

U+₋

LECTURE 3

IONIC + ANGULAR

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OVERVIEW

- Project structure
- Routing
- Model
- View
- Controller

TODAY'S GOAL

Movie list

🔍

Search

The Hateful Eight

The Revenant

CREATE NEW PROJECT

```
$ cd ~/my-ionic-projects/  
$ git clone https://github.com/jvaclavik/ionic-starter-blank movie-app  
$ cd movie-app/  
$ npm install  
$ cordova platform add android  
$ ionic serve
```

PROJECT STRUCTURE

PROJECT STRUCTURE

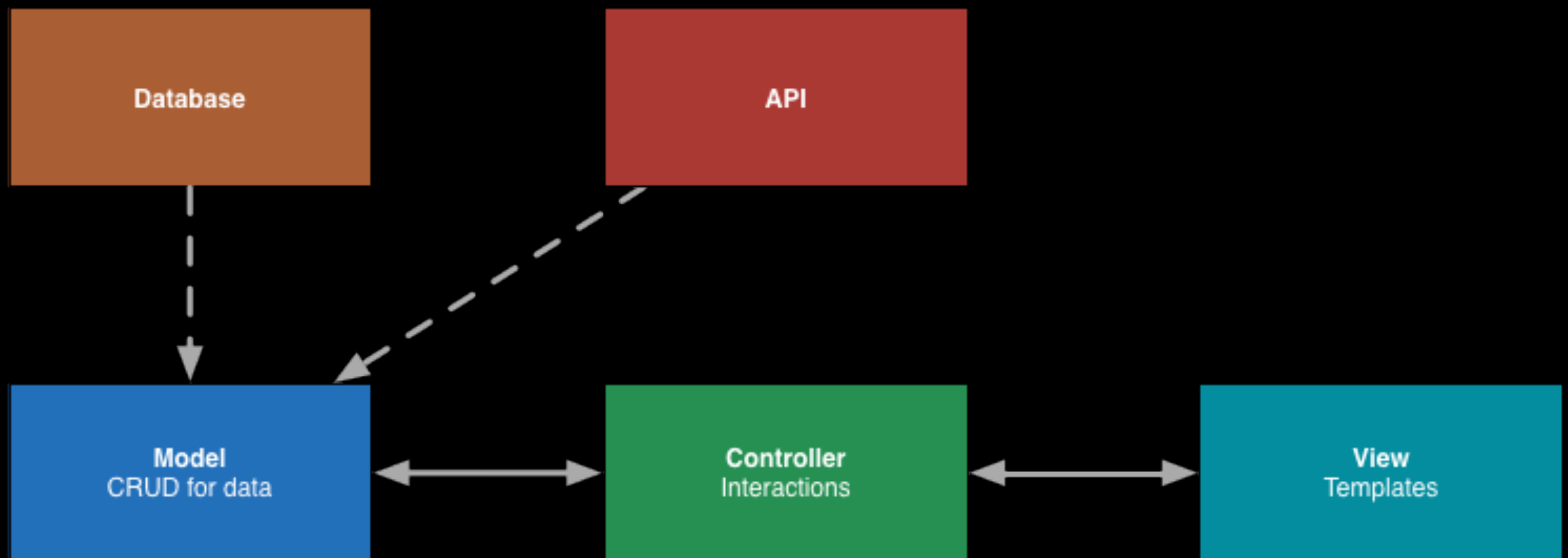
```
|— bower_components      (bower libraries)
|— hooks                 (custom scripts executed after some event)
|— node_modules          (node libraries)
|— resources             (app icons and splash screens)
|— scss
|   |— partials          (SCSS for specific part of the app independent on view)
|   |— ui                (SCSS for global UI elements)
|   |— views             (SCSS for specific views)
|   └— ionic.app.scss    (main SCSS that imports all the others)
|
└— www
    |— app
    |   |— app.js         (main file of the app - device ready)
    |   |— config.js      (global config)
    |   └— routes.js      (file for defining states)
    |
    |— css               (generated css files from SCSS and bower libs – don't touch it!)
    |— fonts             (fonts from bower libraries)
    |— img               (images used in the app)
    |— js                (external JS and code used across the app)
    |— model             (app specific models)
    |   └— global-service.js
    |
    |— views             (app specific views)
    |   |
    |   └— main
    |       └— main.js    (main controller)
    └— index.html
```

The Angular logo is a large, stylized letter 'A' in a dark red color, centered on a black background. The 'A' is composed of two overlapping triangles. The text 'WHAT IS ANGULAR?' is written in a light blue, sans-serif font across the middle of the 'A'.

WHAT IS ANGULAR?

WHAT IS ANGULAR?

