



## **Session 3**

# **Directives, Filters, and Routes**





## Session Overview

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In this session, you will be able to:

- Describe the use of directives in AngularJS application
- List the important directives
- Use important built-in filters
- Use routes in AngularJS application

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# Introduction to Directives

Directives help us to extend basic HTML elements and create reusable and testable code.

```
1. <!DOCTYPE html>
2. <html lang="en" ng-app="myApp">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for a Simple AngularJS App</title>
6. <script 7.src="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.7/angular.min.js"></script>
7. </head>
8. <body ng-controller="myController">
9. <div>
10. <h3>Please enter your name here.</h3>
11. Name: <input type="text" ng-model="name" placeholder=" enter your name">
12. <p>Hello <strong>{{ name}}</strong> !</p>
13. <p>Welcome to AngularJS.</p>
14. </div>
15. <script>
16. var app = angular.module("myApp",[]);
17. app.controller("myController",function($scope){
18. $scope.name = "";
19. });
20. </script>
21. </body>
22. </html>
```

***A sample code using Angular directives***



# Common Directives

1-12

## Common Directives of AngularJS

- `ng-app`
- `ng-init`
- `ng-model`
- `ng-repeat`
- `ng-hide`
- `ng-show`
- `ng-include`

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## Common Directives

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### Common Directives of AngularJS: **ng-app**

- It defines the root element where the application lives
- It initializes the application when the Web page containing AngularJS application is loaded.
- It also loads various AngularJS modules in AngularJS Application.

#### **Sample codes using ng-app:**

```
<div ng-app = "myApp">
```

```
...
```

```
</div>
```

```
<div ng-app = "">
```

```
...
```

```
</div>
```

```
<div ng-app>
```

```
...
```

```
</div>
```

## Common Directives

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### Common Directives of AngularJS: **ng-init**:

- It is used for initializing AngularJS Application data in HTML and to put values to the variables to be used in the application.

### Sample code using **ng-init**

```
<div ng-app = ""  
ng-init = "languages=['HTML','CSS','JavaScript']">  
-----  
-----  
</div>
```



## Common Directives

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Common Directives of AngularJS: **ng-model**

Functions of ng-model:

- Used to bind the value obtained from the user from HTML inputs to application data.
- Provides type validation for application data.
- Provides status for application data.
- Provides CSS classes for HTML elements.
- Binds HTML elements to HTML forms.



## Common Directives

### Common Directives of AngularJS: **ng-model**

A sample code using ng-model:

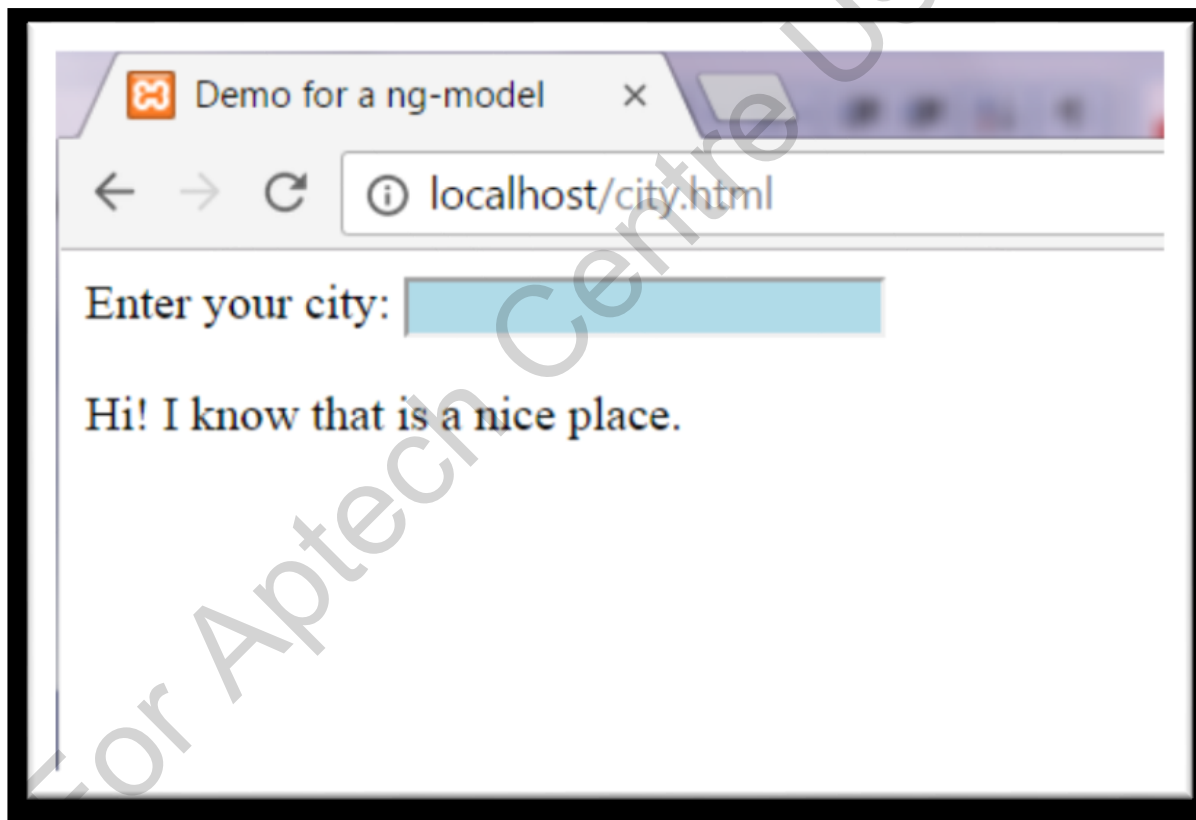
```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for a ng-model app</title>
6. <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.7/angular.min.js"></script>
7. <style>
8. input.ng-invalid {
9. background-color: lightblue;
10. }
11. </style>
12. </head>
13. <body ng-app="">
14. <form name="myForm">
15. Enter your city:
16. <input name = "myName" ng-model="myCity" required>
17. </form>
18. <p >Hi! I know that <em> {{ myCity}} </em>is a nice place.</p>
19. </body>
20. </html>
```



