

## Data binding and pipes

## Property binding

1. Add <img> tag with src property in product-list.component.html file.

```
<div class='panel panel-primary'>
  <div class='panel-heading'>
    {{pageTitle}}
  </div>
  <div class='panel-body'>
    <div class='row'>
      <div class='col-md-2'>Filter by:</div>
      <div class='col-md-4'>
        <input type='text' />
      </div>
    </div>
    <div class='row'>
      <div class='col-md-6'>
        <h3>Filtered by: </h3>
      </div>
    </div>
    <div class='table-responsive'>
      <table class='table' *ngIf='products &&
products.length'>
        <thead>
          <tr>
            <th>
              <button class='btn btn-primary'>
                Image
              </button>
            </th>
            <th>Product</th>
            <th>Code</th>
            <th>Available</th>
            <th>Price</th>
            <th>5 Star Rating</th>
          </tr>
        </thead>
        <tbody>
          <tr *ngFor='#product of products'>
            <td>
```

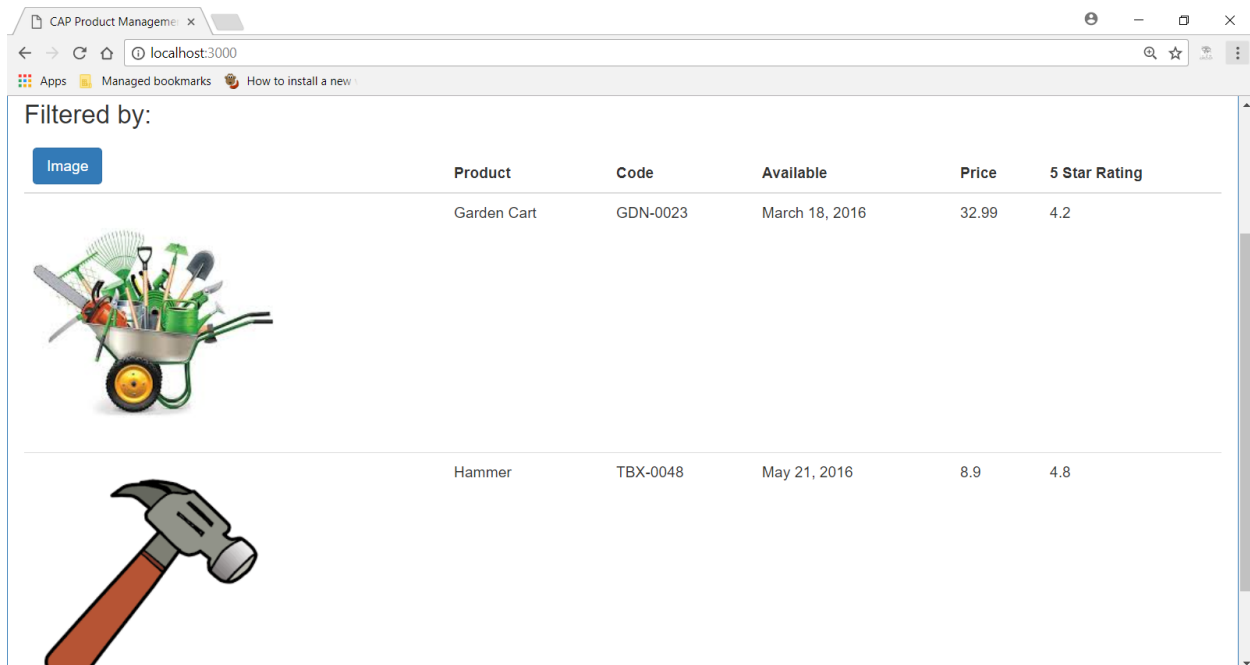
```

<img [src]='product.imageUrl'
      [title]='product.productName'>

</td>
<td>{{product.productName}}</td>
<td>{{product.productCode}}</td>
<td>{{product.releaseDate}}</td>
<td>{{product.price}}</td>
<td>{{product.starRating}}</td>
</tr>
</tbody>
</table>
</div>
</div>
</div>

