

## Angular Pipes

- Pipe is used to transform data.
- Data comes to your Angular application from various sources.
- The data type of provider and the TypeScript types will not match.
- The data is not displayed in the same format how we are expecting.
- Pipe can transform the data and display in desired format.
- Angular pipes are used for formatting and filtering the data.
- Angular allows to create custom pipes and also provides pre-defined pipes.
- All Angular pipes are derived from **“PipeTransform”** base.
- Every pipe implements a functionality by using **“transform()”** method.
- Pipe related meta data is defined by using **“@Pipe()”** marker.

### Syntax:

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

@Pipe({
    name: 'uppercase'
})

export class UpperCasePipe implements
 PipeTransform
{
    transform(value) {
        // transform your value
        // return the transformed value
        return value;
    }
}

{{ product.Name | uppercase }}
```

- Angular provides built-in pipes
  - AsyncPipe [Observable, Subscribers – RxJS – HttpServices]

- **CurrencyPipe**
  - **DatePipe**
  - **DecimalPipe**
  - **I18PluralPipe**
  - **I18SelectPipe**
  - **JsonPipe**
  - **KeyValuePipe**
  - **LowerCasePipe**
  - **UpperCasePipe**
  - **TitleCasePipe**
  - **PercentPipe**
  - **SlicePipe**
- Angular Pipes are by default “**Pure**” pipes.
  - They will not change the value; they just define a format for value.
  - If a Pipe can change the state and value then it is “**Impure**” pipe.
  - Pipe can accept arguments and can modify the functionality of pipe. [often referred as Parameterized pipes]

Syntax:

{{ data | pipe:option1:option2 | pipe }}

Pipe	Name	Description
UpperCasePipe	upper case	It converts all letters into block letters. EX: product = { Name: 'JBL Speaker', Price: 4500.50, Mfd: new Date('2020/02/10') }; {{product.Name   uppercase}}
LowerCasePipe	lower case	It converts all letters into lowercase letter.  Ex: product = { Name: 'JBL Speaker', Price: 4500.50, Mfd: new Date('2020/02/10')

		}; {{product.Name   lowercase}}
TitleCase Pipe	titlecase	It converts every word first char to uppercase. Ex: product = { Name: 'JBL Speaker', Price: 4500.50, Mfd: new Date('2020/02/10') }; {{product.Name   titlecase}}
DecimalPipe	number	It is used to display numeric value with thousands separator and fractions.  It comprises of following parameters: Minimum-Integer-Digits Minimum-Fraction-

		<p>Digits Maximum-Fraction-Digits</p> <p>Syntax:  {{data   number:  {minIntegerDigits}:{minFractionDigits}-  {maxFractionDigits} }}</p> <p>Ex:  product = {  Name: 'JBL Speaker',  Price: 4500.50,  Mfd: new  Date('2020/02/10')  };</p> <p>{{product.Price    number:'4.2-4'}}</p>
Currency Pipe	currency	It is similar to decimal pipe but have a currency symbol to

		<p>display.</p> <p>Syntax:</p> <pre>{{data   currency: 'CurrencyFormat': 'digitsInfo'}}</pre> <p>Currency Format you can define “USD, INR, etc.”</p> <p>You can also define literals “&amp;#8377;”</p> <p>Ex:</p> <pre>product = {   Name: 'JBL Speaker',   Price: 4500.50,   Mfd: new Date('2020/02/10') }; {{ product.Price   currency: 'INR' }} {{ product.Price  </pre>
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		currency: '&#8377;' }}