## Common Directives

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Common Directives of AngularJS: **ng-model**  
***ng-model Example –Initial WebPage:***

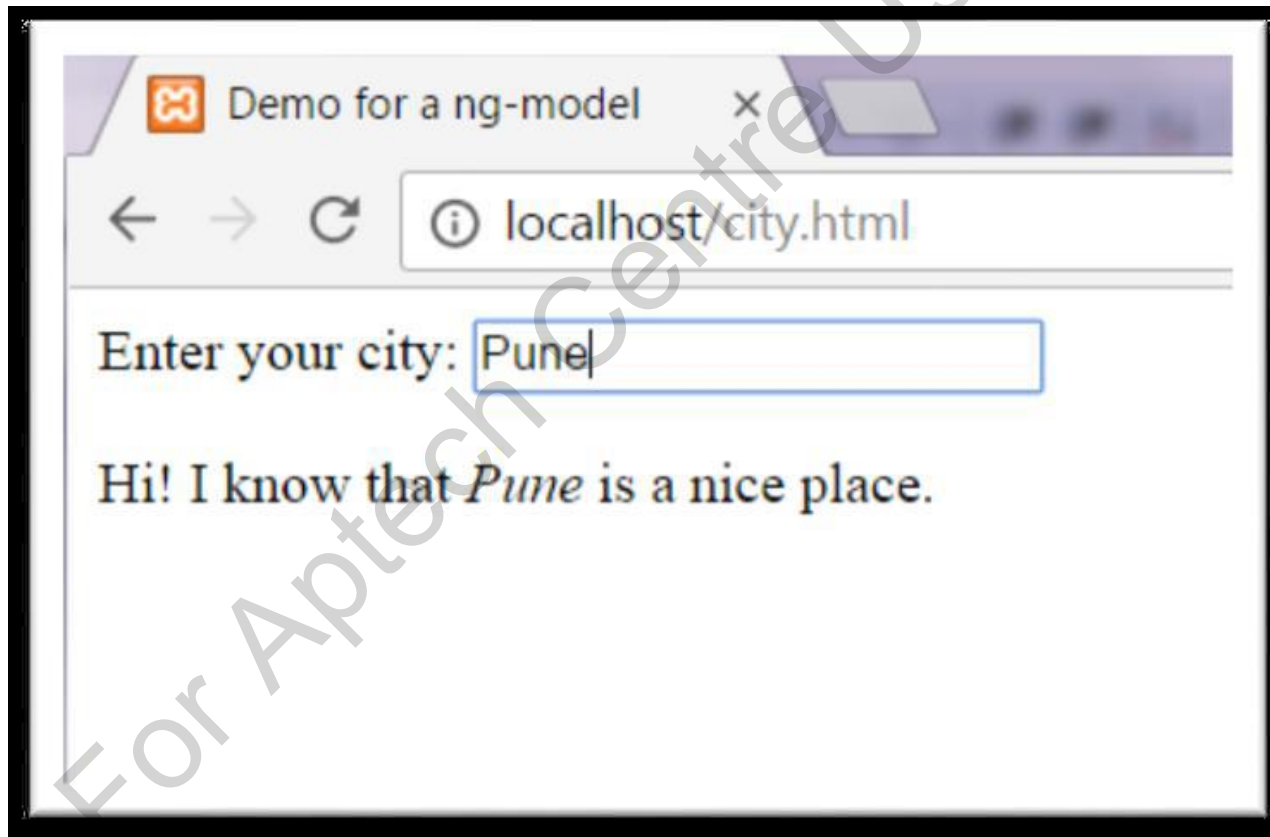


## Common Directives

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Common Directives of AngularJS: **ng-model**

***ng-model Example –After Input:***

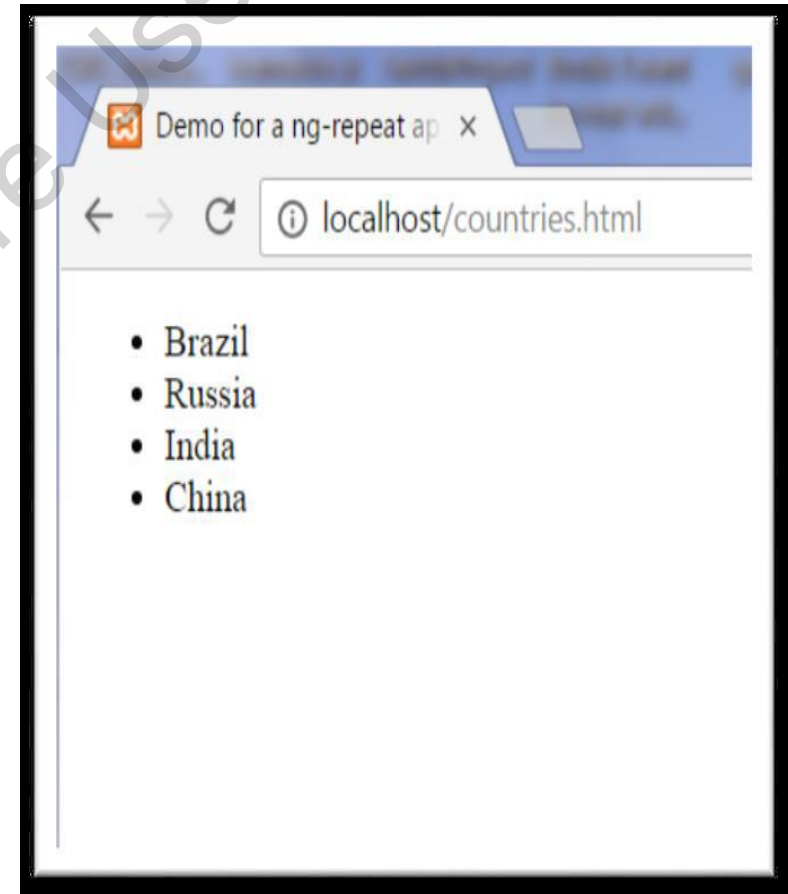


# Common Directives

## Common Directives of AngularJS: ng-repeat

```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for a ng-repeat app</title>
6. <script
  src="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.7/angular.min.js"></script>
7. </head>
8. <body>
9. <div ng-app="" ng-init =
  "countries=['Brazil','Russia','India','China']">
10. <ul>
11. <li ng-repeat="country in countries">
12. {{ country}}
13. </li>
14. </ul>
15. </div>
16. </body>
17. </html>
```

