

CROSS-PLATFORM DEVELOPMENT MODUL 1 - ANGULAR

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VAD ÄR ANGULAR?

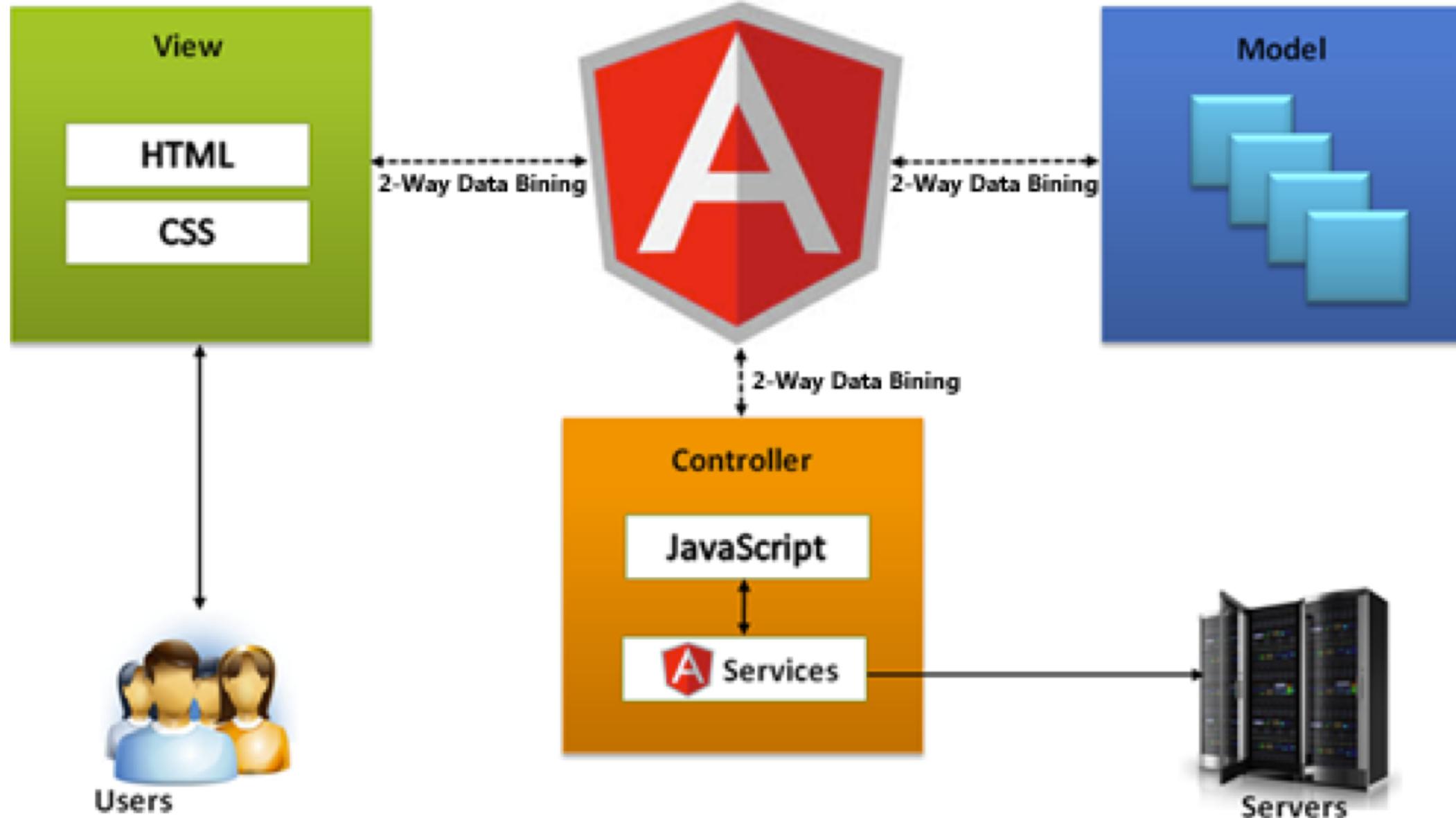
Angular är ett JavaScript ramverk.

Angular används för utveckling av frontend-webbapplikationer.