DatePipe	date	<p>It is used for displaying date and time value in various date and time formats.</p> <p>You can use predefined date formats:</p> <ul style="list-style-type: none"> <li>- short</li> <li>- medium</li> <li>- long</li> <li>- full</li> <li>- shortDate</li> <li>- mediumDate</li> <li>- longDate</li> <li>- fullDate</li> <li>- shortTime</li> <li>- mediumTime</li> <li>- longTime</li> <li>- fullTime</li> </ul> <p>Ex:</p> <pre>product = {</pre>



		<p>Name: 'JBL Speaker', Price: 4500.50, Mfd: new Date('2020/02/10') };</p> <p>{{product.Mfd   date: 'shortDate'}}</p> <p><b>You can also define custom format for date.</b> MM – 2 digits month MMM – short month name MMMM – long month name dd - 2 digits date d – 1 digit date yy – 2 digits year yyyy – 4 digits year</p> <p>Syntax: {{ data   date: 'MM-dd-</p>
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		<pre>yyyy'}} {{product.Mfd   date: 'MMMM-dd-yyyy'}}</pre>
PercentPipe	percent	<p>Transforms a number into percentage string.</p> <p>Syntax:</p> <pre>{{data   percent: 'digitsInfo' }}</pre> <p>Ex:</p> <pre>product = {   Name: 'JBL Speaker',   Price: 4500.50,   Mfd: new Date('2020/02/10'),   Sales: 0.259 }; {{product.Sales   percent:'2.2-2'}}</pre>
SlicePipe	slice	<p>It creates a new array or string containing subset of the elements.</p>

		<p>It can extract values based on specified index and return an array.</p> <pre>{{ collection   slice:startIndex:endIndex }}</pre> <p>Ex:</p> <pre>products = ['TV', 'Mobile', 'Speaker', 'Shoe', 'Shirt'];</pre> <pre>&lt;ol&gt;   &lt;li *ngFor="let item of products   slice:1:3"&gt;     {{item}}   &lt;/li&gt; &lt;/ol&gt;</pre>
JsonPipe	json	<p>It converts the data into JSON format, so that can transport to server-side services.</p>

		<p>Ex:</p> <pre>product = {   Name: 'JBL Speaker',   Price: 4500.50,   Mfd: new Date('2020/02/10'),   Sales: 0.259 };</pre> <p>&lt;div&gt;</p> <pre>  &lt;pre&gt;     {{product   json}}   &lt;/pre&gt; &lt;/div&gt;</pre>
KeyValue Pipe	keyvalue	<p>It allows to read the properties and values from a collection.</p> <p>“Key” is used to access the keys or properties</p> <p>“Value” is used to access the values.</p> <p>You can configure on a collection like “Array or</p>

		<p>Map”.</p> <p>Ex:</p> <p>data:</p> <pre>{[key:number]:string} = {   1001: 'Samsung TV',   1002: 'Nike Casuals' }; products = ['TV', 'Mobile', 'Speaker', 'Shoe', 'Shirt'];</pre> <pre>&lt;div class="container-fluid"&gt;   &lt;h2&gt;Array&lt;/h2&gt;   &lt;ol style="list-style: none;"&gt;     &lt;li *ngFor="let item of products   <b>keyvalue</b>"&gt;       [{{item.key}}]       {{item.value}}     &lt;/li&gt;</pre>
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		<pre> &lt;/ol&gt; &lt;h2&gt;Map&lt;/h2&gt; &lt;ol style="list-style: none;"&gt;   &lt;li *ngFor="let item of data   <b>keyvalue</b>"&gt;     {{item.key}} - {{item.value}}   &lt;/li&gt; &lt;/ol&gt; &lt;/div&gt; </pre>
l18nSelectPipe	i18select	<ul style="list-style-type: none"> <li>- i18 is community of Angular.</li> <li>- It designed SelectPipe.</li> <li>- It is a generic selector that can make decision dynamically according to the state or values and define result when the relative</li> </ul>

condition is matching.

- In early version we have to depend on lot of iterations and conditions.

Syntax:

```
{{value_expression |  
i18nselect:mapping}}
```

- It is an impure pipe.

Ex:

```
export class  
PipedemoComponent{  
  products = [  
    {Name: 'Samsung TV',  
City: 'Delhi'},  
    {Name: 'Nike Casuals',  
City: 'Hyderabad'},  
    {Name: 'Mobile', City:  
'Delhi'},
```





		<pre> &lt;th&gt;Name&lt;/th&gt; &lt;th&gt;City&lt;/th&gt; &lt;th&gt;Delivery Status&lt;/th&gt; &lt;/tr&gt; &lt;/thead&gt; &lt;tbody&gt;   &lt;tr *ngFor="let item of products"&gt; &lt;td&gt;{{item.Name}}&lt;/td&gt; &lt;td&gt;{{item.City}}&lt;/td&gt;   &lt;td&gt;{{item.City   i18nSelect:statusMessa ge}}&lt;/td&gt; &lt;/tr&gt; &lt;/tbody&gt; &lt;/table&gt; &lt;/div&gt; </pre>
I18Plural Pipe	i18plural	<ul style="list-style-type: none"> <li>- As per coding standards we use plural name of multiple items or collection and</li> </ul>

		<p>singular name for one object.</p> <p>Syntax:</p> <pre>product = {}; products = [];</pre> <ul style="list-style-type: none"><li>- Plural Pipe can identify whether the object comprises of single or multiple value and define a plural name dynamically.</li><li>- It can get collection count and display messages according to count.</li><li>- It uses a map to verify the values.</li></ul> <p>Syntax:</p> <pre>{{collection.length   i18nplural:keyValueCollection}}</pre>
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Ex:

- **Go to “app.module.ts” and import following modules**

```
import { MatIconModule } from  
'@angular/material/icon';  
import { MatBadgeModule } from  
'@angular/material/badge';
```

```
imports: [  
  MatIconModule,  
  MatBadgeModule  
],
```

- **Pluraldemo.component.ts**

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

```
@Component({  
  selector: 'app-pluraldemo',  
  templateUrl:  
'./pluraldemo.component.html',  
  styleUrls: ['./pluraldemo.component.css']  
})
```

```

})
export class PluraldemoComponent{
  notifications = [];
  notificationsMap: {[key:string]:string} = {
    '=0': 'No Missed Calls', '=1': 'One Missed
Call', 'other': '# Missed Calls'
  };
  showCalls = false;
  ManagerClick(){
    this.notifications.push('Call From
Manager');
  }
  AdminClick(){
    this.notifications.push('Call from
Admin');
  }
  GetMissedCalls() {
    this.showCalls = true;
  }
}

```

- **Pluraldemo.component.html**

```
<div class="container-fluid">
```

```

<h2>Plural Demo</h2>
<div class="form-group">
  <button (click)="ManagerClick()">Call
From Manager</button>
  <button (click)="AdminClick()">Call
From Admin</button>
</div>
  <mat-icon
matBadge="{{notifications.length}}">phon
e</mat-icon>
  <span style="cursor: grab;"
(click)="GetMissedCalls()">
    {{notifications.length |
i18nPlural:notificationsMap}}
  </span>
  <div *ngIf="showCalls" class="form-
group">
    <h3>Missed Calls</h3>
    <ul>
      <li *ngFor="let item of notifications">
        {{item}}
      </li>
    </ul>
  </div>

```

```
</ul>  
</div>  
</div>
```

## Custom Pipe

- You can create your own pipe that can transform data.
- To create a pipe, you need create a class that implement “PipeTranform”
- You have to configure the functionality by using “transform()”

### Ex:

- Add a new folder  
“CustomPipes”
- Add a new file

#### **Sentencecase.pipe.ts**

```
import { PipeTransform, Pipe } from  
'@angular/core';
```

```
@Pipe(
```

```

    {name: 'sentencecase'}
  )
  export class SentenceCasePipe
  implements PipeTransform {
    transform(str){
      let firstChar = str.charAt(0);
      let restChars = str.substring(1);
      let sentence = firstChar.toUpperCase()
+ restChars.toLowerCase();
      return sentence;
    }
  }

```

- **Go to “app.module.ts” and register the pipe in declarations**

```

declarations : [
    SentenceCasePipe
]

```

- Apply for your content  
msg = “wELCome TO AGulaR”;

```

{{ msg | sentencecase }}

```

## **Try:**

- **Create a pipe for sorting and printing the list of values from array.**

Somecollection = [ ]

```
<li *ngFor="let item of somecollection |  
yourPipe">  
sort()  
reverse()
```

## **Angular Services**