</h5>
```

```
</div>
```



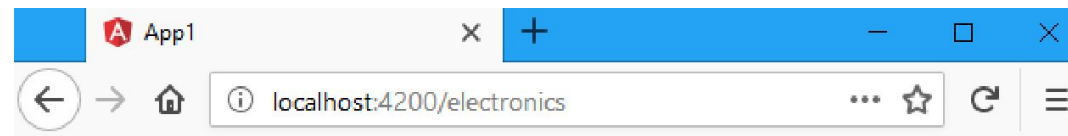
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