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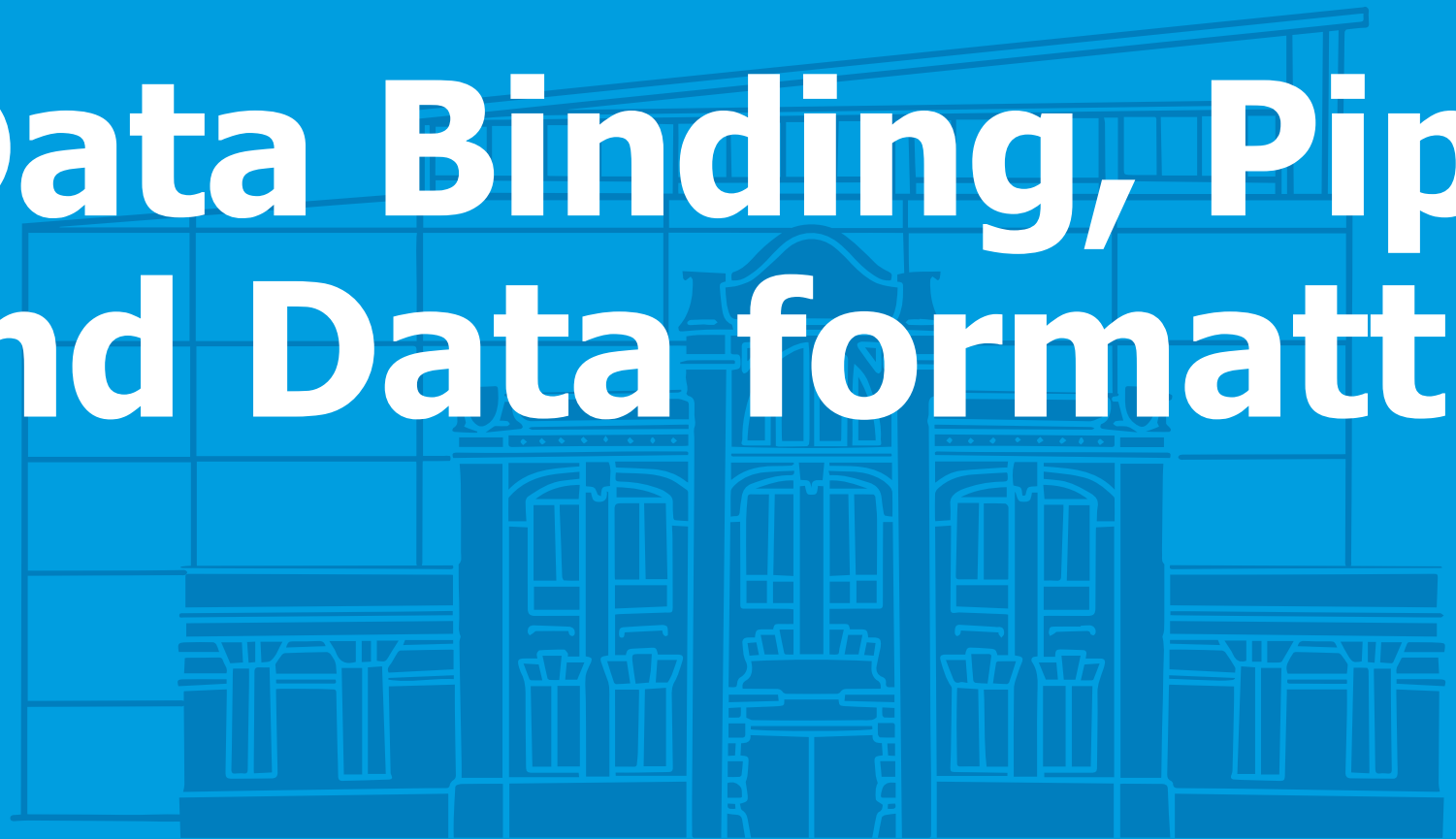
Angular 14 - 07

