

# N Things You Didn't Know About the Angular Router

Deborah Kurata
Developer | Author | MVP | GDE
InStep Technologies, Inc

Level: Beginner

Code Again for the First Time!



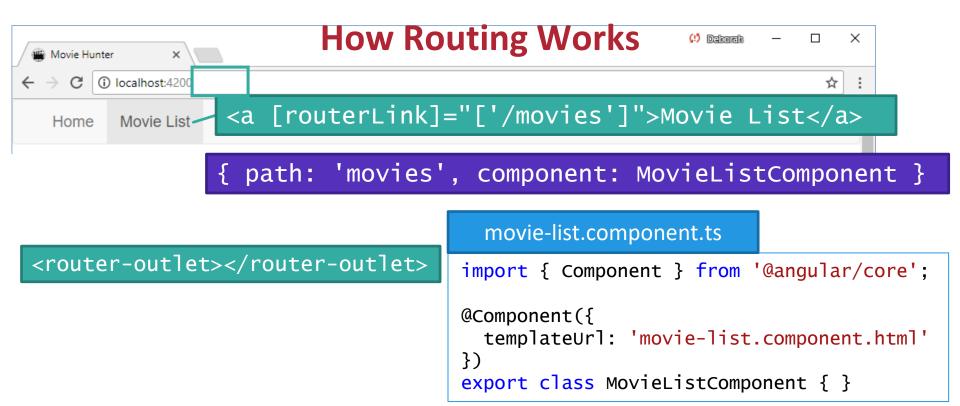
# Deborah Kurata

- Developer
- Angular v2 Documentation Team Member (angular.io)
- Pluralsight Author
  - Angular Getting Started
  - Angular Reactive Forms
  - Angular Routing
  - Angular Component Communication
  - C# Best Practices
- Microsoft Most Valuable Professional (MVP)
- Google Developer Expert (GDE)
- @deborahkurata

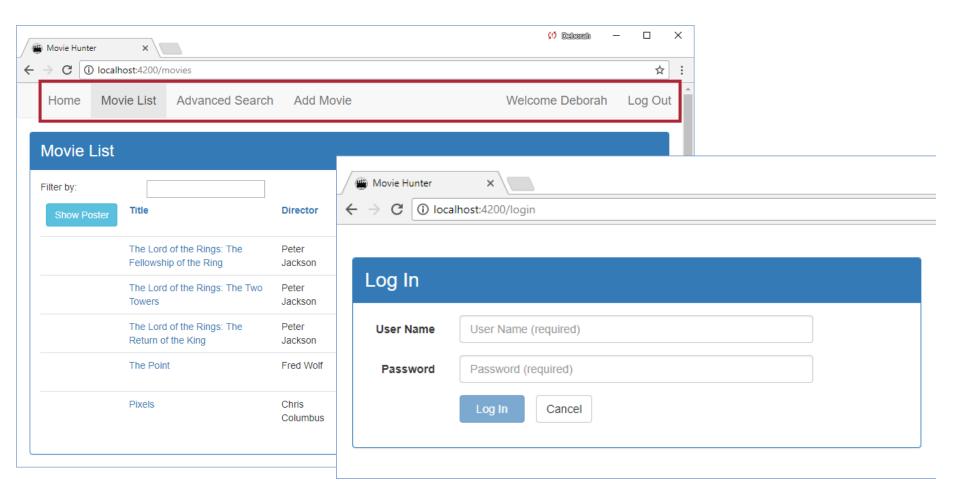


# https://github.com/DeborahK/ MovieHunter-routing



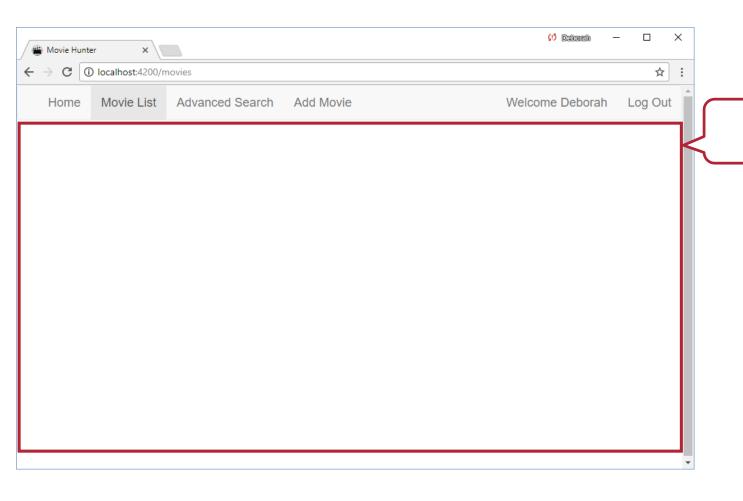


# To Menu or Not To Menu



#### app.component.html

```
<div class="container">
 <nav class="navbar navbar-light">
   <a class="navbar-brand">{{pageTitle}}</a>
   <a [routerLink]="['/welcome']">Home</a>
    <a [routerLink]="['/movies']">Movie List</a>
   </nav>
 <router-outlet></router-outlet>
 div>
```



