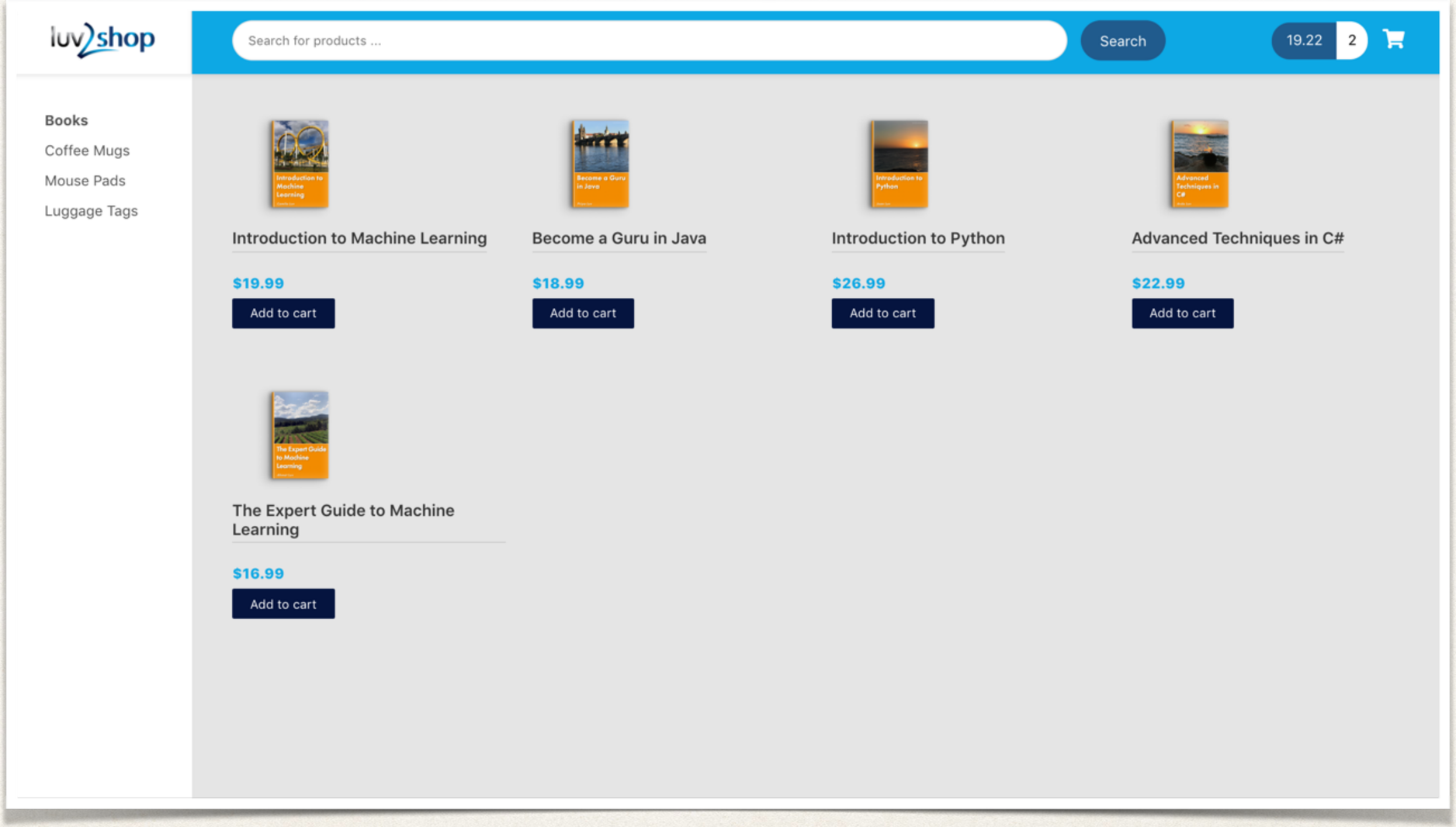
Pagination - Development Process

Pagination



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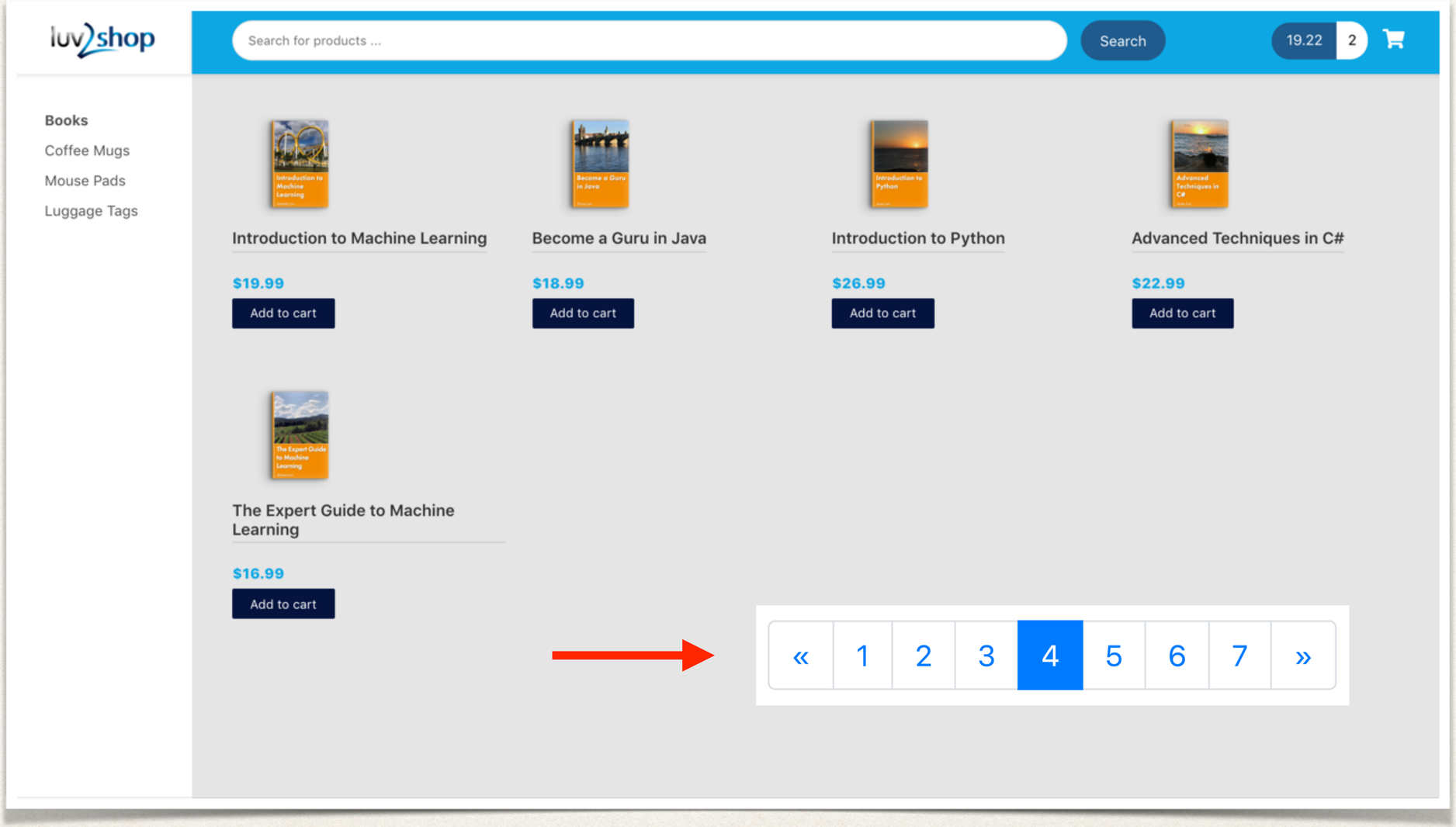
Pagination



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Development Process

Step-By-Step

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Development Process

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1. Install ng-bootstrap

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Development Process

Step-By-Step

1. Install ng-bootstrap
2. Refactor the interface for: GetResponseProducts

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Development Process

Step-By-Step

1. Install ng-bootstrap
2. Refactor the interface for: GetResponseProducts
3. Add pagination support to ProductService

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Development Process

Step-By-Step

1. Install ng-bootstrap
2. Refactor the interface for: GetResponseProducts
3. Add pagination support to ProductService
4. Update ProductListComponent to handle pagination

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Development Process

Step-By-Step

1. Install ng-bootstrap
2. Refactor the interface for: GetResponseProducts
3. Add pagination support to ProductService
4. Update ProductListComponent to handle pagination
5. Enhance HTML template to use ng-bootstrap pagination component

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Step 1: Install ng-bootstrap

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https://ng-bootstrap.github.io/#/getting-started

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- Run the following commands in your Angular project directory

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Step 1: Install ng-bootstrap

- Run the following commands in your Angular project directory

```
> ng add @angular/localize
```

Dependency for Angular 9+

https://ng-bootstrap.github.io/#/getting-started

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Step 1: Install ng-bootstrap

- Run the following commands in your Angular project directory

```
> ng add @angular/localize

> npm install @ng-bootstrap/ng-bootstrap
```

Dependency for Angular 9+

Installs ng-bootstrap

https://ng-bootstrap.github.io/#/getting-started

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Step 1: Install ng-bootstrap

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Step 1: Install ng-bootstrap

- Import the module for ng-bootstrap

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Step 1: Install ng-bootstrap

- Import the module for ng-bootstrap

File: app.module.ts

```
import { NgbModule } from '@ng-bootstrap/ng-bootstrap';

@NgModule({
  …
 imports: [
    RouterModule.forRoot(routes),
    BrowserModule,
    HttpClientModule,
    NgbModule
  ],
  …
})
export class AppModule { }
```