Data Binding, Pipes and Data formatting



Data binding

Angular provides three categories of data binding according to the direction of data flow:

TYPE	SYNTAX	CATEGORY
Interpolation Property Attribute Class Style	`{{expression}}` `[target]="expression"`	One-way from data source to view target
Event	`(target)="statement"`	One-way from view target to data source
Two-way	`[(target)]="expression"`	Two-way

Data binding

- On the one hand, the possibility of using the mustache syntax as before (interpolation mechanism) is maintained, and on the other hand, a databinding can be expressed by putting the property to bind in parentheses and the destination data in quotes .
- For example, for an image we can continue using interpolation:

```
< img src ="{{ product.imageUrl }}" style ="width:50px;"/>
```

- But we also have an **data binding** alternative, in which the property to bind looks like this:

```
< img [src] ="product.imageUrl" style ="width:50px;" />
```

  - https://angular.io/guide/binding-syntax

- **Databinding is preferred** , but if we have to use a compound expression, interpolation may be an option:

```
< img [src]="'./assets/imgs/'+product.image" style ="width:50px;"/>

< img src ="./assets/imgs/{{ product.imageUrl }}" style ="width:50px;"/>
```

Binding of class properties

```
...

  img_width:number = 100;
  img_height:number = 100;

  products: any[] | null = [
    {
      name: 'Leaf Rake',
      code: 'GUN-0611',
      image: 'LeafRake.png',
      date: 'March 19, 2916',
      price: 19.95,
      stars: 3.2,
    },
    {
      name: 'Garden Cart',
      code: 'GUN-0023',
      image: 'GardenCart.png',
      date: 'March 21, 2916',
      price: 32.99,
      stars: 4.2,
    },
  ];
...
```

```
...
<tr *ngFor="let product of products">
    <td>{{product.name}}</td>
    <td>{{product.code}}</td>
    <td><img
        [src]="'./assets/imgs/'+product.image"
        [title]="product.name"
        [style.maxWidth.px]="img_width"
        [style.maxHeight.px]="img_height"
    /></td>
    <td>{{product.date}}</td>
    <td>{{product.price}}</td>
    <td>{{product.stars}}</td>
</tr>
...
```

Events binding

- In the events part, the syntax is similar, but the corresponding event is enclosed in parentheses (event) .
    - https://angular.io/guide/event-binding-concepts

```
<button (click)="showImages()">Show images</button>
```

- Next, we'll create a property and method on the component class:

```
  show_imgs: boolean = false;
  showImages = ():void => {
    this.show_imgs = true;
  };
```

- Finally we will establish that the image is visible only conditionally:

```
<img *ngIf="show_imgs"
[src]="'./assets/imgs/'+product.image"
[title]="product.name"
[style.maxWidth.px]="img_width"
[style.maxHeight.px]="img_height" />
```

Interpolation expressions

- We still have to make the button text also change when we click on it. This is simple: we change the button text to a tween:

```
<button (click)="showImages()">{{show_imgs?'Hide images':'Show images'}}</button>
```

```
  show_imgs: boolean = false;
  showImages = ():void => {
    this.show_imgs = !this.show_imgs;
  };
```

- **Remember** that interpolation not only reads data, but also evaluates expressions!

Angular events

📎 Full list of Angular Events

```
(click)="myFunction()"
(dblclick)="myFunction()"
(submit)="myFunction()"
(blur)="myFunction()"
(focus)="myFunction()"
(scroll)="myFunction()"
(cut)="myFunction()"
(copy)="myFunction()"
(paste)="myFunction()"
(keyup)="myFunction()"
(keypress)="myFunction()"
(keydown)="myFunction()"
(mouseup)="myFunction()"
(mousedown)="myFunction()"
(mouseenter)="myFunction()"
(drag)="myFunction()"
(drop)="myFunction()"
(dragover)="myFunction()“
```