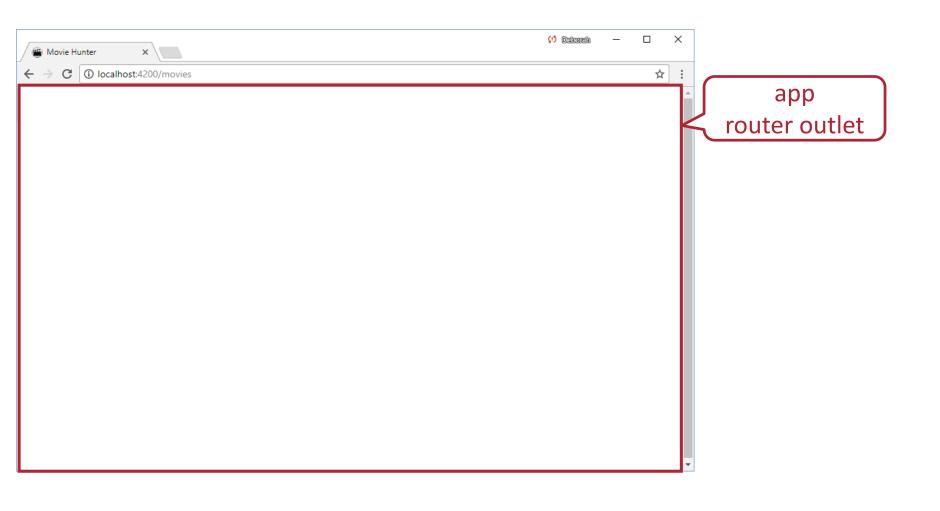
app router outlet

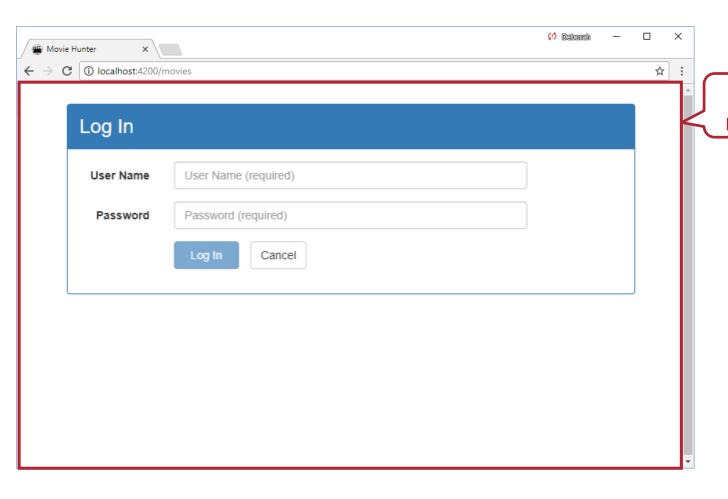
#### app.component.html

```
<div class="container">
 <nav class="navbar navbar-light" *nqIf="displayMenu">
   <a class="navbar-brand">{{pageTitle}}</a>
   <a [routerLink]="['/welcome']">Home</a>
     <a [routerLink]="['/movies']">Movie List</a>
   </nav>
 <router-outlet></router-outlet>
</div>
```

#### app.component.html

<router-outlet></router-outlet>





app router outlet

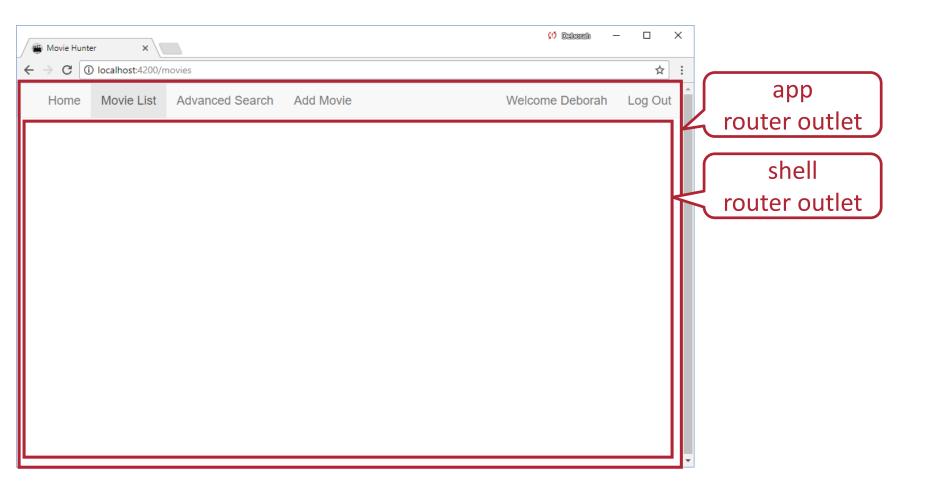
#### shell.component.html

```
<div class="container">
 <nav class="navbar navbar-light">
   <a class="navbar-brand">{{pageTitle}}</a>
   <a [routerLink]="['/welcome']">Home</a>
     <a [routerLink]="['/movies']">Movie List</a>
   </nav>
 <router-outlet></router-outlet>
 div>
```

#### shell.component.html

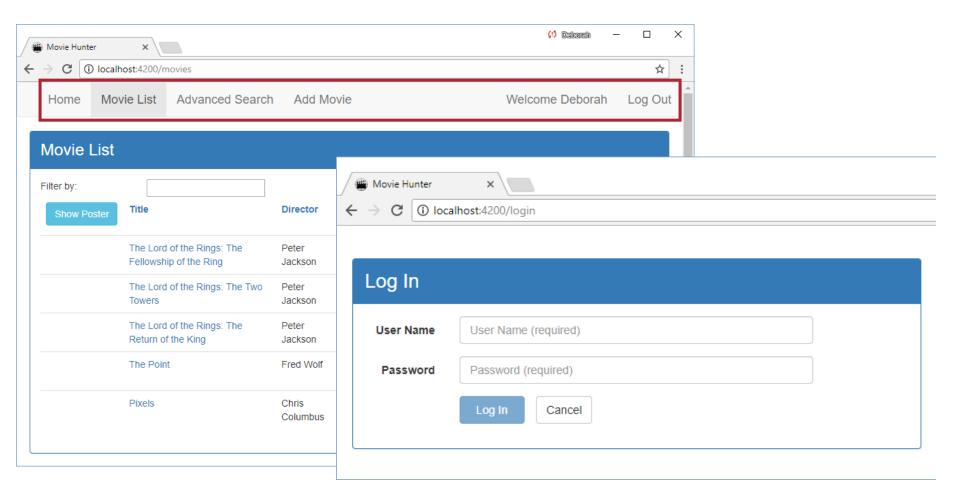
```
<mh-menu></mh-menu>

<div class='container'>
    <router-outlet></router-outlet>
  </div>
```