```

2. Now if you check your browser you can see below output.



3. Now we are going to change image width and height. Add `imageWidth` and `imageMargin` property in `product-list.component.ts` file

```
import { Component } from 'angular2/core';
```

```
@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html'
})
export class ProductListComponent {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;
  products: any[] = [
    {
      "productId": 2,
      "productName": "Garden Cart",
      "productCode": "GDN-0023",
      "releaseDate": "March 18, 2016",
      "description": "15 gallon capacity rolling garden cart",
      "price": 32.99,
      "starRating": 4.2,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhstt7Kkdk5kyMv9mxJyh9sPUBvY9p
oTrxcl-SCAUa3WmUVZQA"
    },
    {
      "productId": 5,
      "productName": "Hammer",
      "productCode": "TBX-0048",
      "releaseDate": "May 21, 2016",
      "description": "Curved claw steel hammer",
      "price": 8.9,
      "starRating": 4.8,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJd0iLq-d9v2-
UDfTlQFF3IuhdNMoe1ok1pAgwqubZaZqQJ9"
    }
  ];
}
```

4. Use the properties in product-list.component.html file

```
<div class='panel panel-primary'>
  <div class='panel-heading'>
    {{pageTitle}}
```

```

</div>
<div class='panel-body'>
  <div class='row'>
    <div class='col-md-2'>Filter by:</div>
    <div class='col-md-4'>
      <input type='text' />
    </div>
  </div>
  <div class='row'>
    <div class='col-md-6'>
      <h3>Filtered by: </h3>
    </div>
  </div>
  <div class='table-responsive'>
    <table class='table' *ngIf='products && products.length'>
      <thead>
        <tr>
          <th>
            <button class='btn btn-primary'>
              Image
            </button>
          </th>
          <th>Product</th>
          <th>Code</th>
          <th>Available</th>
          <th>Price</th>
          <th>5 Star Rating</th>
        </tr>
      </thead>
      <tbody>
        <tr *ngFor='#product of products'>
          <td>
            <img [src]='product.imageUrl'
              [title]='product.productName'
              [style.width.px]='imageWidth'
              [style.margin.px]='imageMargin'>
          </td>
          <td>{{product.productName}}</td>
          <td>{{product.productCode}}</td>
          <td>{{product.releaseDate}}</td>
          <td>{{product.price}}</td>
          <td>{{product.starRating}}</td>
        </tr>
      </tbody>
    </table>
  </div>

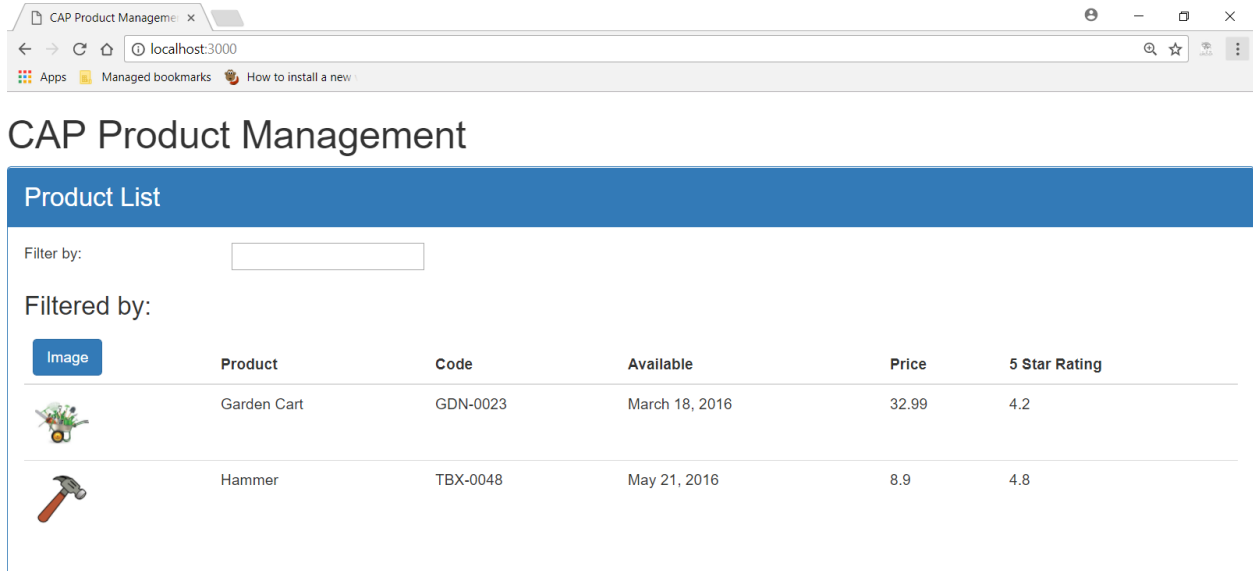
```

```

        </table>
      </div>
    </div>
  </div>