The target event determines the shape of the **$event object**. If the target event is a native DOM element event, then $event is a DOM event object, with properties such as target and target.value.

```
<input [value]="currentItem.name“ (input)="currentItem.name=getValue($event)">
```

Two -way binding

- **ngModel** directive uses the **banana in a box [()]** syntax .
  - https://angular.io/api/forms/NgModel

```
<input [(ngModel)]="filter_text" />
```

```
@Component()
export class ProductsListComponent {
     ...
     filter_text: string = ‘’;
     ...
}
```

- Outer brackets indicate property binding (whichever is indicated after the equals sign), while inner brackets indicate event (any input that changes the data it points to).

FormsModule import

- Now, if we want this type of functionality in input elements, we have to modify our main module, to import this functionality from the "**FormsModule**" module.
- This module contains that and other features of the input mechanisms and their passage to the data model.
- Therefore, we must return to the death of our module, and modify it as follows:

```
import { NgModule } from '@angular/core';
import { FormsModule } from '@angular/forms’;
...

@NgModule({
  declarations: [...
  ],
  imports: [
    BrowserModule,
    FormsModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Association with a view model

- Now, we can change our filter mechanism, which will contain this syntax in the template:

```
<input [(ngModel)]="filter_text" placeholder="input a text to filter"/>
<h3>Products filtered by: {{filter_text}}</h3>
```

- And we define the property in our class:

```
@Component()
export class ProductsListComponent {
    ...
    filter_text: string = '';
}
```

Pipes “|” (output filters)

- Output pipes or filters allow you to modify an input and generate a decorated output.
  - For example, formatting dates or currencies
  - https://angular.io/guide/pipes

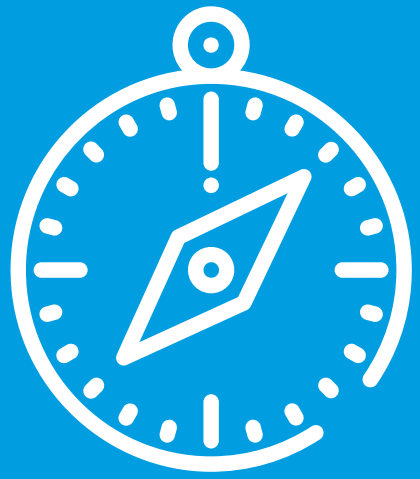
- They are written after an expression and modify the way it is interpreted in the DOM , without modifying the input data at any time.

```
<tr *ngFor="let product of products">
    <td>{{product.name}}</td>
    <td>{{product.code | lowercase}}</td>
    <td>
        <img *ngIf="show_imgs"
         [src]="'./assets/imgs/'+product.image" [title]="product.name | uppercase"
         [style.maxWidth.px]="img_width" [style.maxHeight.px]="img_height" />
    </td>
    <td>{{product.date}}</td>
    <td>{{product.price | currency:'USD':true:'1.2-2'}}</td>
    <td>{{product.stars}}</td>
</tr>
```

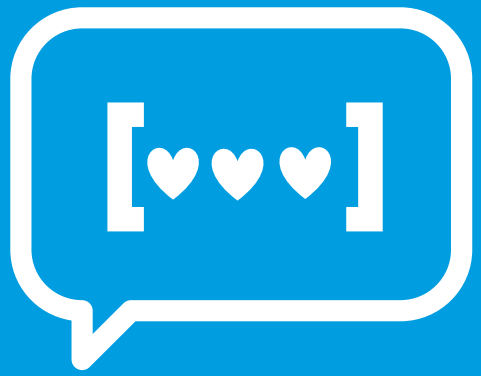
Let's put it into practice: Tasks/Projects App

In the tasks component:

- Add a button that allows you to delete a specific task.
- Add an input that allows showing the tasks whose title matches the text of the field



Next steps



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Thanks!

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