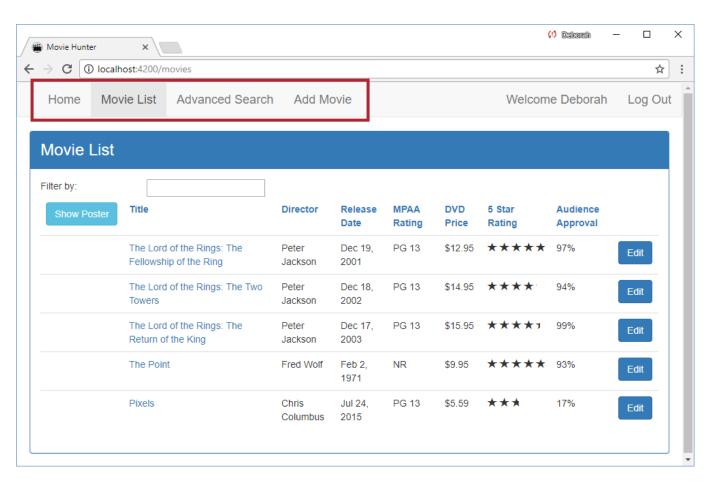


#### app-routing.module.ts

```
RouterModule.forRoot([
    path: '',
    component: ShellComponent,
    children:
        path: 'welcome', component: WelcomeComponent },
        path: 'movies', component: MovieListComponent },
        path: '', redirectTo: 'welcome', pathMatch: 'full'
    path: 'login', component: LoginComponent }
         '**', component: PageNotFoundComponent }
    path:
```



# Which Menu Option was Selected?



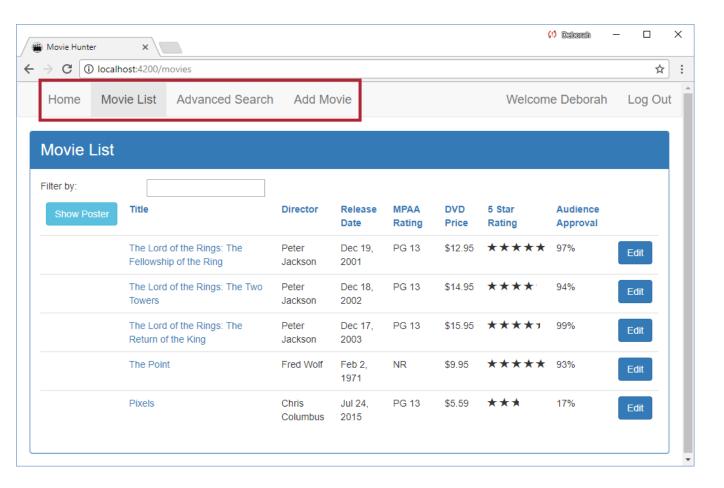
```
<nav class="navbar navbar-i</pre>
 <a class="navbar-brand">
                           CSS Style class
 <
      <a | routerLinkActive = "active"</pre>
         [routerLink]="['/welcome']">Home</a>
   <
      <a | routerLinkActive="active" |</pre>
         [routerLink]="['/movies']">Movie List</a>
   </nav>
```

```
<nav class="navbar navbar-light">
 <a class="navbar-brand">{{pageTitle}}</a>
 <1i>>
      <a routerLinkActive="active"</pre>
          [routerLink]="['/welcome']">Home</a>
   <1i>>
      <a routerLinkActive="active"</pre>
          [routerLink]="['/movies']">Movie List</a>
   kli>
      <a routerLinkActive="active"</pre>
         [routerLink]="['/movies/search']">Search</a>
     /li>
</nav>
```

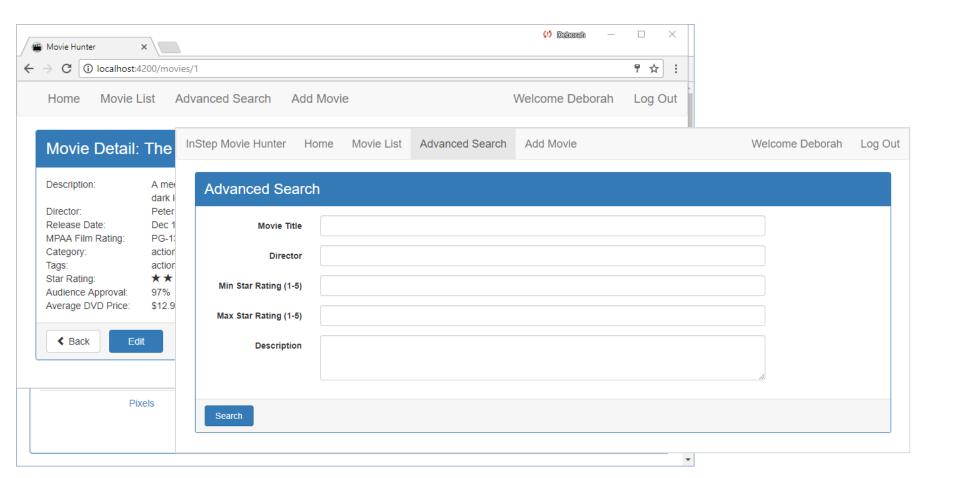
InStep Movie Hunter	Home	Movie List	Advanced Search	Add Movie	\	Velcome Deborah	Log Out
Advanced Search							
Movie Ti	tle						
Direct	tor						
Min Star Rating (1-	-5)						
Max Star Rating (1-	-5)						
Description	on						
Search							

```
<nav class="navbar navbar-light">
 <a class="navbar-brand">{{pageTitle}}</a>
 <1i>>
      <a routerLinkActive="active"</pre>
         [routerLink]="['/welcome']">Home</a>
   <1i>>
      <a routerLinkActive="active"
        [routerLink]="['/movies']">Movie List</a>
   <
      <a routerLinkActive="active"</pre>
        [routerLink]="['/movies/search']">Search</a>
   </nav>
```