Front-end Javascript **MVC** framework



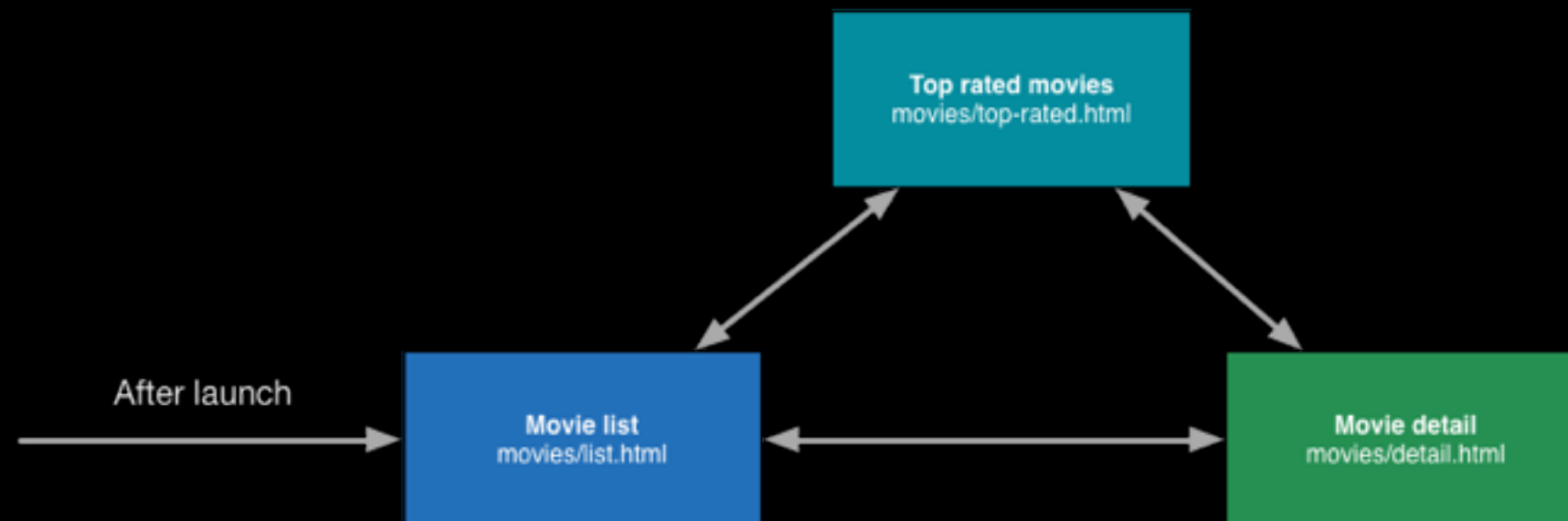
WHAT IS ANGULAR?

- Framework for creating single page apps
- Modular architecture
- Two way data binding – automatic render changes