Angular används främst för att utveckla "Single Page Applications" s.k. SPA

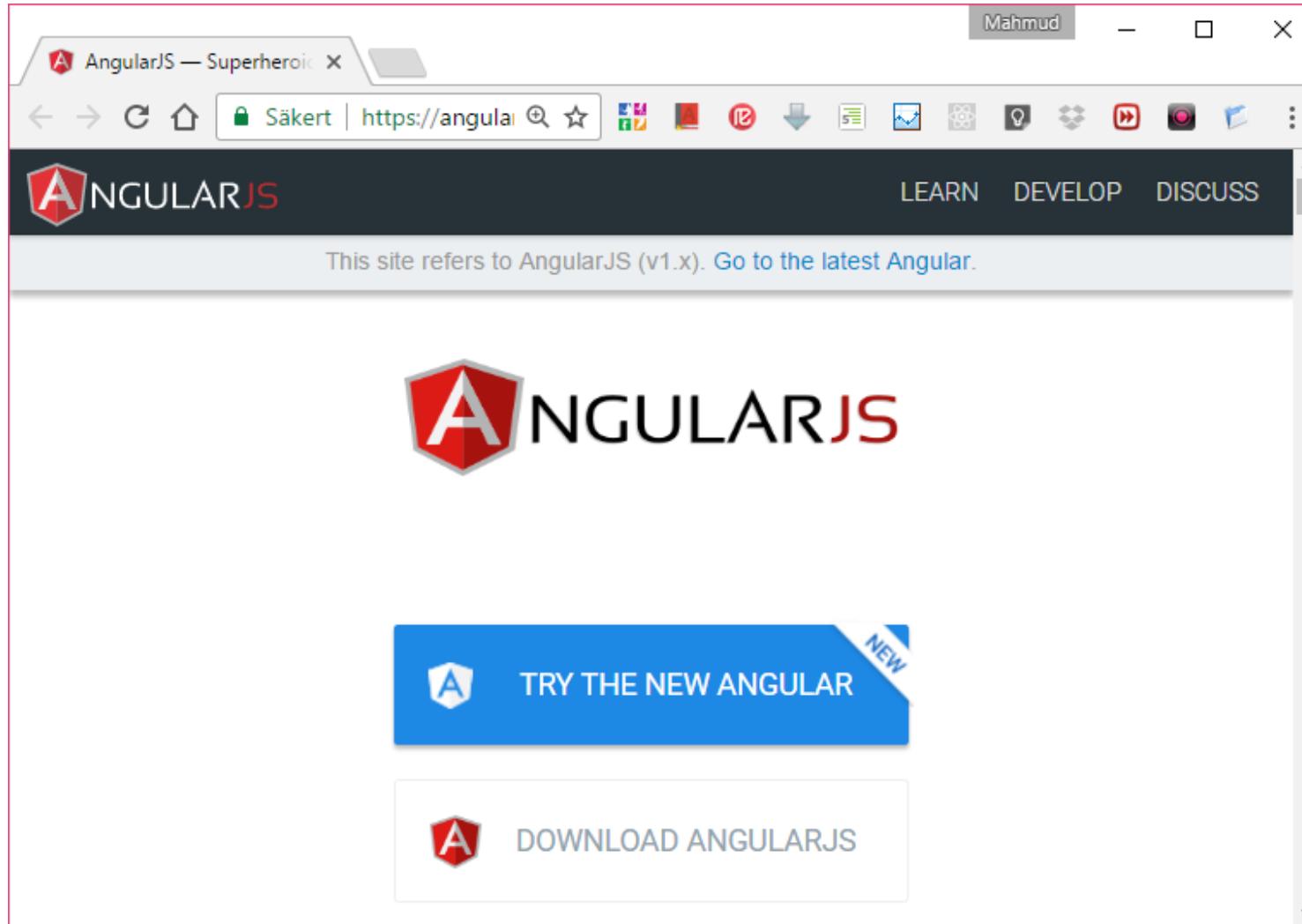
Angular är Open-Source och utvecklas av Google.





Bildkälla: http://angularjstutorials.net/angularjs_mvc.html

LADDA NER ANGULAR FRÅN [HTTPS://ANGULARJS.ORG](https://angularjs.org)



ANGULAR – HELLO WORLD

```
<!doctype html>
<html ng-app>
<head> <script
      src="https://ajax.googleapis.com/ajax/libs/angularjs/1.6.9/angular.min.js">
</script></head>
<body>

<label>Name:</label>
<input type="text" ng-model="yourName" placeholder="Enter a name here">
<hr>
<h1>Hello {{yourName}}!</h1>

</body>
</html>
```

ng-app:
Initierar en Angular applikation.

ng-model: definierar den modell
vi vill binda ett HTML-element till.

Ladda ner grundmallen från <https://angularjs.org/>

ANGULAR DIRECTIVES

Angular utökar HTML med nya element och attribut med hjälp av olika direktiv.

Det finns ett antal inbyggda direktiv i Angular.

Vi kan även skapa våra egna direktiv.

Exempel på Angular direktiv:

- **ng-app** Initierar en Angular applikation.
- **ng-init** Initierar en variabel eller ett objekt.
- **ng-model** Definierar den modell vi vill binda ett HTML-element till.

ANGULAR EXPRESSIONS

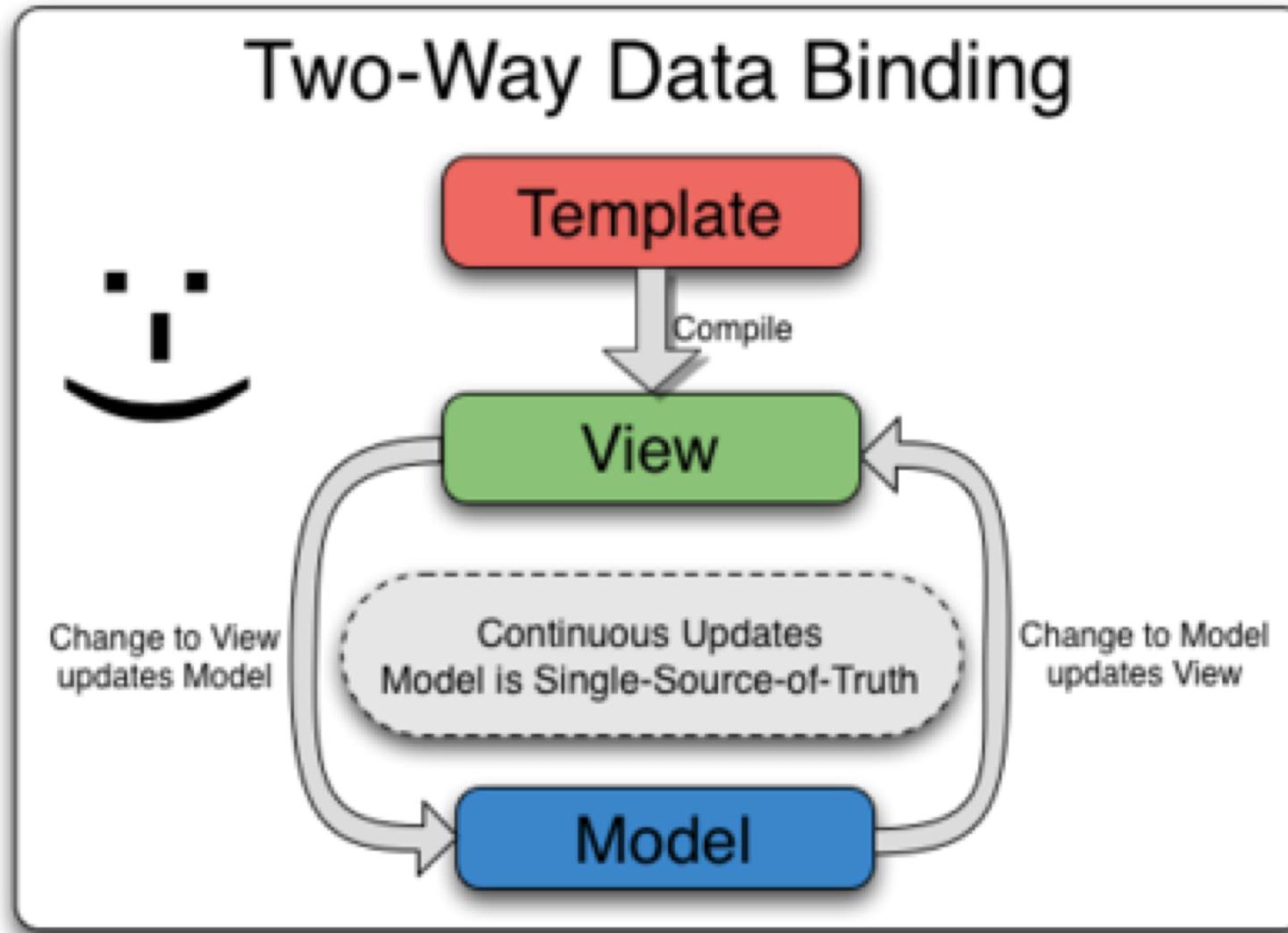
```
<body>
  <div ng-init="moms=0.25">
    <p>Pris exkl. moms:100</p>
    <p>Pris inkl. moms: {{ 100 * (1 + moms) }}</p>
  </div>
</body>
```