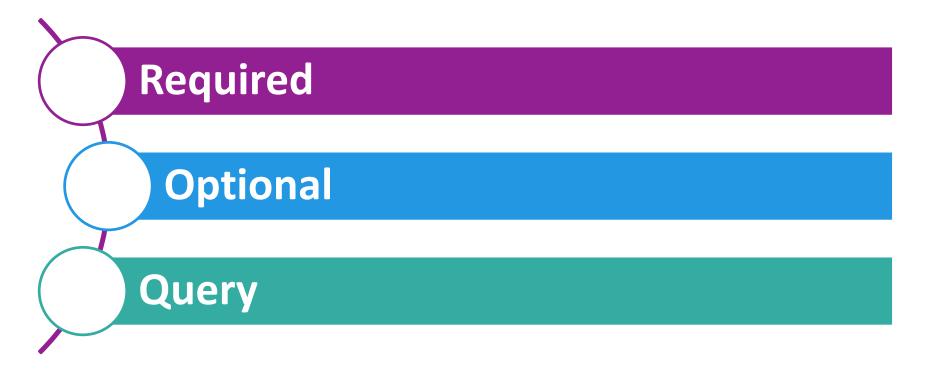
```
<nav class="navbar navbar-light">
 <a class="navbar-brand">{{pageTitle}}</a>
 <1i>>
      <a routerLinkActive="active"</pre>
         [routerLink]="['/welcome']">Home</a>
   <1i>>
      <a routerLinkActive="active"</pre>
         [routerLinkActiveOptions]="{ exact: true }"
         [routerLink]="['/movies']">Movie List</a>
   <
      <a routerLinkActive="active"
         [routerLinkActiveOptions]="{ exact: true }"
         [routerLink]="['/movies/search']">Search</a>
   </nav>
```



# Data, Data, Data



## **Routing Parameters**



```
Configure
```

## **Required Parameters**

```
{ path: 'movies/:id', component: MovieDetailComponent }
Activate
<a [routerLink]="['/movies', movie.id]">...</a>
this.router.navigate(['/movies', this.movie.id]);
Resulting Url
http://localhost:4200/movies/5
Read
this.route.snapshot.paramMap.get('id');
```

## **Optional Parameters**

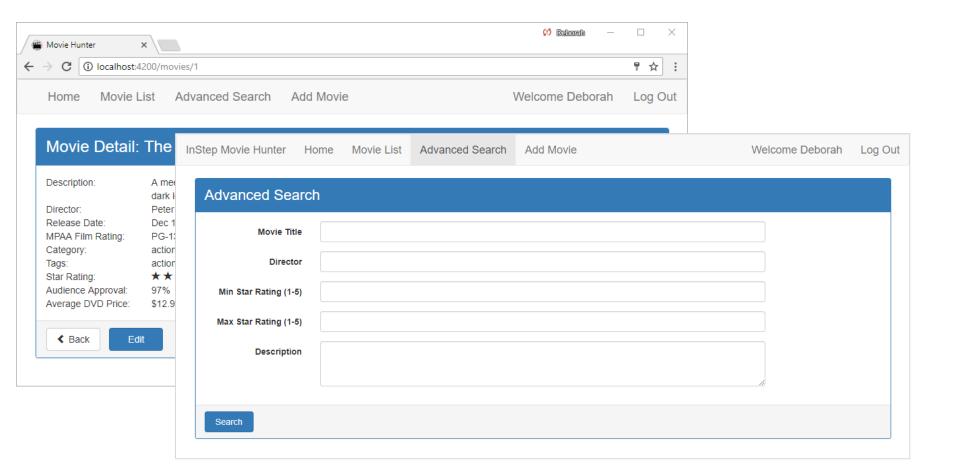
```
{ path: 'movies', component: MovieListComponent }
Activate
<a [routerLink]="['/movies', {title:ring, si: true}]">...</a>
this.router.navigate(['/movies', {title: ring, si:true}]);
Resulting Url
http://localhost:4200/movies;title=ring;si=true
Read
this.route.snapshot.paramMap.get('title');
```