### ng-repeat Directive Example



### ng-repeat Directive Example Output

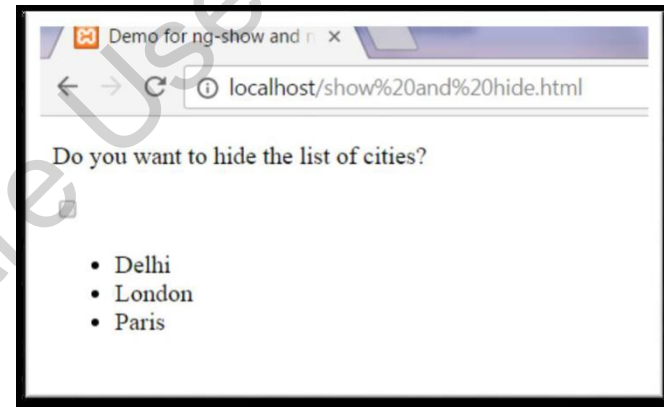
# Common Directives

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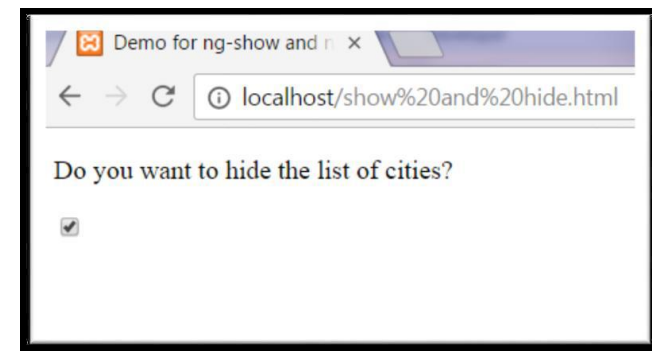
## Common Directives of AngularJS: ng-hide

```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for ng-show and ng-hide</title>
6. <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.5.7/angular.min.js"></script>
7. </head>
8. <body ng-app="">
9. <p>Do you want to hide the list of cities?</p>
10. <input type="checkbox" ng-model="myVar">
11. <ul ng-
hide="myVar"><li>Delhi</li><li>London</li><li>Paris</li></ul>
12. </body>
13. </html>
```

### *ng-hideDirective Example*



### *ng-hideDirective Example - Initial Screen*



### *ng-hideDirective Example - Final Screen*

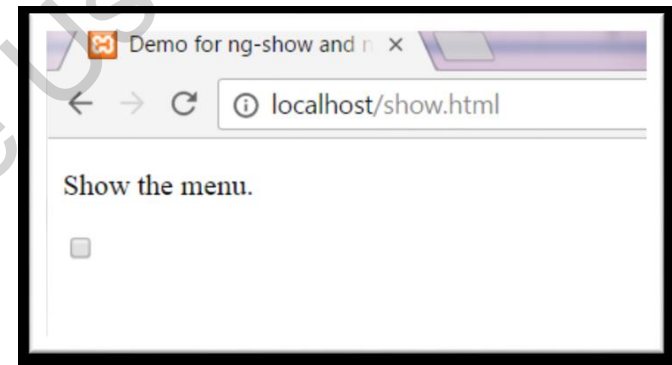
# Common Directives

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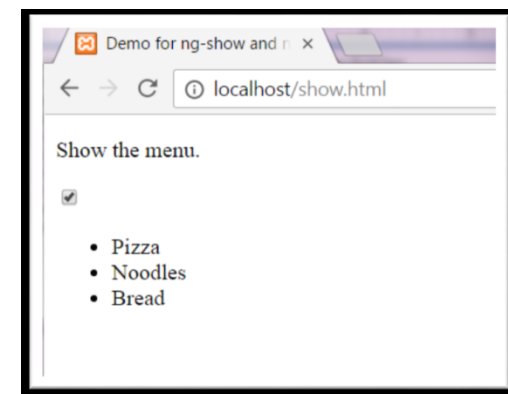
## Common Directives of AngularJS: ng-show

```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for ng-show and ng-hide</title>
6. <script src="angular.min.js"></script>
7. </head>
8. <body ng-app="">
9. <p>Show the menu.</p>
10. <input type="checkbox" ng-model="myVar">
11. <ul ng-
show="myVar"><li>Pizza</li><li>Noodles</li><
li>Bread</li></ul>
12. </body>
13. </html>
```

### *ng-show Directive Example*



### *ng-show Directive Example - Initial Screen*



### *ng-show Directive Example - Final Screen*

# Common Directives

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## Common Directives of AngularJS: ng-include

```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for a ng-include
  app</title>
6. <script
  src="angular.min.js"></script>
7. </head>
8. <body>
9. <div ng-app = "" >
10. <h1>Languages you need to know
  for Learning AngularJS</h1>
11. <div ng-
  include=""languages.html""></div>
12. </div>
13. </body>
14. </html>
```