ng-init

Initierar en variabel eller ett objekt.

Detta är en Angular Expression

DATA BINDING



Bildkälla: <https://docs.angularjs.org/guide/databinding#data-binding-in-angularjs-templates>

DATA BINDING – EXEMPEL 1

```
<div ng-init="person={firstName:'John', lastName:'Doe'}">  
  <h1>{{person.firstName}}</h1>  
  <h2 ng-bind="person.lastName"></h2>  
  <p>ng-bind binder data till ett element.  
    ng-bind används istället för en expression (dubbla klamrar).  
  </p>  
</div>
```

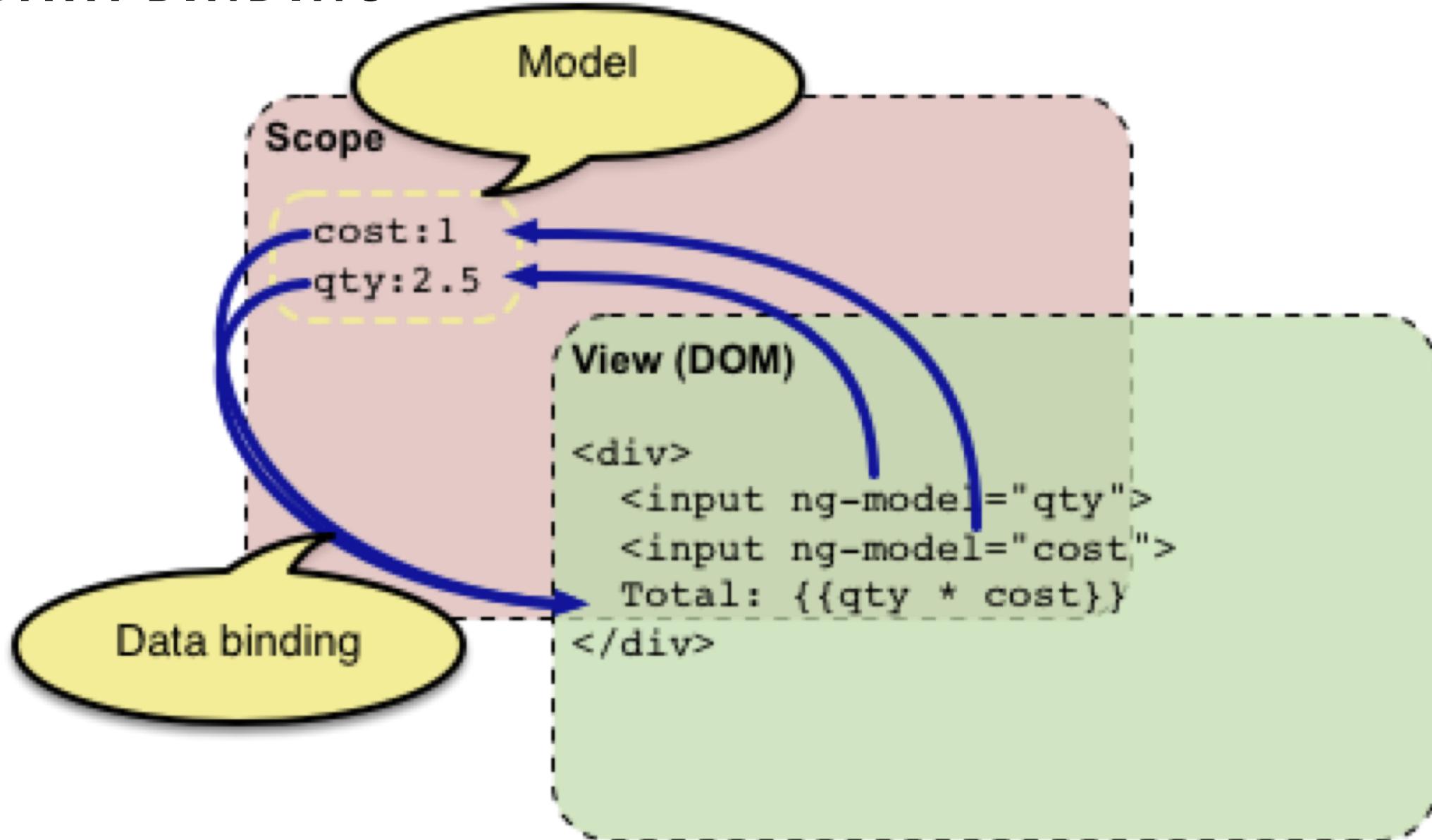
DATA BINDING – EXEMPEL 2

```
<body>
  <div ng-init="myColor='FFF'>
    <input style="background-color:{{myColor}}"
      ng-model="myColor"
      value="{{myColor}}>
  </div>
</body>
```

DATA BINDING – EXEMPEL 3

```
<div ng-init="qty=1;cost=10">
<div> Quantity:
      <input type="number" min="0" ng-model="qty">
</div>
<div> Costs:
      <input type="number" min="0" ng-model="cost">
</div>
<div>
  Total: {{qty * cost}}
</div>
</div>
```

DATA BINDING



Bildkälla: <https://docs.angularjs.org/guide/concepts#a-first-example-data-binding>

ANGULAR MODULES

En Angular-modul är en behållare (container) för de olika delarna i en applikation.