```

5. Now if you check the browser you can see below output.



### Handling Events with Event Binding

6. Add Image button click event as mentioned below. In product-list.component.ts file do the below changes.

```

import { Component } from 'angular2/core';

@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html'
})
export class ProductListComponent {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;

```

```

showImage: boolean = false;
products: any[] = [
  {
    "productId": 2,
    "productName": "Garden Cart",
    "productCode": "GDN-0023",
    "releaseDate": "March 18, 2016",
    "description": "15 gallon capacity rolling garden cart",
    "price": 32.99,
    "starRating": 4.2,
    "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhmstt7Kkdk5kyMv9mxJyh9sPUBvY9p
oTrxcl-SCAUa3WmUVZQA"
  },
  {
    "productId": 5,
    "productName": "Hammer",
    "productCode": "TBX-0048",
    "releaseDate": "May 21, 2016",
    "description": "Curved claw steel hammer",
    "price": 8.9,
    "starRating": 4.8,
    "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJd0iLq-d9v2-
UDfTlQFF3IuhdNMoe1ok1pAgwqubZaZqQJ9"
  }
];

toggleImage(): void{
  this.showImage = !this.showImage;
}
}

```

7. In product-list.component.html file add button click event as highlighted below.

```

<div class='panel panel-primary'>
  <div class='panel-heading'>
    {{pageTitle}}
  </div>
  <div class='panel-body'>
    <div class='row'>