### ng-include Directive Example

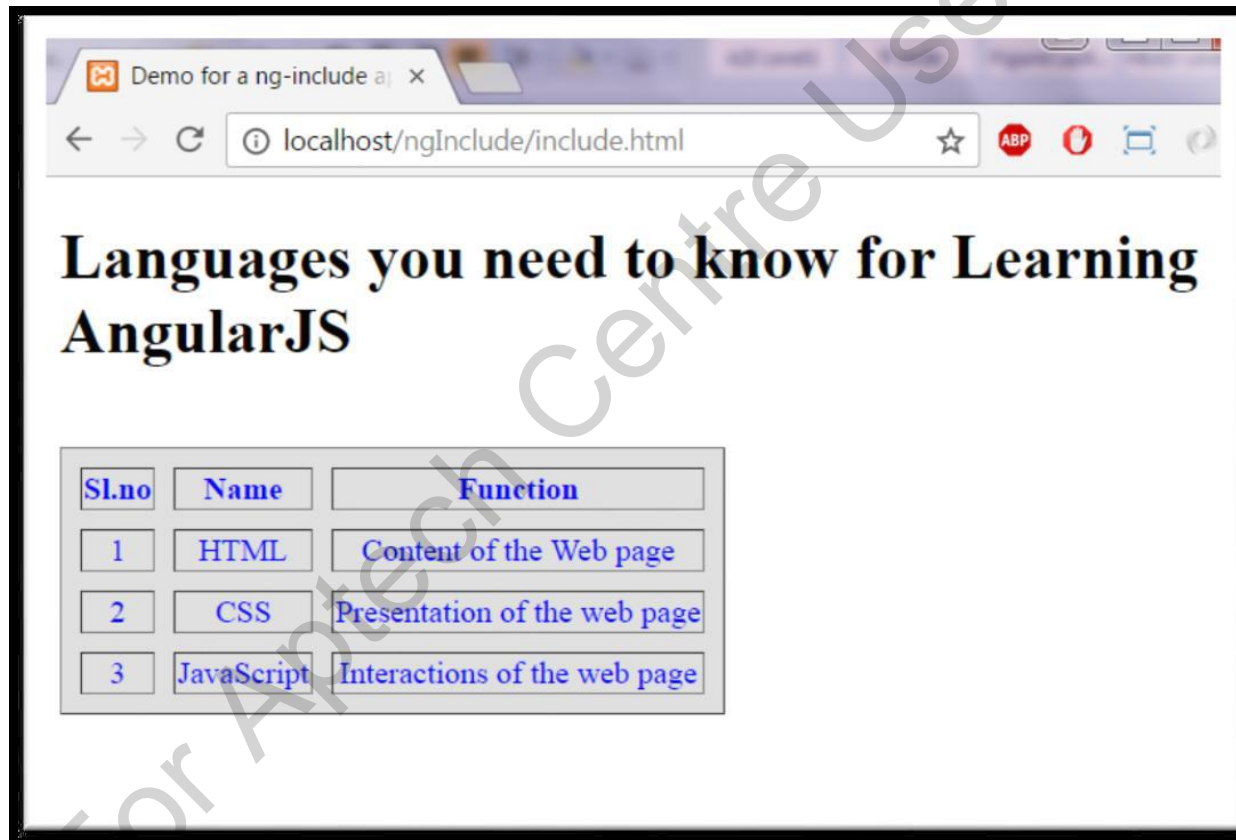
```
1. <table border="1" style="color:blue; background-color: #ddd;
2. border-spacing: 10px; text-align: center;">
3. <tr>
4. <th>S1.no</th>
5. <th>Name</th>
6. <th>Function</th>
7. </tr>
8. <tr>
9. <td>1</td>
10. <td>HTML</td>
11. <td>Content of the Web page</td>
12. </tr>
13. <tr>
14. <td>2</td>
15. <td>CSS</td>
16. <td>Presentation of the Web page</td>
17. </tr>
18. <tr>
19. <td>3</td>
20. <td>JavaScript</td>
21. <td>Interactions of the Web page</td>
22. </tr>
23. </table>
```

### HTML Code for the Embedded Page

# Common Directives

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Common Directives of AngularJS: **ng-include**



***ng-include Directive Example – Output Screen***

- They format the value of an expression for displaying to the end user.
- They are added to expressions by using the pipe character |, followed by a filter.
- Filters can be used in view templates as well as in controllers.
- We can use more than one filter in an expression.

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## Filters

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### Built-in Filters

Currency

Uppercase

Date

Lowercase

Search

## Built-in Filters: Currency

```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for currency filter</title>
6. <script src="../angular.min.js"></script>
7. </head>
8. <body>
9. <div ng-app="demoApp" ng-
  controller="trainingCtrl">
10. <h1>Price of AngularJS Training: {{ price |
  currency }}</h1>
11. <h1>Price in Indian Rupees: {{rupeePrice |
  currency:"Rs " }}</h1>
12. >
13. </div>

14. <script>
15. var app = angular.module('demoApp', []);
16. app.controller('trainingCtrl', function($scope)
  {
17. $scope.price = 500;
18. $scope.rupeePrice = 3000;
19. });
20. </script>
21. <p>The currency filter formats a number to a
  currency format.
22. Default is American dollar. </p>
23. <p>For other currencies we need to add
  appropriate modifier to the currency
  filter. </p>
24. </body>
25. </html>
```