Vi kan definiera kontroller (controllers) och tjänster (services) i en Angular-modul.

En Angular-modul skapas med funktionen `angular.module()`

Exempel: En modul som heter myApp.

```
<script>
```

```
var app = angular.module("myApp", []);
```

```
</script>
```

ANGULAR CONTROLLERS

Angular applikationer kontrolleras med hjälp av "Controllers".

En Controller är ansvarig för att vara logiken mellan View (DOM) och Modell.

En Controller måste skapas inuti en modul.

Exempel: En controller som heter myCtrl.

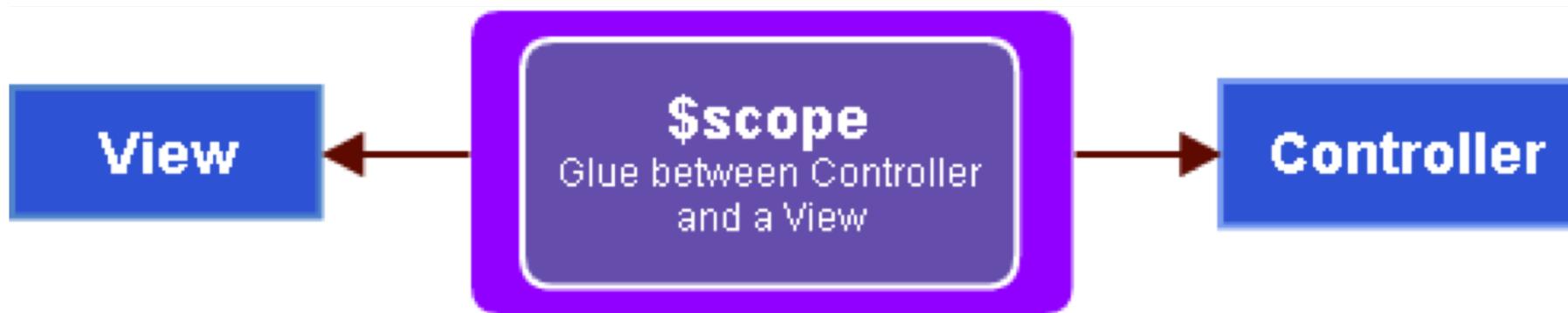
```
<script>  
  var app = angular.module("myApp", []);  
  app.controller("myCtrl", function() {  
});  
</script>
```

ANGULAR CONTROLLERS – EXEMPEL 1

```
<body ng-app="myApp">  
<script>  
    var app = angular.module("myApp", []);  
    app.controller("myCtrl", function() {  
        this.firstName = "John";  
        this.lastName = "Doe";  
    });  
</script>  
<h1 ng-controller="myCtrl as c">  
    {{ c.firstName + " " + c.lastName }}  
</h1>
```

OBS!
Modulen **myApp**
kopplas till body med
hjälp av **ng-app**

ANGULAR \$SCOPE



Bildkälla: http://angularjstutorials.net/angularjs_scope.html

\$SCOPE – EXEMPEL

```
<script>  
  var app = angular.module("myApp", []);  
  app.controller("myCtrl", function ($scope) {  
    $scope.firstName = "John";  
    $scope.lastName = "Doe";  
  });  
</script>  
<h1 ng-controller="myCtrl">  
  {{ firstName + " " + lastName }}  
</h1>
```

“Scope is the glue
between application
controller and the view” *

*

<https://docs.angularjs.org/guide/scope>

MER OM ANGULAR CONTROLLERS OCH \$SCOPE

```
var app = angular.module("myApp", []);
app.controller("personCtrl", function($scope) {
  $scope.firstName = "";
  $scope.lastName = "";
  $scope.fullName = function() {
    return $scope.firstName + " " + $scope.lastName;
  };
});
```

En extern
JS-fil

```
<script src="app.js"></script>
<div ng-controller="personCtrl">
First Name: <input type="text" ng-model="firstName"><br>
Last Name: <input type="text" ng-model="lastName"> <br>
Full Name: {{ fullName() }}
</div>
```

SKAPA EGNA DIREKTIV – EXEMPEL 1

```
<script>

var app = angular.module("myApp", []);
app.directive("nyDirektiv", function () {
  return {
    template: "Jag har skapats med en Angular direktiv!"
  };
});
</script>
<h1 ny-direktiv></h1>
<h2 ny-direktiv></h2>
```

SKAPA EGNA DIREKTIV – EXEMPEL 2

```
<script>  
var app = angular.module("myApp", []);  
app.directive("nyDirektiv", function () {  
    return {  
        template: "<h1>Jag har skapats med en Angular direktiv!</h1>"  
    };  
});  
</script>  
<ny-direktiv></ny-direktiv>
```

SKAPA EGNA DIREKTIV – EXEMPEL 3

```
<script>
var app = angular.module("myApp", []);
app.directive("nyDirektiv", function () {
return {
    restrict: "M",
    replace: true,
    template: "<h1>Jag har skapats med en Angular direktiv!</h1>"
};
});
</script>
<body ng-app="myApp">
<!-- directive: ny-direktiv -->
```

restrict:

E Element name

A Attribute

C Class

M Comment

• Default value EA

HANTERA FÄLT (ARRAY) MED NG-REPEAT

```
<div ng-init="months= ['Jan', 'Feb', 'Mar']">  
  <div ng-repeat="x in months">  
    {{ x }}  
  </div>  
</div>
```

ÖVNING

Hantera arrayen i föregående exempel med hjälp av en controller istället för ng-init.