ROUTING

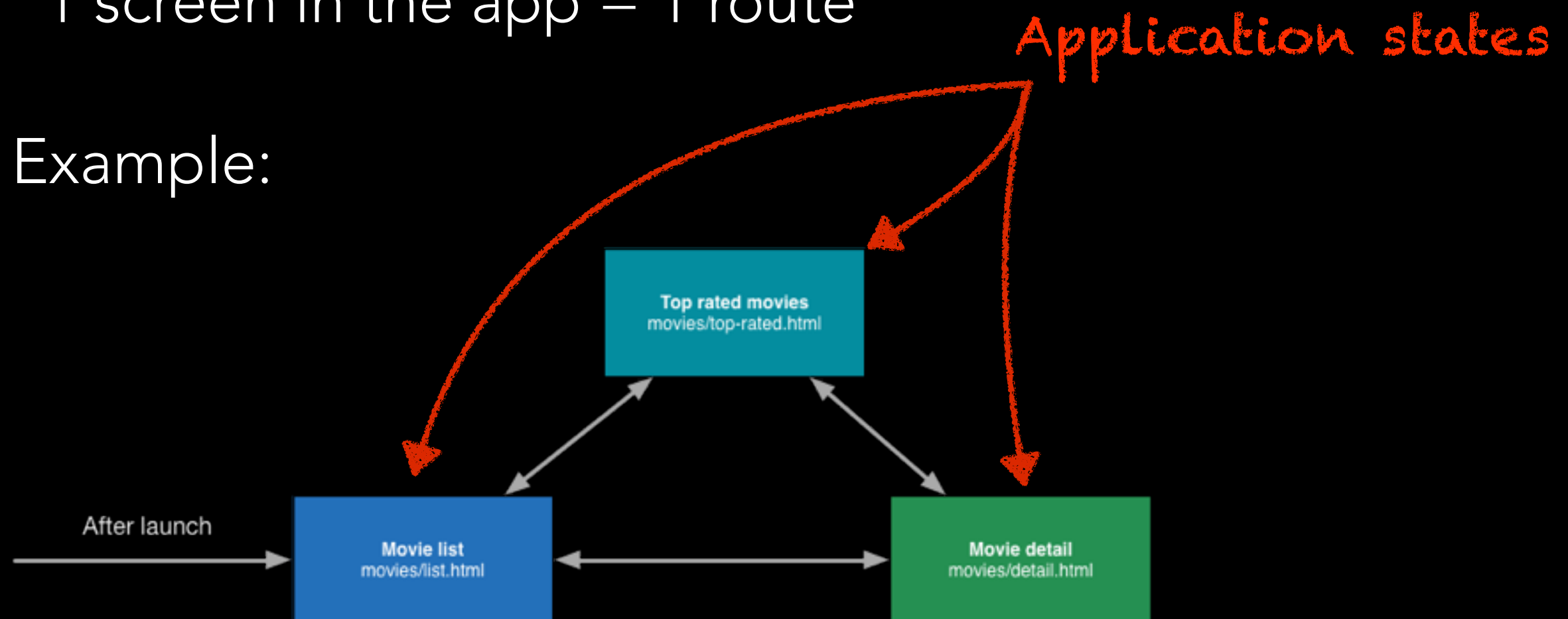
ROUTING

- App is always in some application state
 - Every state has own URL, template, controller
 - “1 screen in the app = 1 route”
- Example:



ROUTING

- App is always in some application state
 - Every state has own URL, template, controller
 - "1 screen in the app = 1 route"
- Example:



DEFINING APP STATES

`www/app/routes.js`

```
1 app.config(function ($stateProvider, $urlRouterProvider) {
2     $stateProvider
3         .state('movies', {
4             url: '/movies',
5             templateUrl: "views/movies/movies-list.html",
6             controller: 'MoviesListCtrl'
7         })
8         .state('movies-top-rated', {
9             url: '/movies/top-rated',
10            templateUrl: "views/movies/movies-list.html",
11            controller: 'MoviesTopRatedCtrl'
12        })
13        .state('movies-detail', {
14            url: '/movies/:id',
15            templateUrl: "views/movies/movies-detail.html",
16            controller: 'MoviesDetailCtrl'
17        });
18
19    $urlRouterProvider.otherwise('/movies');
20 });
```

DEFINING APP STATES

www/app/routes.js

```
1 app.config(function ($stateProvider, $urlRouterProvider) {
2     $stateProvider
3         .state('movies', {
4             url: '/movies',
5             templateUrl: "views/movies/movies-list.html",
6             controller: 'MoviesListCtrl'
7         })
8         // .state('movies-top-rated', {
9         //     url: '/movies/top-rated',
10        //     templateUrl: "views/movies/movies-list.html",
11        //     controller: 'MoviesTopRatedCtrl'
12        // })
13        // .state('movies-detail', {
14        //     url: '/movies/:id',
15        //     templateUrl: "views/movies/movies-detail.html",
16        //     controller: 'MoviesDetailCtrl'
17        // });
18
19     $urlRouterProvider.otherwise('/movies');
20 });
```

DEFINING APP STATES

```
1 $stateProvider.state('movies-detail', {  
2     url: '/movies/:id',  
3     templateUrl: "views/movies/movies-detail.html",  
4     controller: 'MoviesDetailCtrl'  
5 })
```

DEFINING APP STATES

App state name



```
1 $stateProvider.state('movies-detail', {  
2     url: '/movies/:id',  
3     templateUrl: "views/movies/movies-detail.html",  
4     controller: 'MoviesDetailCtrl'  
5 })
```


DEFINING APP STATES

State parameter
E. g. /movies/423

App state name



```
1 $stateProvider.state('movies-detail', {  
2     url: '/movies/:id',  
3     templateUrl: "views/movies/movies-detail.html",  
4     controller: 'MoviesDetailCtrl'  
5 })
```

DEFINING APP STATES

State parameter
E. g. /movies/423

App state name

```
1 $stateProvider.state('movies-detail', {  
2     url: '/movies/:id',  
3     templateUrl: "views/movies/movies-detail.html",  
4     controller: 'MoviesDetailCtrl'  
5 })
```

Controller name

DEFINING APP STATES

State parameter
E. g. /movies/423

App state name

```
1 $stateProvider.state('movies-detail', {  
2     url: '/movies/:id',  
3     templateUrl: "views/movies/movies-detail.html",  
4     controller: 'MoviesDetailCtrl'  
5 })
```