Read

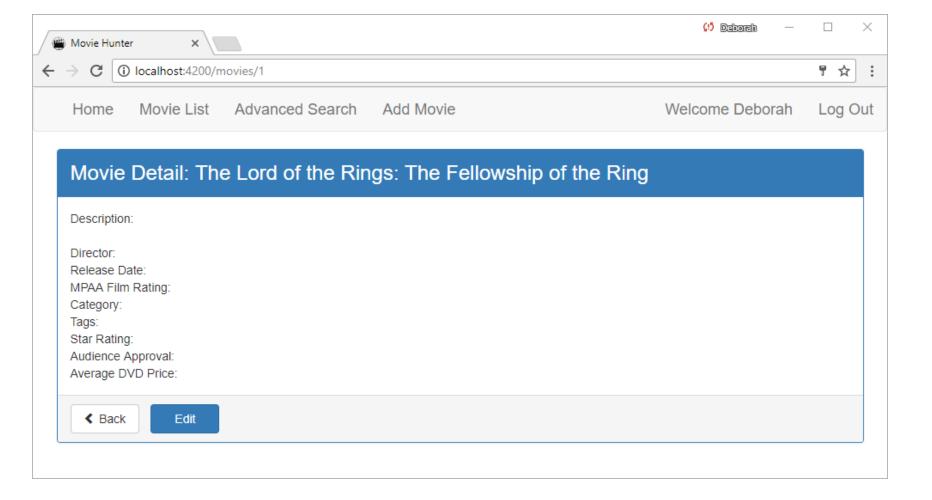
### **Query Parameters**

```
{ path: 'movies', component: MovieListComponent }
Activate
<a [routerLink]="['/movies']"
   [queryParams] = "{title: ring, si: true}">...</a>
this.router.navigate(['/movies'],
                     {queryParams: {title: 'ring', si:true}});
Resulting Url
http://localhost:4200/movies?title=ring&si=true
```

this.route.snapshot.queryParamMap.get('title');



# Preventing Partial Page Display



### **Build a Resolver Service**

#### movie-resolver.service.ts

```
@Injectable({
  providedIn: 'root'
export class MovieResolver implements Resolve<IMovie> {
  constructor(private movieService: MovieService) { }
  resolve(route: ActivatedRouteSnapshot,
          state: RouterStateSnapshot): Observable<IMovie> {
    const id = route.paramMap.get('id');
    return this.movieService.getMovie(+id);
```

### **Add Resolver to Route**

#### movie.module.ts

```
{
   path: 'movies/:id',
   resolve: { movie: MovieResolver },
   component: MovieDetailComponent
},
```

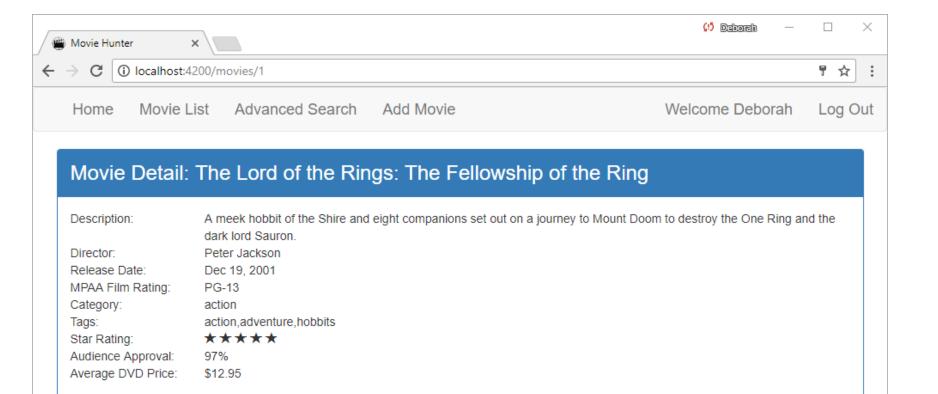
## **Read Resolver Data**

#### movie-detail.component.ts

```
ngOnInit(): void {
   this.movie = this.route.snapshot.data['movie'];
}
```

#### movie.module.ts

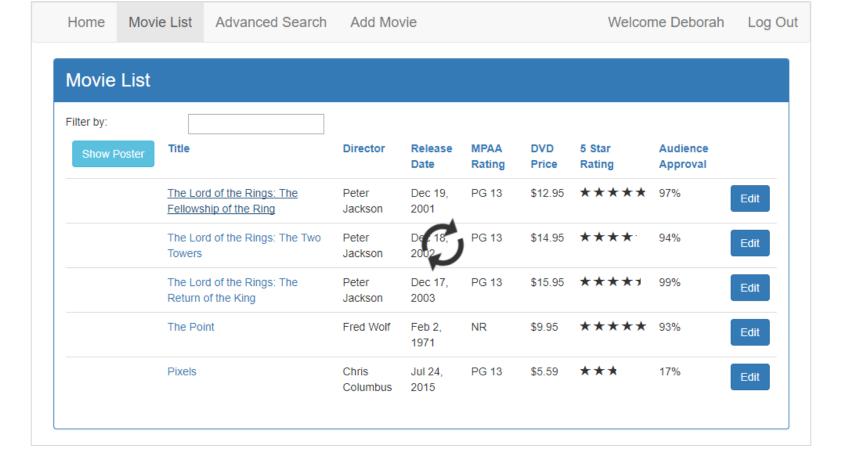
```
path: 'movies/:id',
  resolve: { movie: MovieResolver },
  component: MovieDetailComponent
},
```



Edit

**≮** Back

## I'm Waiting ...



## **Subscribe to Router Events**

### app.component.ts

```
constructor(private router: Router) {
   router.events.subscribe((routerEvent: Event) => {
      this.checkRouterEvent(routerEvent);
   });
}
```