```

```

<div class='col-md-2'>Filter by:</div>
<div class='col-md-4'>
  <input type='text' />
</div>
</div>
<div class='row'>
  <div class='col-md-6'>
    <h3>Filtered by: </h3>
  </div>
</div>
<div class='table-responsive'>
  <table class='table' *ngIf='products && products.length'>
    <thead>
      <tr>
        <th>
          <button class='btn btn-primary'
            (click) = 'toggleImage()'>
            {{showImage ? 'Hide' : 'Show'}} Image
          </button>
        </th>
        <th>Product</th>
        <th>Code</th>
        <th>Available</th>
        <th>Price</th>
        <th>5 Star Rating</th>
      </tr>
    </thead>
    <tbody>
      <tr *ngFor='#product of products'>
        <td>
          <img *ngIf='showImage'
            [src]='product.imageUrl'
            [title]='product.productName'
            [style.width.px]='imageWidth'
            [style.margin.px]='imageMargin'>
          </td>
        <td>{{product.productName}}</td>
        <td>{{product.productCode}}</td>
        <td>{{product.releaseDate}}</td>
        <td>{{product.price}}</td>
        <td>{{product.starRating}}</td>
      </tr>
    </tbody>
  </table>

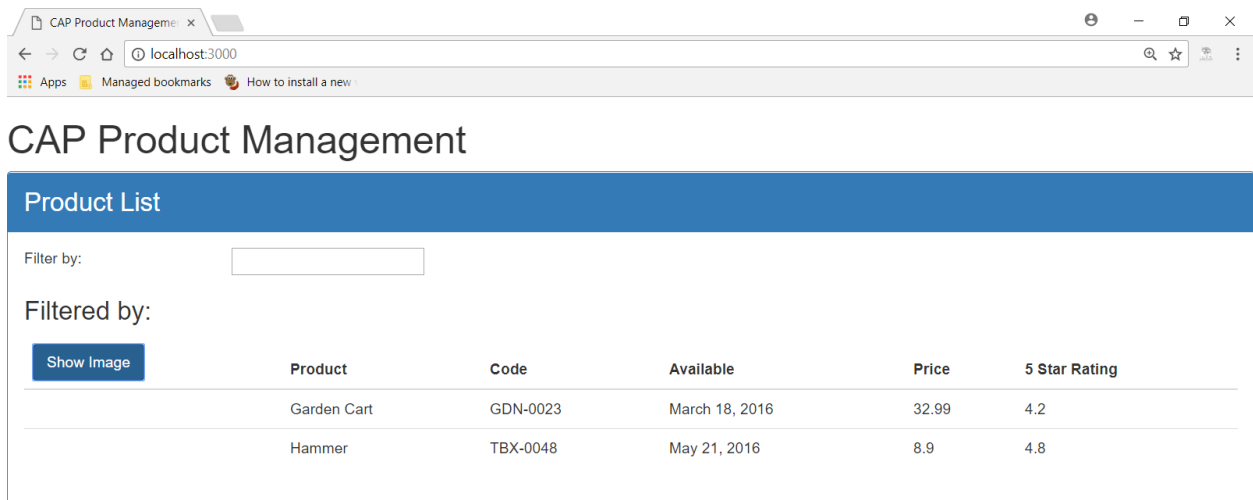
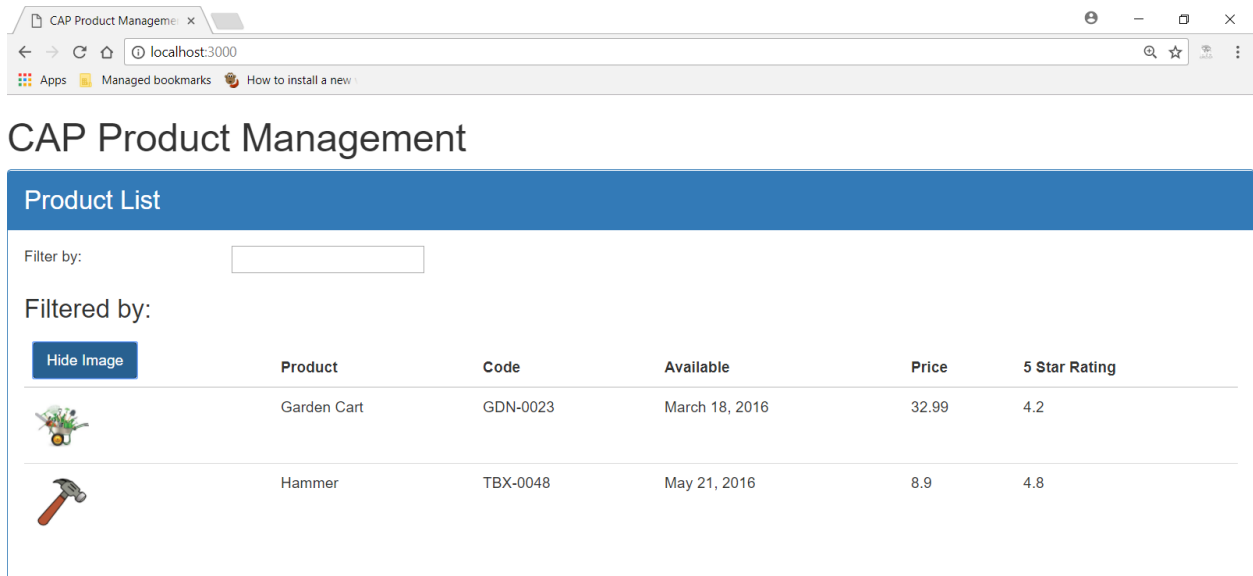
```

```

    </div>
  </div>
</div>