EXTRA ÖVNINGAR

1. Skapa en controller som har en array över ett antal objekt.
Objekten innehåller egenskaperna namn och land
t.ex.
`{name:'Kalle', country:'Sweden'}`
2. Visa namn och land i en HTML-Lista (UL)
3. Visa namn och land i en HTML-tabell

ANGULAR FILTERS

Angular har filter som möjliggör formatering av data.

Använd pipe-tecknet (vertikalstreck |) för att skicka data till ett filter.

```
<div ng-app="myApp" ng-controller="personCtrl">
<p>The name is {{ lastName | uppercase }}</p>
</div>
<script>
angular.module('myApp', []).controller('personCtrl', function($scope) {
  $scope.firstName = "John",
  $scope.lastName = "Doe"
});
</script>
```

ANGULAR FILTERS – EXEMPEL 2

Sök efter namn
som innehåller M

```
<div ng-app="myApp" ng-controller="namesCtrl">
  <ul><li ng-repeat="x in names | filter : 'M'">
    {{ x }}
  </li></ul>
</div>
<script>
angular.module('myApp', []).controller('namesCtrl', function($scope) {
  $scope.names = [ 'Jani', 'Carl', 'Margareth', 'Hege', 'Joe',
    'Gustav', 'Birgit', 'Mary', 'Kai' ];
});
</script>
```

ANGULAR FILTERS – EXEMPEL 3

```
<div ng-app="myApp" ng-controller="namesCtrl">
<ul><li ng-repeat="x in names | orderBy:'country'">
    {{ x.name + ', ' + x.country }}
</li></ul>
</div>
<script>
angular.module('myApp', []).controller('namesCtrl', function($scope)
{
    $scope.names = [ {name: 'Jani', country: 'Norway'},
                    {name: 'Carl', country: 'Sweden'},
                    {name: 'Margareth', country: 'England'} ];
});
</script>
```

Sortera efter
länder

ANGULAR FILTERS – ÖVNINGAR

1. Skapa en kontroller som har en array över några namn.
2. Visa namnen i en HTML-lista (UL) (eller tabell)
3. Skapa ett textfält ovanför listan
4. Binda textfältet till listan.
Man ska kunna filtrera listan genom att skriva en eller flera bokstäver i textfältet.

Filter via input



M

- Margareth
- Mary

ANGULAR EVENTS – NG-CLICK

```
<div ng-app="myApp" ng-controller="myCtrl">  
  <button ng-click="count = count + 1">Klicka här!</button>  
  <p>{{ count }}</p>  
</div>  
<script>  
  var app = angular.module('myApp', []);  
  app.controller('myCtrl', function($scope) {  
    $scope.count = 0;  
  });  
</script>
```

ANGULAR EVENTS – NG-SHOW

```
<div ng-app="myApp" ng-controller="myCtrl">
  <button ng-click="myFunc()">Visa/Dölj</button>
    <div ng-show="showMe"><h1>Mer info...</h1></div>
</div>
<script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope) {
  $scope.showMe = false;
  $scope.myFunc = function() {
    $scope.showMe = !$scope.showMe;
  }
});
```

ÖVNING

Skapa en kontroller som har en array över ett antal produkter

Produkterna har egenskaperna: ID, Namn, Pris

Visa listan i en HTML-Tabell

Lägg till en rad med rubrikerna ID, Namn och Pris (se bilden)

Man ska kunna sortera listan genom att klicka på kolumnrubrikerna.

| ID | Namn | Pris |
|----|------------|------|
| 01 | PC | 8000 |
| 02 | Mac | 9900 |
| 03 | iPad Air | 4500 |
| 04 | Samsung S7 | 6900 |

ÖVNING

SKAPA EN ENKEL MINIRÄKNARE ENLIGT FÖLJANDE

The screenshot shows a web browser window titled "AngularJS - Övning". The window has a toolbar with icons for back, forward, search, and file operations. The main content area displays the text "AngularJS - Övning" followed by two input fields labeled "Ange tal 1:" and "Ange tal 2:". Below the inputs, the results of four arithmetic operations are shown: addition (10 + 5 = 15), subtraction (10 - 5 = 5), multiplication (10 x 5 = 50), and division (10 / 5 = 2). The browser window is titled "Mahmud".

Ange tal 1:

Ange tal 2:

$10 + 5 = 15$

$10 - 5 = 5$

$10 \times 5 = 50$

$10 / 5 = 2$

CHECKBOX

```
<div ng-app>
  <form>
    Visa inforuta 1
    <input type="checkbox" ng-model="info1">
    Visa inforuta 2
    <input type="checkbox" ng-model="info2">
  </form>
  <h1 ng-show="info1">Information 1</h1>
  <h1 ng-show="info2">Information 2</h1>
</div>
```

NG-IF

```
<div ng-app>
Klicka här:
<input type="checkbox"
       ng-model="checked"
       ng-init="checked=true" />
<br/>
<span ng-if="checked">
Detta döljs om du markerar kryssrutan!
</span>
</div>
```

NG-SWITCH

```
<form>

  <input type="radio" ng-model="myVar" value="1">Ett
  <input type="radio" ng-model="myVar" value="2">Två
  <input type="radio" ng-model="myVar" value="3">Tre

</form>

<div ng-switch="myVar">
  <div ng-switch-when="1"><h1>Ett</h1>
  </div>
  <div ng-switch-when="2"><h1>Två</h1>
  </div>
  <div ng-switch-when="3"><h1>Tre</h1>
  </div>
</div>
```