## **Check Router Events**

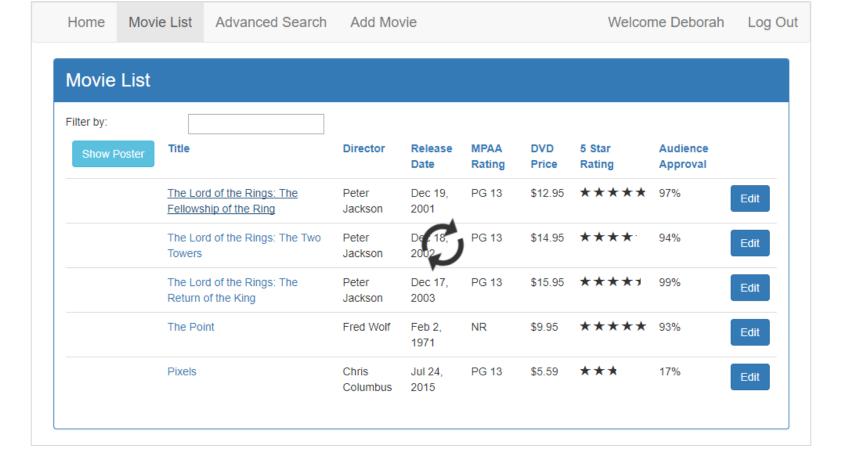
#### app.component.ts

```
checkRouterEvent(routerEvent: Event): void {
   if (routerEvent instanceof NavigationStart) {
      this.loading = true;
   if (routerEvent instanceof NavigationEnd | |
       routerEvent instanceof NavigationCancel ||
       routerEvent instanceof NavigationError) {
      this.loading = false;
```

## **Display the Spinner**

### app.component.html

```
<span class="fa fa-spinner spinner"
    *ngIf="loading"></span>
<router-outlet></router-outlet>
```



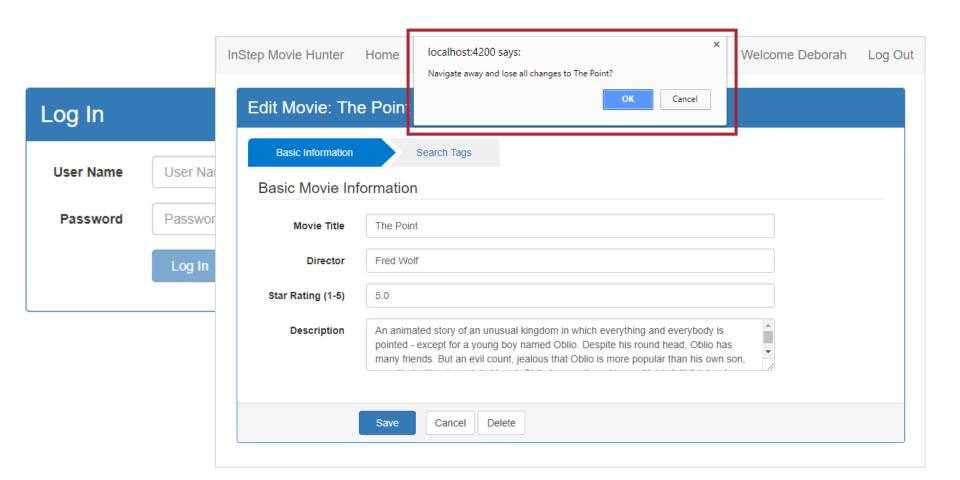
# What's going on?

```
Console Elements Sources Network Performance Memory Application Security Audits
                       ▼ | Filter
0
                                                                       Default levels ▼
   top
▼ Router Event: NavigationStart
    NavigationStart(id: 5, url: '/movies/3')
    ▶ NavigationStart {id: 5, url: "/movies/3"}
▼ Router Event: RoutesRecognized
    RoutesRecognized(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3', state: Route(url:'', path:'')
    path:':id') } } })
    ▶ RoutesRecognized {id: 5, url: "/movies/3", urlAfterRedirects: "/movies/3", state: RouterStateSnapshot}
  Router Event: GuardsCheckStart
    GuardsCheckStart(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3', state: Route(url:'', path:'')
    path:':id') } } })
    ▶ GuardsCheckStart {id: 5, url: "/movies/3", urlAfterRedirects: UrlTree, state: RouterStateSnapshot}
  Router Event: GuardsCheckEnd
    GuardsCheckEnd(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3', state: Route(url:'', path:'') {
    path:':id') } } , shouldActivate: true)
    ▶ GuardsCheckEnd {id: 5, url: "/movies/3", urlAfterRedirects: UrlTree, state: RouterStateSnapshot, shoul
▼ Router Event: ResolveStart
    ResolveStart(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3', state: Route(url:'', path:'') { Rd
    } } )
    ▶ ResolveStart {id: 5, url: "/movies/3", urlAfterRedirects: UrlTree, state: RouterStateSnapshot}
  Data: {"id":3, "director": "Peter Jackson", "description": "Gandalf and Aragorn lead the World of Men against
  Ring.", "imageurl": "http://www.coverwhiz.com/content/The-Lord-Of-The-Rings-The-Return-Of-The-King small.jpg
  King", "price":15.95, "starRating":4.5, "approvalRating":0.9895, "category": "action", "tags": ["action", "adventu
▼ Router Event: ResolveEnd
    ResolveEnd(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3', state: Route(url:'', path:'') { Rout
    } })
    ▶ ResolveEnd {id: 5, url: "/movies/3", urlAfterRedirects: UrlTree, state: RouterStateSnapshot}
  Router Event: NavigationEnd
    NavigationEnd(id: 5, url: '/movies/3', urlAfterRedirects: '/movies/3')
```

Console

```
RouterModule.forRoot([
    path: '', component: ShellComponent,
    children: [
      { path: 'welcome', component: WelcomeComponent },
      { path: 'movies', component: MovieListComponent },
      { path: '', redirectTo: 'welcome', pathMatch: 'full' },
   path: 'login', component: LoginComponent }
   path: '**', component: PageNotFoundComponent }
   { enableTracing: true })
```