```

8. Now ShowImage and HideImage button works as expected.





## Handling Input with Twoway binding

9. product-list.component.ts file as listFilter property.

```
import { Component } from 'angular2/core';

@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html'
})
export class ProductListComponent {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: any[] = [
    {
      "productId": 2,
      "productName": "Garden Cart",
      "productCode": "GDN-0023",
      "releaseDate": "March 18, 2016",
      "description": "15 gallon capacity rolling garden cart",
      "price": 32.99,
      "starRating": 4.2,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhmstt7Kkdk5kyMv9mxJyh9sPUBvY9poTrxc1-
SCAUa3WmUVZQA"
    },
    {
      "productId": 5,
      "productName": "Hammer",
      "productCode": "TBX-0048",
      "releaseDate": "May 21, 2016",
      "description": "Curved claw steel hammer",
      "price": 8.9,
      "starRating": 4.8,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJd0iLq-d9v2-
UDFTlQFF3IuhdNMoe1ok1pAgwqubZaZqQJ9"
    }
  ];
};
```

```

toggleImage(): void{
    this.showImage = !this.showImage;
}
}

```

10. include this listFilter property in product-list.component.html file.

```

<div class='panel panel-primary'>
  <div class='panel-heading'>
    {{pageTitle}}
  </div>
  <div class='panel-body'>
    <div class='row'>
      <div class='col-md-2'>Filter by:</div>
      <div class='col-md-4'>
        <input type='text' [(ngModel)]='listFilter'/>
      </div>
    </div>
    <div class='row'>
      <div class='col-md-6'>
        <h3>Filtered by: {{listFilter}} </h3>
      </div>
    </div>
    <div class='table-responsive'>
      <table class='table' *ngIf='products && products.length'>
        <thead>
          <tr>
            <th>
              <button class='btn btn-primary'
                (click) = 'toggleImage()'>
                {{showImage ? 'Hide' : 'Show'}} Image
              </button>
            </th>
            <th>Product</th>
            <th>Code</th>
            <th>Available</th>
            <th>Price</th>
            <th>5 Star Rating</th>
          </tr>
        </thead>

```

```

<tbody>
  <tr *ngFor='#product of products'>
    <td>
      <img *ngIf='showImage'
        [src]='product.imageUrl'
        [title]='product.productName'
        [style.width.px]='imageWidth'
        [style.margin.px]='imageMargin'>
    </td>
    <td>{{product.productName}}</td>
    <td>{{product.productCode}}</td>
    <td>{{product.releaseDate}}</td>
    <td>{{product.price}}</td>
    <td>{{product.starRating}}</td>
  </tr>
</tbody>
</table>
</div>
</div>
</div>

```

11. you can see below output with two way binding

Product List

Filter by:

Filtered by: cart

Show Image

Product	Code	Available	Price	5 Star Rating
Garden Cart	gdn-0023	March 18, 2016	\$32.99	4.2
Hammer	tbx-0048	May 21, 2016	\$8.90	4.8

Transforming Data with pipes:

12. Add lowercase and currency pipes in your product-list.component.html file.

```
<div class='panel panel-primary'>
  <div class='panel-heading'>
    {{pageTitle}}
  </div>
  <div class='panel-body'>
    <div class='row'>
      <div class='col-md-2'>Filter by:</div>
      <div class='col-md-4'>
        <input type='text' [(ngModel)]='listFilter'/>
      </div>
    </div>
    <div class='row'>
      <div class='col-md-6'>
        <h3>Filtered by: {{listFilter}} </h3>
      </div>
    </div>
    <div class='table-responsive'>
      <table class='table' *ngIf='products && products.length'>
        <thead>
          <tr>
            <th>
              <button class='btn btn-primary'
                (click) = 'toggleImage()'>
                {{showImage ? 'Hide' : 'Show'}} Image
              </button>
            </th>
            <th>Product</th>
            <th>Code</th>
            <th>Available</th>
            <th>Price</th>
            <th>5 Star Rating</th>
          </tr>
        </thead>
        <tbody>
          <tr *ngFor='#product of products'>
            <td>
              <img *ngIf='showImage'
                [src]='product.imageUrl'
                [title]='product.productName'
                [style.width.px]='imageWidth'
                [style.margin.px]='imageMargin'>
```

```

        </td>
        <td>{{product.productName}}</td>
        <td>{{product.productCode | lowercase }}</td>
        <td>{{product.releaseDate}}</td>
        <td>{{product.price | currency:'USD':true:'1.2-2'}}</td>
        <td>{{product.starRating}}</td>
    </tr>
</tbody>
</table>
</div>
</div>
</div>

```



**Output:**

Product List

Filter by:

Filtered by: cart

[Hide Image](#)

Product	Code	Available	Price	5 Star Rating
 Garden Cart	gdn-0023	March 18, 2016	\$32.99	4.2
 Hammer	tbx-0048	May 21, 2016	\$8.90	4.8

**Defining Interface:**

1. Add product.ts file under products folder, this file has interface implementation.

**product.ts**

```

export interface IProduct{
    productId: number;
    productName: string;
}

```

```

productCode: string;
releaseDate: string;
price: number;
description: string;
starRating: number;
imageUrl: string;
}

```

2. Once your interface added, you can use the interface in product-list.component.ts file in place of any[] array type.

```

import { Component } from 'angular2/core';
import { IProduct } from './product';

@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html'
})
export class ProductListComponent {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: IProduct[] = [
    {
      "productId": 2,
      "productName": "Garden Cart",
      "productCode": "GDN-0023",
      "releaseDate": "March 18, 2016",
      "description": "15 gallon capacity rolling garden
cart",
      "price": 32.99,
      "starRating": 4.2,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhmtt7Kkdk5kyMv9mxJyh9sP
UBvY9poTrxc1-SCAUa3WmUVZQA"
    },
    {
      "productId": 5,
      "productName": "Hammer",
      "productCode": "TBX-0048",
      "releaseDate": "May 21, 2016",

```

```
        "description": "Curved claw steel hammer",
        "price": 8.9,
        "starRating": 4.8,
        "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJd0iLq-d9v2-
UDfTlQFF3IuhdNMoe1ok1pAgwqubZaZqQJ9"
    }
];

toggleImage(): void{
    this.showImage = !this.showImage;
}
}
```

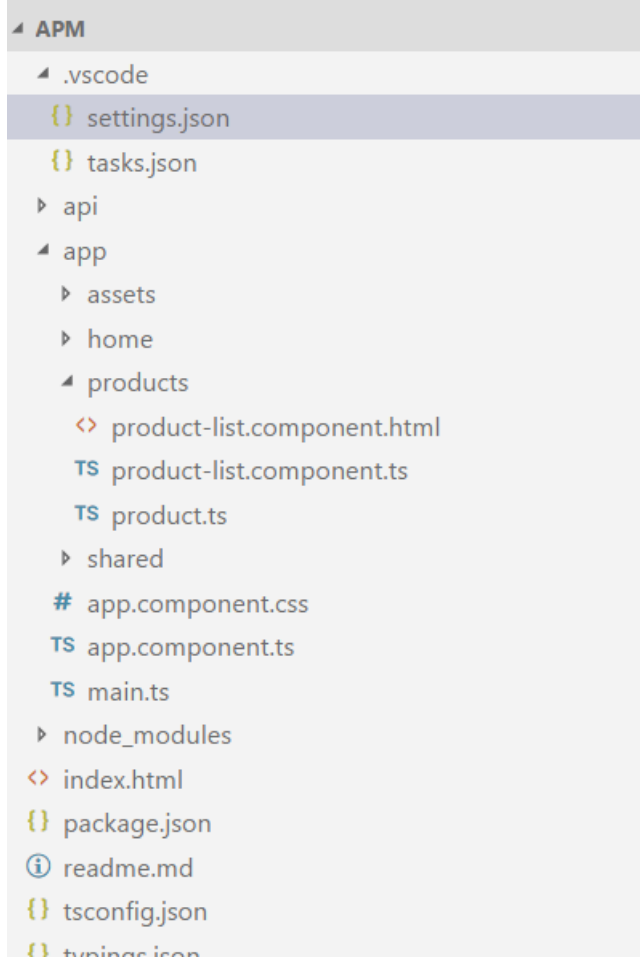
3. Check your browser window it works as it is.