### *Currency Filter Example*

## Filters

4-13

### Built-in Filters: Currency



***Currency Filter Example - Output***

## Built-in Filters: Date

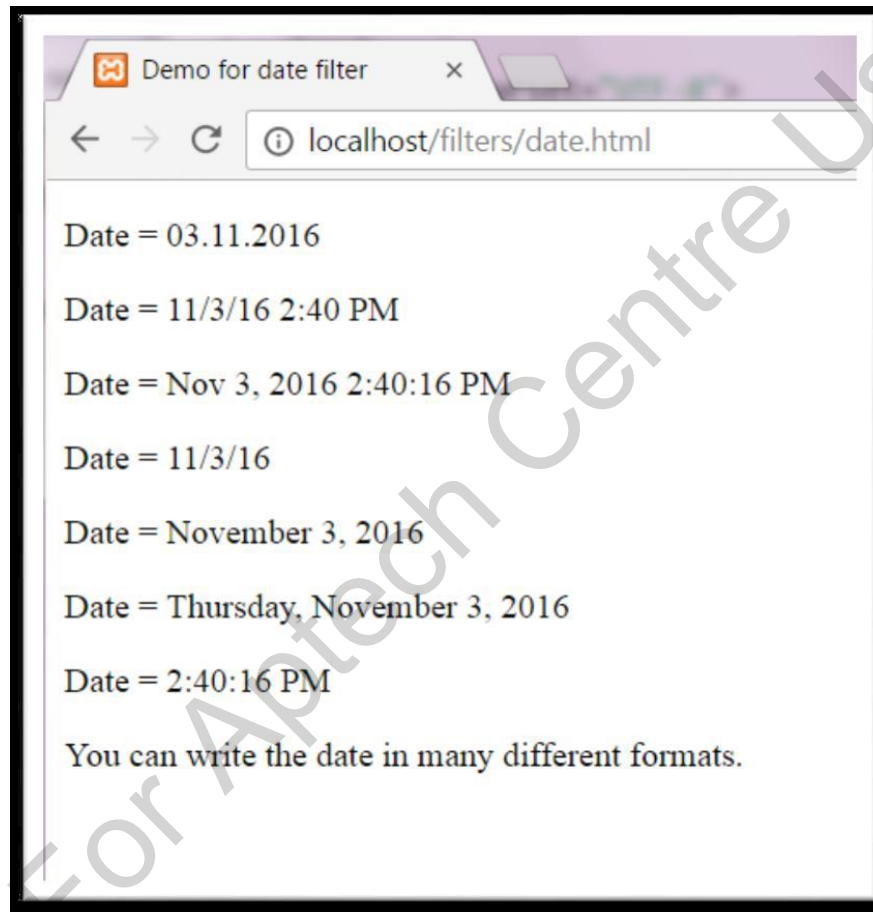
```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">
5. <title>Demo for date filter</title>
6. <script src="../angular.min.js"></script>
7. </head>
8. <body>
9. <div ng-app="demoApp" ng-
  controller="timeCtrl">
10. <p>Date = {{ today date : "dd.MM.y"
    }}</p>
11. <p>Date = {{ today date : "short"
    }}</p>
12. <p>Date = {{ today date : "medium"
    }}</p>
13. <p>Date = {{ today date : "shortDate"
    }}</p>
14. <p>Date = {{ today date : "longDate"
    }}</p>
15. <p>Date = {{ today date : "fullDate"
    }}</p>
16. <p>Date = {{ today date : "mediumTime"
    }}</p>
17. </div>
18. <script>
19. var app = angular.module('demoApp', []);
20. app.controller('timeCtrl', function($scope)
    {
21. $scope.today = new Date();
22. });
23. </script>
24. <p>You can write the date in many
    different formats.</p>
25. </body>
26. </html>
```

### *Date Filter Example*

# Filters

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## Built-in Filters: Date



***Date Filter Example-Output***

## Filters

7-13

### Built-in Filters: Lowercase

The lowercase filter is used to display in small caps.

Eg. `{{firstName | lowercase }}`

It is useful when the data is in upper case or in title case



## Filters

8-13

Built-in Filters: Uppercase

It displays all the characters in capitals.

Eg. `{{ firstName | uppercase }}`



## Filters

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### Built-in Filters: Filter

We use 'filter' to search and filter from a collection data.