## Guards at the Ready



## **Build a Guard Service**

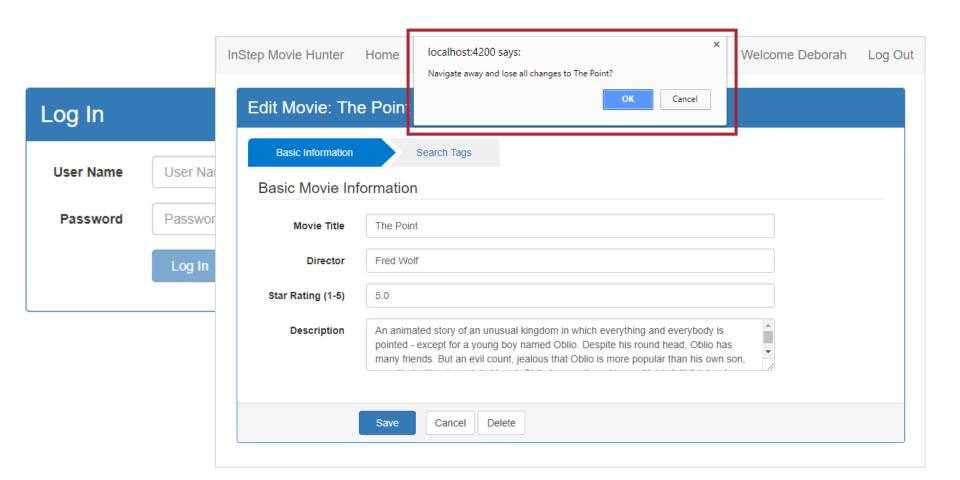
#### movie-edit-guard.service.ts

```
@Injectable({
 providedIn: 'root'
})
export class MovieEditGuard implements
                                CanDeactivate<MovieEditComponent> {
   canDeactivate(component: MovieEditComponent): boolean {
      if (component.isDirty) {
         const title = component.movie.title || 'New Movie';
         return confirm(`Lose all changes to ${title}?`);
      return true;
```

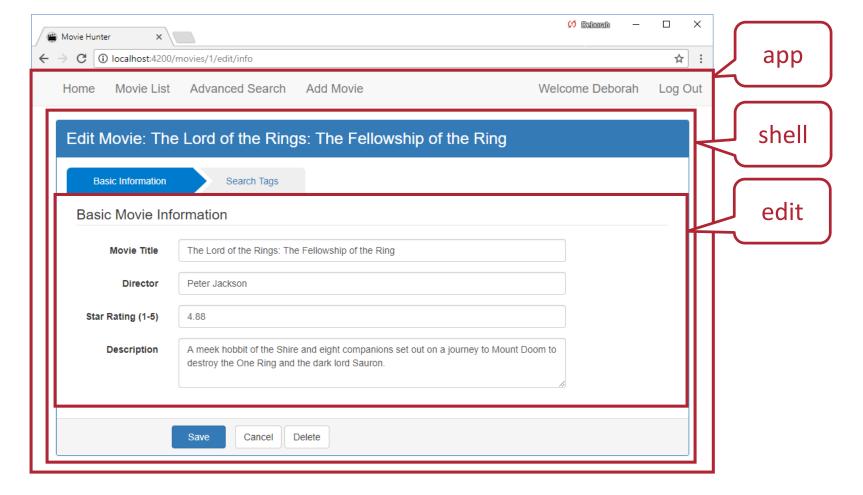
## **Add Guard to Route**

#### movie.module.ts

```
path: 'movies/:id/edit',
  resolve: { movie: MovieResolver },
  canDeactivate: [ MovieEditGuard ],
  component: MovieEditComponent
}
```



# Keep Tabs



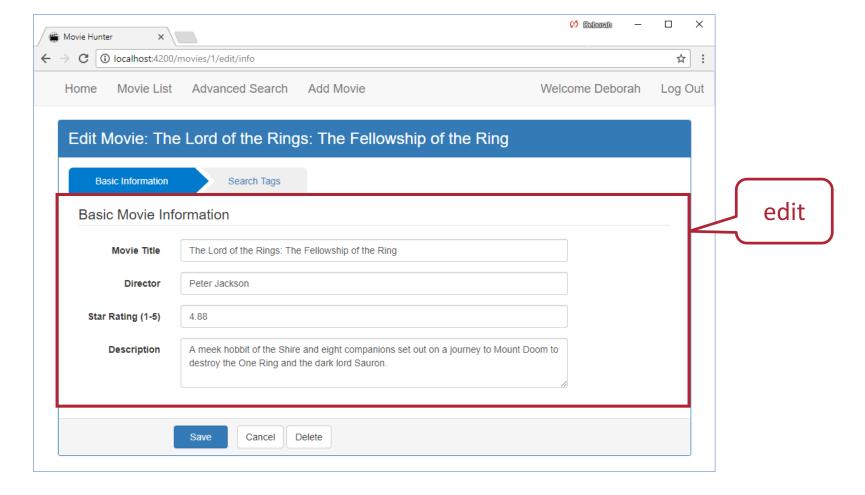
```
RouterModule.forRoot([
    path: '', component: ShellComponent,
    children: [
      { path: 'welcome', component: WelcomeComponent },
       path: 'movies', component: MovieListComponent },
      { path: 'movies/:id', component: MovieDetailComponent },
      { path: '', redirectTo: 'welcome', pathMatch: 'full' },
   path: 'login', component: LoginComponent }
   path: '**', component: PageNotFoundComponent }
1)
```

```
path: '', component: ShellComponent,
children: [
  { path: 'welcome', component: WelcomeComponent },
   path: 'movies', component: MovieListComponent },
    path: 'movies/:id', component: MovieDetailComponent },
  { path: 'movies/:id/edit', component: MovieEditComponent,
    children: [
      { path: '', redirectTo: 'info', pathMatch: 'full' },
      { path: 'info', component: MovieEditInfoComponent },
      { path: 'tags', component: MovieEditTagsComponent }
```