FORMULÄRVALIDERING – EXEMPEL 1

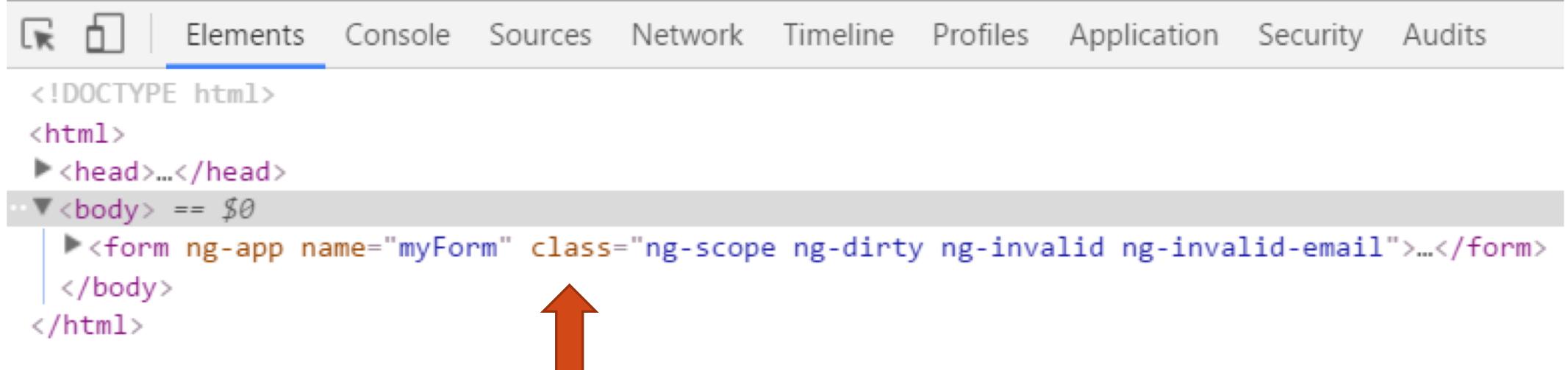
```
<form name="myForm">  
    <input name="name" ng-model="name" required>  
</form>  
  
<h1> $valid: {{myForm.name.$valid}}</h1>  
<h1> $invalid: {{myForm.name.$invalid}}</h1>  
<h1> $error: {{myForm.name.$error}}</h1>  
<h1> $pristine: {{myForm.name.$pristine}}</h1>  
<h1> $dirty: {{myForm.name.$dirty}}</h1>
```

<https://docs.angularjs.org/api/ng/type/form.FormController>

FORMULÄRVALIDERING – EXEMPEL 2

```
<form ng-app name="myForm">  
  Email:<input type="email" name="myAddress" ng-model="text">  
  <span ng-show="myForm.myAddress.$error.email">Not a valid e-mail address</span>  
</form>
```

Email: Not a valid e-mail address



The screenshot shows the Chrome DevTools interface with the 'Elements' tab selected. The DOM tree is visible, with the body element highlighted. A red arrow points from the 'Elements' tab in the toolbar down to the highlighted body element in the tree.

```
<!DOCTYPE html>  
<html>  
  <head>...</head>  
  <body> == $0  
    <form ng-app name="myForm" class="ng-scope ng-dirty ng-invalid ng-invalid-email">...</form>  
  </body>  
</html>
```

FORMULÄRVALIDERING OCH CSS

```
<style>

    input.ng-invalid-email {background-color: #fbbae8d; }

    input.ng-valid-email    {background-color: #d7edd7; }

    input.ng-empty          {background-color: #f1f1b7; }

</style>

</head>

<body>

<form ng-app name="myForm">

    Email: <input type="email" name="myAddress" ng-model="text" required >
    <span ng-show="myForm.myAddress.$error.email">Not a valid e-mail address</span>

</form>      Tips https://docs.angularjs.org/api/ng/directive/form
              http://www.w3schools.com/angular/angular\_validation.asp
```

ROOT SCOPE

```
<script>
    var app = angular.module('myApp', []);
    app.run(function ($rootScope) {
        $rootScope.siteName = 'Web Academy';
    });
</script>
<div ng-app="myApp">
    <h1>{{siteName}}</h1>
</div>
```

\$ROOTSCOPE VS \$SCOPE

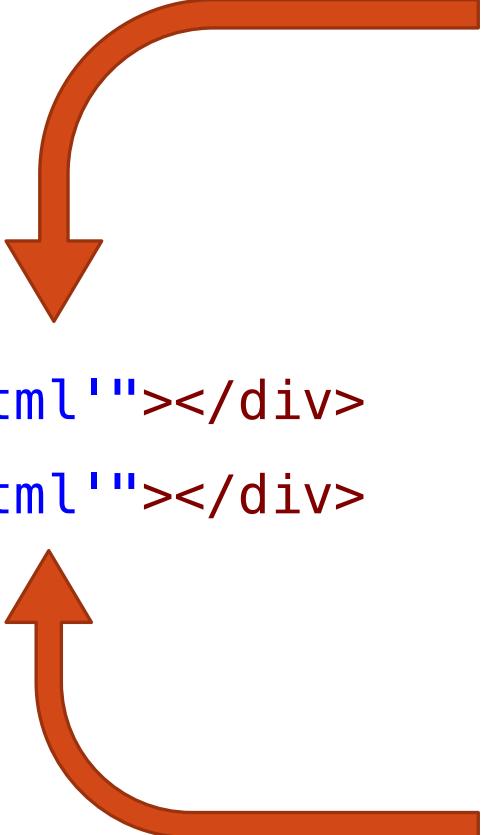
```
<script>
  var app = angular.module('myApp', []);
  app.run(function ($rootScope) {
    $rootScope.scopetest = 'rootScope';
  });
  app.controller('myCtrl', function ($scope) {
    $scope.scopetest = "scope";
  });
</script>
<div ng-app="myApp">
  <h1>{{scopetest}}</h1>
  <h1 ng-controller="myCtrl">{{scopetest}}</h1>
</div>
```

ANGULAR INCLUDE

```
<body ng-app="">  
<div ng-include="header.html"></div>  
<div ng-include="footer.html"></div>  
</body>
```

OBS! Problem i Chrome

Cross origin requests are only supported for protocol schemes:
http ...
Lösning: Kör skriptet via en webbserver!



```
<!-- Filen header.html -->  
  
<header>  
 Sidhuvud  
</header>
```

```
<!-- Filen footer.html -->  
  
<footer>  
 Sidfoot  
</footer>
```

ANGULAR SERVICES

En Angular-service är en tjänst som vi kan använda i våra applikationer.

Angular har flera inbyggda tjänster t.ex.