**Note:**

You can hide .js and .map file by using File → preferences → Settings → select WORKSPACE settings. And add the below lines.

```
// Place your settings in this file to overwrite default and user settings.
{
    "files.exclude": {
        "**/.git": true,
        "**/.DS_Store": true,
        "**/*.js": true,
        "**/*.map": true
    },
    "files.autoSave": "afterDelay"
}
```

Now if you check the list, it will not show .js and .map files in your editor.



### Encapsulating Component Styles:

4. Create new file called **product-list.component.css** under products folder which includes below content.

#### product-list.component.css

```
thead{  
  color: #337AB7;  
}
```

5. Add this external style sheet into your product-list.component.ts file.

```
import { Component } from 'angular2/core';  
import { IProduct } from './product';
```

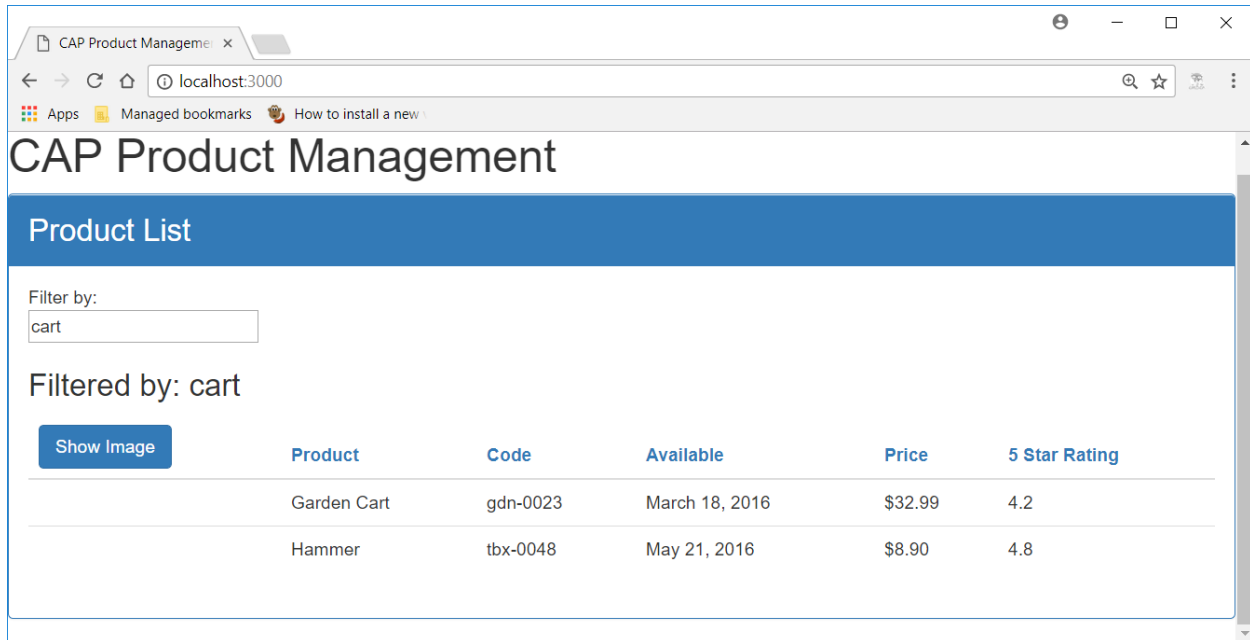


```
@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html',
  styleUrls: ['app/products/product-list.component.css']
})
export class ProductListComponent {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: IProduct[] = [
    {
      "productId": 2,
      "productName": "Garden Cart",
      "productCode": "GDN-0023",
      "releaseDate": "March 18, 2016",
      "description": "15 gallon capacity rolling garden cart",
      "price": 32.99,
      "starRating": 4.2,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhmstt7Kkdk5kyMv9mxJyh9sPUBvY9poTrxc1-
SCAUa3WmUVZQA"
    },
    {
      "productId": 5,
      "productName": "Hammer",
      "productCode": "TBX-0048",
      "releaseDate": "May 21, 2016",
      "description": "Curved claw steel hammer",
      "price": 8.9,
      "starRating": 4.8,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJdOiLq-d9v2-
UDfTlQFF3IuhdNMoe1ok1pAgwqubZaZqQJ9"
    }
  ];

  toggleImage(): void{
    this.showImage = !this.showImage;
  }
}
```