## **Edit View**

### movie-edit.component.html

```
<div class="card-body">
  <div class="wizard">
    <a [routerLink]="['info']" routerLinkActive="active">
       Basic Information</a>
    <a [routerLink]="['tags']" routerLinkActive="active">
       Search Tags</a>
  </div>
  <router-outlet></router-outlet>
</div>
```



## **Keep Constant**

```
@NgModule({
   imports: [
       RouterModule.forRoot([
               path: '', component: ShellComponent,
               children: [
                   { path: 'welcome', component: WelcomeComponent },
                   { path: 'movies', component: MovieListComponent },
                   { path: 'movies/:id', component: MovieDetailComponent },
                       path: 'movies/:id/edit', component: MovieEditComponent,
                       children: [
                           { path: '', redirectTo: 'info', pathMatch: 'full' },
                           { path: 'info', component: MovieEditInfoComponent },
                           { path: 'tags', component: MovieEditTagsComponent }
                   },
                   { path: '', redirectTo: 'welcome', pathMatch: 'full' }
           { path: 'login', component: LoginComponent },
           { path: '**', component: PageNotFoundComponent }
   exports: [RouterModule]
})
export class AppRoutingModule { }
```

```
const appRoutes: Routes =
    path: '', component: ShellComponent,
    children:
      { path: 'welcome', component: WelcomeComponent },
      { path: 'movies', component: MovieListComponent },
      { path: 'movies/:id', component: MovieDetailComponent },
      { path: 'movies/:id/edit', component: MovieEditComponent,
        children: [
          { path: '', redirectTo: 'info', pathMatch: 'full' },
          { path: 'info', component: MovieEditInfoComponent },
          { path: 'tags', component: MovieEditTagsComponent }
      { path: '', redirectTo: 'welcome', pathMatch: 'full' }
    path: 'login', component: LoginComponent },
  { path: '**', component: PageNotFoundComponent }
```

```
@NgModule({
    imports: [
        RouterModule.forRoot(appRoutes)
    ],
    exports: [RouterModule]
})
export class AppRoutingModule { }
```

## It's a Feature

## What About Feature Modules?

```
const appRoutes: Routes = [
    path: '', component: ShellComponent,
    children: [
      { path: 'welcome', component: WelcomeComponent },
      { path: 'movies', component: MovieListComponent },
       path: 'movies/:id', component: MovieDetailComponent },
      { path: 'movies/:id/edit', component: MovieEditComponent,
        children: [
          { path: '', redirectTo: 'info', pathMatch: 'full' },
          { path: 'info', component: MovieEditInfoComponent },
          { path: 'tags', component: MovieEditTagsComponent }
      { path: '', redirectTo: 'welcome', pathMatch: 'full' }
  { path: 'login', component: LoginComponent },
  { path: '**', component: PageNotFoundComponent }
```

#### movie.module.ts

```
const movieRoutes: Routes =
 { path: 'movies', component: MovieListComponent } ,
 { path: 'movies/:id', component: MovieDetailComponent },
  path: 'movies/:id/edit', component: MovieEditComponent,
     children: [
       { path: '', redirectTo: 'info', pathMatch: 'full' },
       { path: 'info', component: MovieEditInfoComponent },
       { path: 'tags', component: MovieEditTagsComponent }
@NgModule({
 imports: [ ...,
   RouterModule.forChild(movieRoutes) // Won't work
 |, ...
export class MovieModule { }
```

```
imports: [
   MovieModule,
   RouterModule.forRoot(appRoutes)
Routes
```

```
path: 'movie', component: MovieListComponent } ,
 path: 'movie/:id', component: MovieDetailComponent },
 path: 'movie/:id/edit', component: MovieEditComponent,
  children: [
     { path: '', redirectTo: 'info', pathMatch: 'full' },
     { path: 'info', component: MovieEditInfoComponent },
     { path: 'tags', component: MovieEditTagsComponent }
          , compenent: ShellComponent,
 children:
    {/path: 'welcome', component: WelcomeComponent },
    { path: '', redirectTo: 'welcome', pathMatch: 'full'
{ path: 'login', component: LoginComponent },
{ path: '**', component: PageNotFoundComponent }
```

## Lazy Loading



From: Angular Routing course on Pluralsight

## **loadChildren**

```
path: '', component: ShellComponent,
  children: [
    { path: 'welcome', component: WelcomeComponent },
      path: 'movies'
      loadChildren: './movies/movie.module#MovieModule'
    { path: '', redirectTo: 'welcome', pathMatch: 'full' }
path: 'login', component: LoginComponent },
path: '**', component: PageNotFoundComponent }
```

#### movie.module.ts

```
const movieRoutes: Routes =
 { path: '', component: MovieListComponent } ,
 { path: ':id', component: MovieDetailComponent },
 { path: ':id/edit', component: MovieEditComponent,
     children: [
       { path: '', redirectTo: 'info', pathMatch: 'full' },
       { path: 'info', component: MovieEditInfoComponent },
       { path: 'tags', component: MovieEditTagsComponent }
@NgModule({
 imports: [ ...,
   RouterModule.forChild(movieRoutes)
 |, ...
export class MovieModule { }
```

## **Guarding all Feature Routes**

```
path: '', component: ShellComponent,
children: [
  { path: 'welcome', component: WelcomeComponent },
    path: 'movies',
    canActivate: [AuthGuard],
    loadChildren: './movies/movie.module#MovieModule'
  { path: '', redirectTo: 'welcome', pathMatch: 'full' }
```

## Demo

## **Thank You!**

@deborahkurata

bit.ly/Angular-routing