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Step 1: Install ng-bootstrap

- Import the module for ng-bootstrap

File: app.module.ts

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import { NgbModule } from '@ng-bootstrap/ng-bootstrap';

@NgModule({
  …
 imports: [
    RouterModule.forRoot(routes),
    BrowserModule,
    HttpClientModule,
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})
export class AppModule { }
```

ng-bootstrap module

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Step 2: Refactor the interface for GetResponseProducts

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Step 2: Refactor the interface for GetResponseProducts

- We currently use the interface `GetResponseProducts`

```
interface GetResponseProducts {
  _embedded: {
    products: Product[];
  }
}
```


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Step 2: Refactor the interface for GetResponseProducts

- We currently use the interface `GetResponseProducts`
- Maps JSON data from REST API to our TypeScript objects

JSON

```
{
  "_embedded" : {
    "products" : [ {
      "id" : 1,
      "sku" : "BOOK-TECH-1000",
      "name" : "Crash Course in Python",
    ...
    }, {
      "id" : 2,
      "sku" : "BOOK-TECH-1001",
      "name" : "Become a Guru in JavaScript",
    ...
   } ]
  }
}
```

```
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Spring Data REST - Response Meta Data

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Spring Data REST - Response Meta Data

- The response meta data also has valuable information for pagination

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Spring Data REST - Response Meta Data

- The response meta data also has valuable information for pagination

```
<< array of products >>
...
"page" : {
  "size" : 20,
  "totalElements" : 100,
  "totalPages" : 5,
  "number" : 0
}
```


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Spring Data REST - Response Meta Data

- The response meta data also has valuable information for pagination

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<< array of products >>
...
"page" : {
  "size" : 20,
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Size of this page

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Size of this page

Grand total of ALL elements in the database.
But we are NOT returning all of the elements.
Just the "count" for informational purposes only.

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Total pages available

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Size of this page

Grand total of ALL elements in the database.
But we are NOT returning all of the elements.
Just the "count" for informational purposes only.

Total pages available

Current page number

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Step 2: Refactor the interface for GetResponseProducts

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Step 2: Refactor the interface for GetResponseProducts

- Refactor the interface to support the pagination meta-data

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Step 2: Refactor the interface for GetResponseProducts

- Refactor the interface to support the pagination meta-data

JSON

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{
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```


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Step 2: Refactor the interface for GetResponseProducts

- Refactor the interface to support the pagination meta-data

JSON

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  }
}
```


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Step 3: Add pagination support to ProductService

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Step 3: Add pagination support to ProductService

File: product.service.ts

```
getProductListPaginate(thePage: number,
                       thePageSize: number,
                       theCategoryId: number): Observable<GetResponseProducts> {

  const url = `${this.baseUrl}/search/findByCategoryId`
    + `?id=${theCategoryId}&page=${thePage}&size=${thePageSize}`;

  return this.httpClient.get<GetResponseProducts>(url);
}
```


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Step 3: Add pagination support to ProductService

File: product.service.ts

Pass in parameters for pagination

```
getProductListPaginate(thePage: number,
                       thePageSize: number,
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  return this.httpClient.get<GetResponseProducts>(url);
}
```

Spring Data REST supports pagination out of the box.
Just send the parameters for page and size

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Step 4: Update ProductListComponent to handle pagination

File: product-list.component.ts

```
export class ProductListComponent implements OnInit {

  // new properties for pagination
  thePageNumber: number = 1;
  thePageSize: number = 10;
  theTotalElements: number = 0;
  ...

}
```


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Properties

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  // new properties for pagination
  thePageNumber: number = 1;
  thePageSize: number = 10;
  theTotalElements: number = 0;
  ...

  handleListProducts() {
    ...
    // now get the products for the given category id
    this.productService.getProductListPaginate(this.thePageNumber - 1,
                                               this.thePageSize,
                                               this.currentCategoryId).subscribe(this.processResult());
  }









}
```

Properties

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Properties

Call service and pass in parameters

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```

Properties

Call service and pass in parameters

Pagination component: pages are 1 based

Spring Data REST: pages are 0 based

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                                               this.thePageSize,
                                               this.currentCategoryId).subscribe(this.processResult());
  }

  private processResult() {
    return data => {
      this.products = data._embedded.products;
      this.thePageNumber = data.page.number + 1;
      this.thePageSize = data.page.size;
      this.theTotalElements = data.page.totalElements;
    };
  }

}
```


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```

When data arrives from product service ...
then set properties based on the data

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}
```

When data arrives from product service ... then set properties based on the data

Everything on right-hand side of assignment is data from Spring Data REST JSON

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```

Pagination component: pages are 1 based

Spring Data REST: pages are 0 based

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