For example, `{{ name | filter:'kumar' }}`



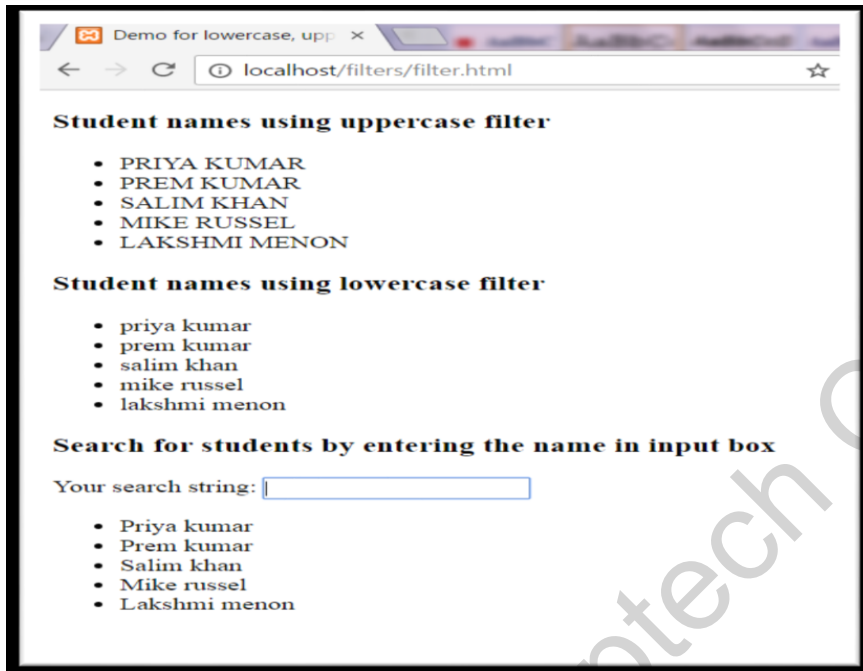


A sample app that uses the lowercase, uppercase, and 'filter' filters

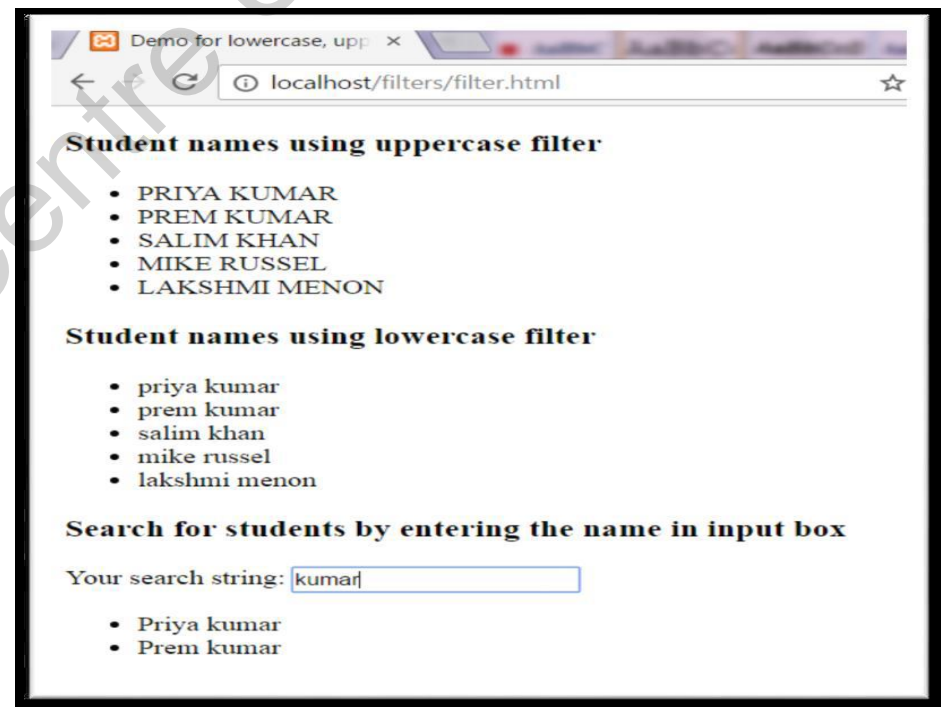
```
1. <!DOCTYPE html>
2. <html lang="en">
3. <head>
4. <meta charset="UTF-8">,
5. <title>Demo for lowercase, uppercase and filter
  </title>
6. <script src="../angular.min.js"></script>
7. </head>
8. <body>
9. <div ng-app="demoApp" ng-
  controller="nameCtrl">
10. <h3> Student names using uppercase filter</h3>
11. <ul><li ng-repeat="name in names"> {{name |
  uppercase}}</li></ul>
12. <h3> Student names using lowercase filter</h3>
13. <ul><li ng-repeat="name in names"> {{name |
  lowercase}}</li></ul>
14. <h3> Search for students by entering the name in
  input box</h3>
15. Your search string: <input type="text" ng-
  model="searchString">
16. <ul>
17. <li ng-repeat="x in names |
  filter:searchString">
18. {{ x }}
19. </li>
20. </ul>
21. </div>
22. <script>
23. var app = angular.module('demoApp', []);
24. app.controller('nameCtrl', function($scope) {
25. $scope.names = ('Priya kumar','Prem
  kumar','Salim khan','Mike
  russel','Lakshmi menon']
26. });
27. </script>
28. </body>
29. </html>
```

# Filters

11-13



**Lowercase and Uppercase Filter Example - Initial**



**Lowercase and Uppercase Filter Example - after giving input**

## Custom Filters

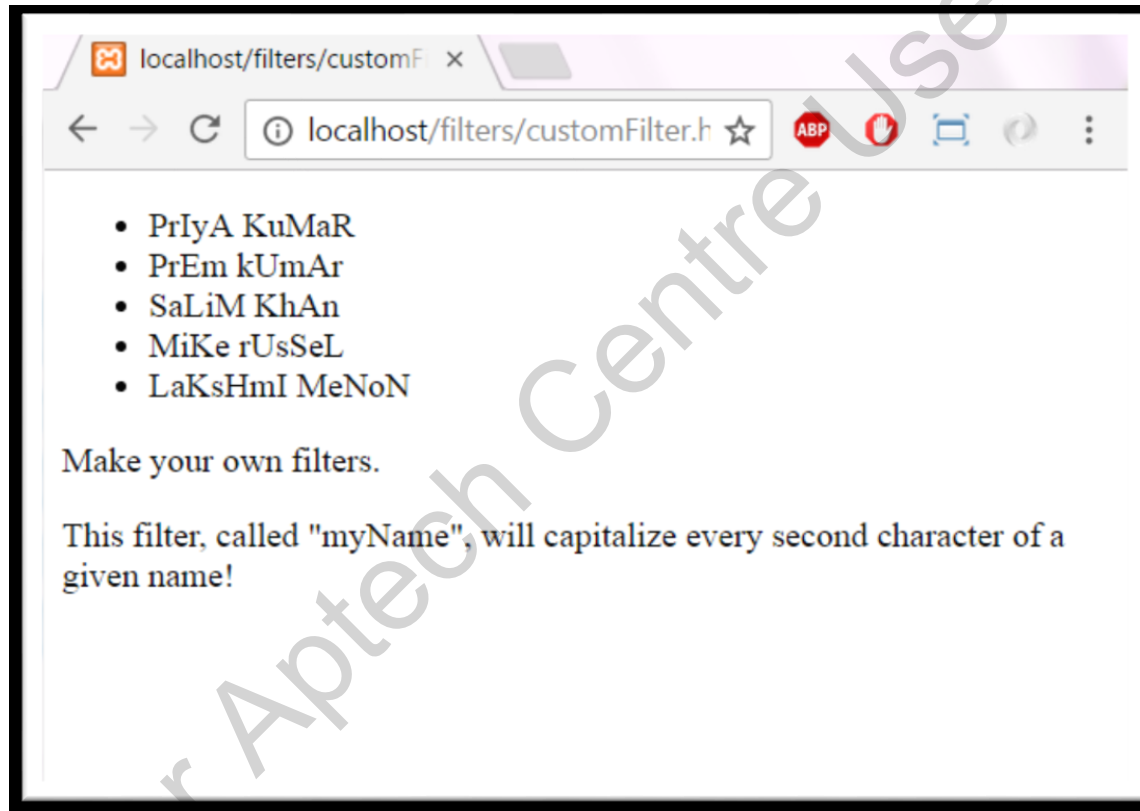
```
1. <!DOCTYPE html>
2. <html>
3. <script
src="https://ajax.googleapis.com/ajax/libs/angularj
s/1.5.7/
angular.min.js"></script>
4. <body>
5. <ul ng-app="myApp" ng-controller="namesCtrl">
6. <li ng-repeat="x in names">
7. {{x | myName}}
8. </li>
9. </ul>
10. <script>
11. var app = angular.module('myApp', []);
12. app.filter('myName', function() {
13. return function(x) {
14. var i, c, txt = "";
15. for (i = 0; i < x.length; i++) {
16. c = x[i];
17. if (i % 2 == 0) {
18. c = c.toUpperCase();
19. }
20. txt += c;
21. }
22. return txt;
23. };
24. });
25. app.controller('namesCtrl', function($scope) {
26. $scope.names = ['Priya kumar','Prem
kumar','Salim khan','Mike russel'
27. 'Lakshmi menon'];
28. });
29. </script>
30. <p>Make your own filters.</p>
31. <p>This filter, called "myName", will capitalize
every second character of a given
name!</p>
32. </body>
33. </html>
```