}

6. See your output in the browser, table header color will be changed to blue.



### Lifecycle Hook

7. Add OnInit one of the life cycle hook interface in your product-list.component.ts file.

```
import { Component, OnInit } from 'angular2/core';
import { IProduct } from './product';

@Component({
  selector: 'pm-products',
  templateUrl: 'app/products/product-list.component.html',
  styleUrls: ['app/products/product-list.component.css']
})
export class ProductListComponent implements OnInit {
  pageTitle: string = 'Product List';
  imageWidth: number = 50;
  imageMargin: number = 2;
  showImage: boolean = false;
  listFilter: string = 'cart';
  products: IProduct[] = [
```

```

    {
      "productId": 2,
      "productName": "Garden Cart",
      "productCode": "GDN-0023",
      "releaseDate": "March 18, 2016",
      "description": "15 gallon capacity rolling garden cart",
      "price": 32.99,
      "starRating": 4.2,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRZhmstt7Kkdk5kyMv9mxJyh9sPUBvY9poTrxc1-
SCAUa3WmUVZQA"
    },
    {
      "productId": 5,
      "productName": "Hammer",
      "productCode": "TBX-0048",
      "releaseDate": "May 21, 2016",
      "description": "Curved claw steel hammer",
      "price": 8.9,
      "starRating": 4.8,
      "imageUrl": "https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcSlXJdOiLq-d9v2-
UDfTlQFF3IuhdNMoE1ok1pAgwqubZaZqQJ9"
    }
  ];

  toggleImage(): void{
    this.showImage = !this.showImage;
  }

  ngOnInit(): void{
    console.log('Init Invoked!')
  }
}

```

You can see the log in the developer debugger tool pane as mentioned below.

CAP Product Management

### Product List

Filter by:

Filtered by: cart

[Show Image](#)

Product	Code	Available	Price	5 Star Rating
Garden Cart	gdn-0023	March 18, 2016	\$32.99	4.2
Hammer	tbx-0048	May 21, 2016	\$8.90	4.8

Console

Init Invoked!

Angular 2 is running in the development mode. Call enableProdMode() to enable the production mode.

DEPRECATION WARNING: 'enqueueTask' is no longer supported and will be removed in next major release. Use addTask/addRepeatingTask/addMicroTask

DEPRECATION WARNING: 'dequeueTask' is no longer supported and will be removed in next major release. Use removeTask/removeRepeatingTask/removeMicroTask

angular2-polyfills.js:1124

angular2-polyfills.js:1152

product-list.component.ts:44

angular2.dev.js:353

Highlights from the Chrome 61 update