\$location

\$timeout

\$interval

\$http

Hela listan finns här

<https://docs.angularjs.org/api/ng/service>

ANGULAR SERVICES – \$LOCATION

```
<div ng-app="myApp" ng-controller="myCtrl">
  <h3>{{myUrl}}</h3>
</div>
<script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope, $location) {
  $scope.myUrl = $location.absUrl();
});
</script>
```

[https://docs.angularjs.org/api/ng/service/\\$location](https://docs.angularjs.org/api/ng/service/$location)

ANGULAR SERVICES – \$TIMEOUT

```
<div ng-app="myApp" ng-controller="myCtrl">  
  <h3>{{myHeader}}</h3>  
</div>  
<script>  
var app = angular.module('myApp', []);  
app.controller('myCtrl', function($scope, $timeout) {  
  $scope.myHeader = "Hello World!";  
  $timeout(function (){$scope.myHeader = "How are you today?"}, 2000);  
});  
</script>
```

ANGULAR SERVICES – \$INTERVAL

```
<div ng-app="myApp" ng-controller="myCtrl">
    <h1>{{theTime}}</h1>
</div>
<script>
var app = angular.module('myApp', []);
app.controller('myCtrl', function($scope, $interval) {
    $scope.theTime = new Date().toLocaleTimeString();
    $interval(function () {
        $scope.theTime = new Date().toLocaleTimeString();}, 1000);
});
```

ANGULAR SERVICES – \$HTTP (LÄS FRÅN EN JSON-FIL)

```
<script>  
  
var app = angular.module('myApp', []);  
  
app.controller('customersCtrl', function($scope, $http) {  
    $http.get("customers.json")  
        .then(function (response) {  
            $scope.myData = response.data.customers;  
        });  
});  
</script>
```

OBS! Funkar inte i
Chrome om du kör lokalt

```
{  
    "customers": [  
        {  
            "Name": "Mahmud Al Hakim",  
            "City": "Stockholm",  
            "Country": "Sweden"  
        },  
        {  
            "Name": "Kalle Anka",  
            "City": "Disney",  
            "Country": "USA"  
        }  
    ]  
}
```

ANGULAR SERVICES – \$HTTP (VISA DATA FRÅN EN JSON-FIL)

```
<div ng-app="myApp" ng-controller="customersCtrl">  
  <ul ng-cloak>  
    <li ng-repeat="x in myData">  
      {{ x.Name + ', ' + x.Country }}  
    </li>  
  </ul>  
</div>
```

Tips: https://www.w3schools.com/angular/ng_ng-cloak.asp

```
{  
  "customers": [  
    {  
      "Name": "Mahmud Al Hakim",  
      "City": "Stockholm",  
      "Country": "Sweden"  
    },  
    {  
      "Name": "Kalle Anka",  
      "City": "Disney",  
      "Country": "USA"  
    }  
  ]  
}
```

VISA EN DROPDOWN-LISTA

```
<select ng-model="selectedCustomer">  
    <option ng-repeat="x in myData">  
        {{x.Name}}  
    </option>  
</select>  
<h1>Hej {{selectedCustomer}}</h1>
```

SKAPA DROPODOWN MED NG-OPTIONS

```
<select ng-model="selectedCustomer"  
        ng-options="x.Name for x in myData">  
</select>  
<h1>Hej {{selectedCustomer.Name}}</h1>  
<p>Du bor i {{selectedCustomer.City}}</p>
```

Tips! Vill du inte visa en tom rad högst upp i listan?

Lägg till denna sats i din kontroller

```
$scope.selectedCustomer = $scope.myData[0];
```

ÖVNINGAR

1. Hämta en JSON-lista på alla users från
<https://jsonplaceholder.typicode.com/>
Tips: Direkt länk till listan
<https://jsonplaceholder.typicode.com/users>
2. Visa en enkel lista över alla namn.
3. Visa en tabell över namn och e-post.
4. Visa en DropDown-Lista över alla namn.
5. Skapa små adressetiketter med ram (kantlinjer) för alla users.