### Custom Filter Example

# Filters

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## Custom Filters

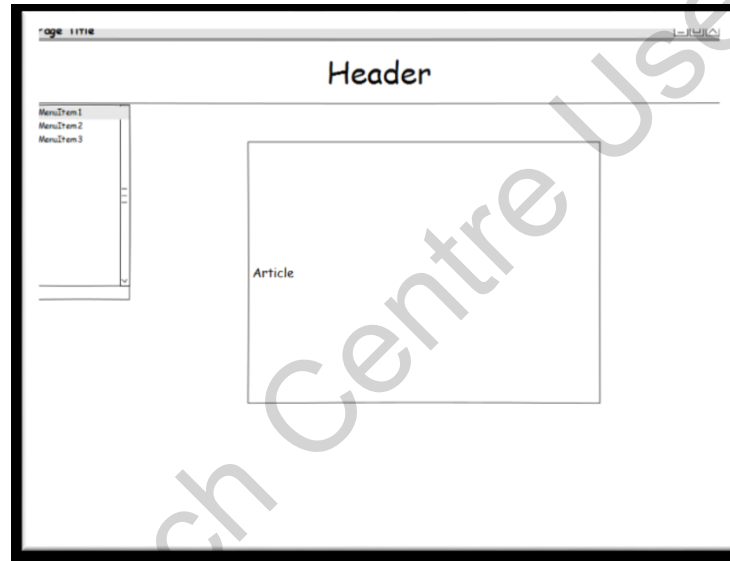


***Custom Filter Example-output***

# Routes

1-6

## Introduction to Routers



***A wireframe of a Web page***

- When creating single page applications, routing is very important.
- The ngRoute module helps our application to become a Single Page Application.
- It routes our application to different pages without reloading the entire application.

## Routes Demo

```
1. <!DOCTYPE html>
2. <html>
3. <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/
1.4.8
/angular.min.js"></script>
4. <script
src="//ajax.googleapis.com/ajax/libs/angularjs/1.4.8/
angular
route.js"></script>
5. <body ng-app="myApp">
6. <p><a href="#/">India Tourism</a></p>
7. <a href="#agra">Taj Mahal</a>
8. <a href="#kashmir">Kashmir</a>
9. <a href="#goa">Goa</a>
10. <p>Click on the links to read about London and
Paris. </p>
11. <div ng-view style="background-color:
lightblue"></div>|
12. <script>
13. var app = angular.module("myApp", ["ngRoute"]);
14. app.configure(function($routeProvider) {
15. $routeProvider
16. .when("/", {
17. templateUrl : "indiaTourism.html"
18. })
19. .when("/agra", {
20. templateUrl : "agra.html"
21. })
22. .when("/kashmir", {
23. templateUrl : "kashmir.html"
24. })
25. .when("/goa", {
26. templateUrl : "goa.html"
27. });
28. });
29. </script>
```