ÖVNING

SKAPA EN ENKEL INKÖPSLISTA

Min inköpslista

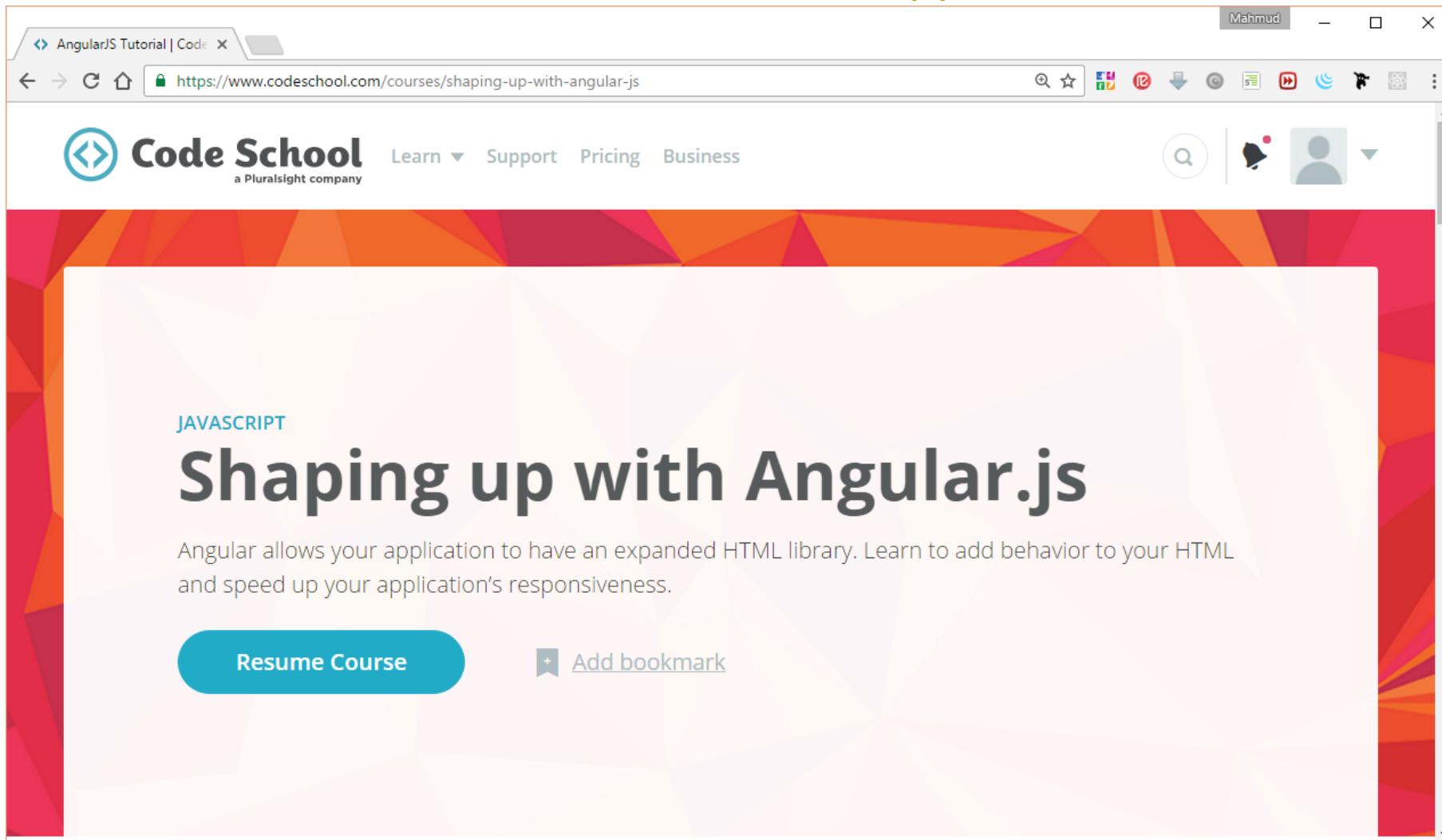
| | |
|-------|---|
| Mjölk | x |
| Bröd | x |
| Ost | x |

Vad vill du handla idag Lägg till

Bröd

Produkten finns redan i din lista!

TIPS! GRATIS KURS FRÅN HTTP://CODESCHOOL.COM

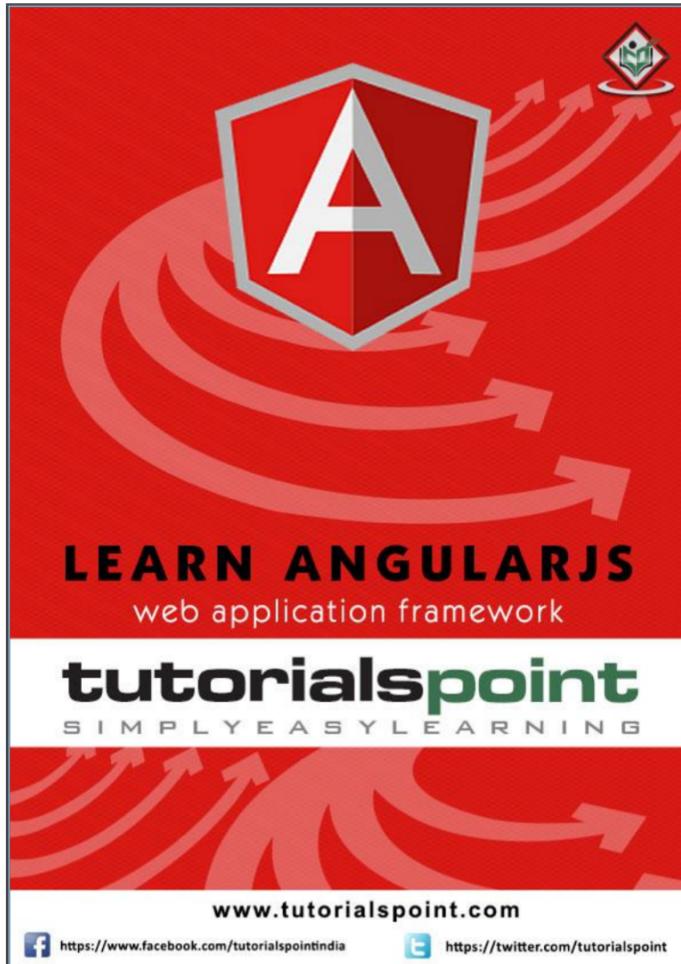


Rekommenderas
varmt

<https://www.codeschool.com/courses/shaping-up-with-angular-js>

TIPS! BRA TUTORIAL I PDF-FORMAT

[HTTP://WWW.TUTORIALSPPOINT.COM/ANGULARJS/ANGULARJS TUTORIAL.PDF](http://www.tutorialspoint.com/angularjs/angularjs_tutorial.pdf)



LÄS! HTTP://WWW.W3SCHOOLS.COM/ANGULAR

The screenshot shows a web browser displaying the w3schools.com website. The URL in the address bar is `www.w3schools.com/angular/default.asp`. The page title is "AngularJS Tutorial". The main content area features a large heading "AngularJS Tutorial" with a red "A" logo. Below the heading, there are three bullet points: "AngularJS extends HTML with new attributes.", "AngularJS is perfect for Single Page Applications (SPAs).", and "AngularJS is easy to learn.". At the bottom, a call-to-action button says "Learn AngularJS now!". To the left, a sidebar titled "Tutorial" lists various Angular topics, with "Angular HOME" highlighted in green.

AngularJS Tutorial

AngularJS extends HTML with new attributes.

AngularJS is perfect for Single Page Applications (SPAs).

AngularJS is easy to learn.

Learn AngularJS now!

Angular HOME

Angular Intro
Angular Expressions
Angular Modules
Angular Directives
Angular Model
Angular Data Binding
Angular Controllers
Angular Scopes
Angular Filters
Angular Services
Angular Http
Angular Tables
Angular Select
Angular SQL

AngularJS Tutorial

AngularJS extends HTML with new attributes.

AngularJS is perfect for Single Page Applications (SPAs).

AngularJS is easy to learn.

Learn AngularJS now!