### Routing Code Example

# Routes

3-6

## Routes Demo

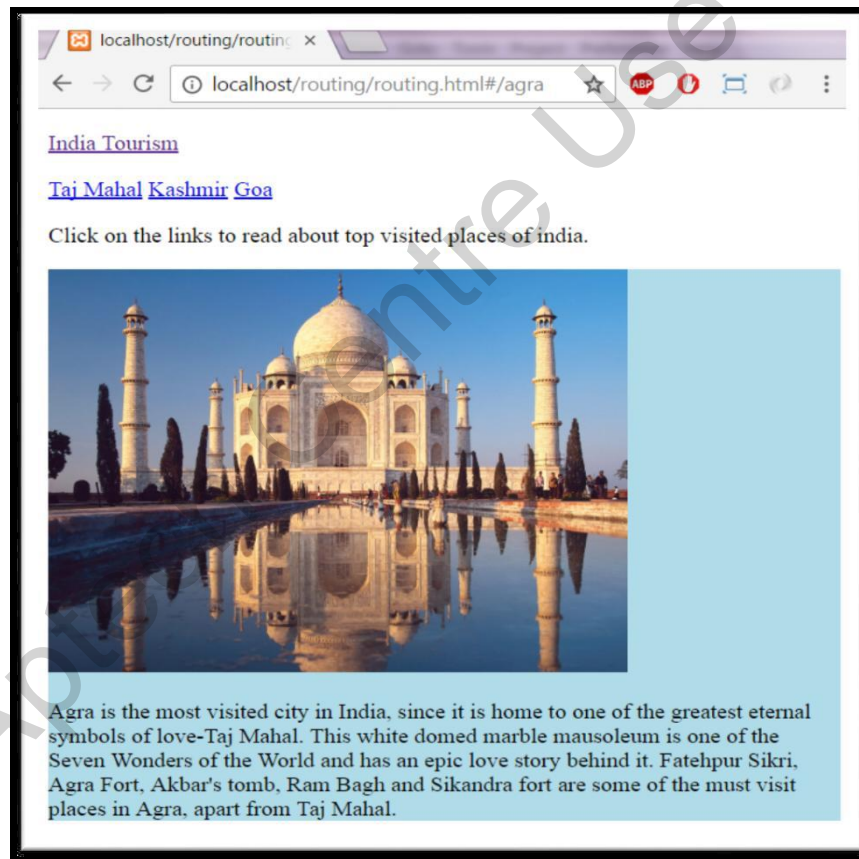


**Routing Example- Opening**

# Routes

4-6

## Routes Demo



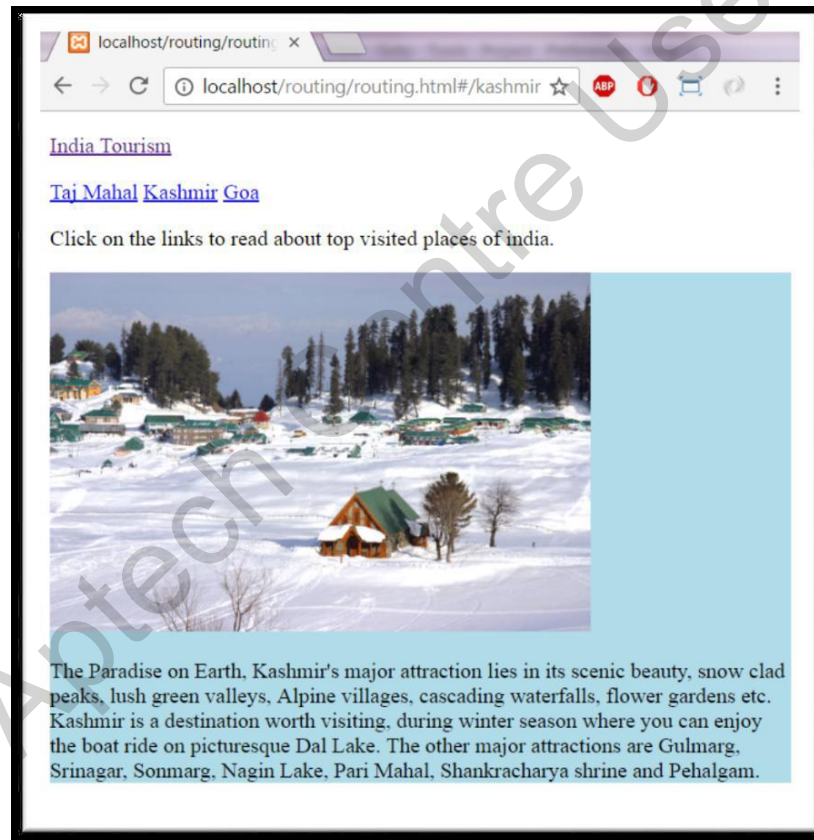
***Routing Example- When user clicks Taj Mahal***



# Routes

5-6

## Routes Demo

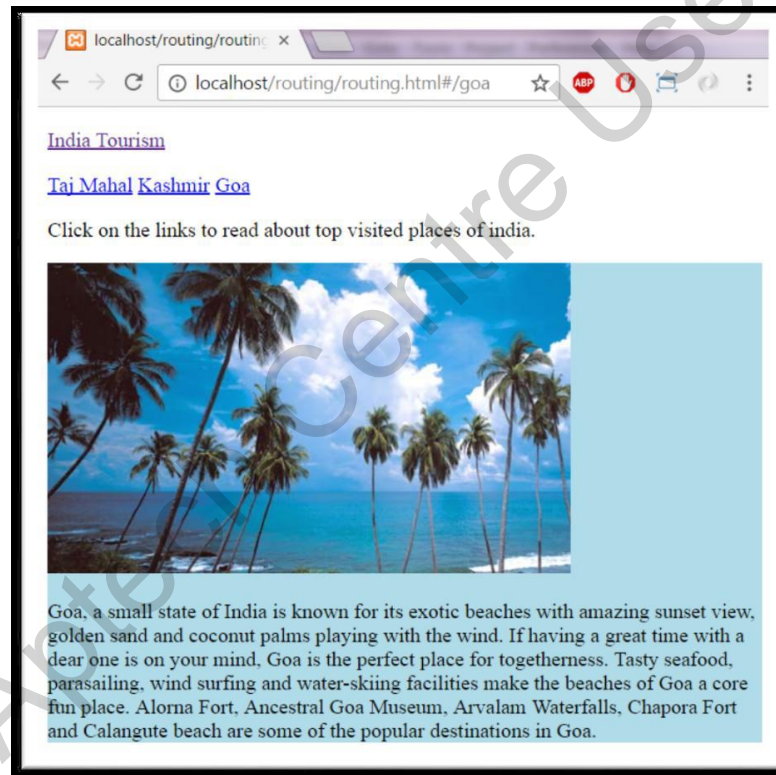


**Routing Example- When user clicks Kashmir**

# Routes

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## Routes Demo



***Routing Example- When user clicks Goa***



## Summary

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- Directives are one of the most important components of AngularJS. They help us extend basic HTML elements.
- The starting point of any AngularJS app is the element where we provide ng-app directive.
- All AngularJS applications must have ng-app directive in them.
- We use ng-model directive to bind the value obtained from the user from HTML inputs to model data.
- Ng-repeat is a powerful directive that can iterate over thousands of data with a single line of code.
- The ng-hide directive hides the specified HTML element if the expression evaluates to true, otherwise the HTML element is shown.





## Summary

2-3

- The ng-show directive shows the specified HTML element if the expression evaluates to true, otherwise the HTML element is hidden.
- We use 'ng-include' directive to embed another HTML page in our app's HTML page.
- Filters format the value of an expression for displaying to the end user.
- Filters do not change the underlying data in the database. They only do the formatting for display.
- AngularJS gives us an API for creating a custom filter.





## Summary

3-3

- To make our applications ready for routing, we must include the AngularJS ng-route module, in addition to angular.js.
- Ng-route provides the `$routeProvider` method.
- Using the `$routeProvider`, we can configure different routes in our application.

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