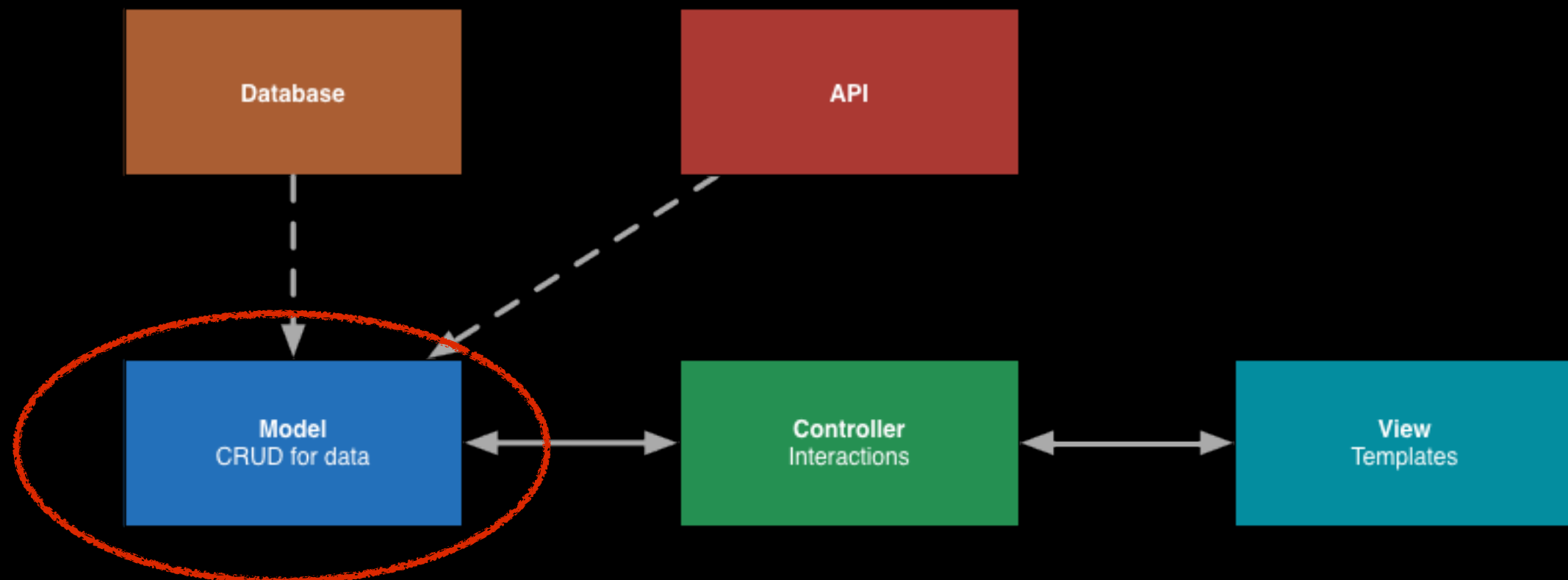
Controller name

URL to template

MODEL

MODEL

- **CRUD** for data from API / DB / Local Storage
 - **C**reate, **R**ead, **U**ppdate, **D**eleate



DEFINING DATA IN MODEL

Create file

`www/model/movies-service.js`

Add to index.html

```
<script src="model/movies-service.js"></script>
```

DEFINING DATA IN MODEL

`www/model/movies-service.js`

```
1 app.factory('MoviesService', function () {
2     return new (function () {
3         var service = this;
4         service.data = {};
5         service.data.movies = [
6             {
7                 "title": "The Hateful Eight",
8                 "release_date": "2015-12-25",
9                 "vote_average": "7.12",
10                "vote_count": "497"
11            },
12            {
13                "title": "The Revenant",
14                "release_date": "2015-12-25",
15                "vote_average": "7.2",
16                "vote_count": "507"
17            },
18        ],
19    ]
20 }) ();
21 });
```

DEFINING DATA IN MODEL

www/model/movies-service.js

```
1 app.factory('MoviesService', function () {
2   return new (function () {
3     var service = this;
4     service.data = {};
5     service.data.movies = [
6       {
7         "title": "The Hateful Eight",
8         "release_date": "2015-12-25",
9         "vote_average": "7.12",
10        "vote_count": "497"
11      },
12      {
13        "title": "The Revenant",
14        "release_date": "2015-12-25",
15        "vote_average": "7.2",
16        "vote_count": "507"
17      },
18    ],
19  }) ();
20 }
21 );
```

Why?



CLOSURES

```
1 myNameSpace = function() {  
2   var init = function() {...}  
3   var verify = function() {...}  
4   init(); //Works  
5   verify(); //Works  
6  
7   return{  
8     init: init  
9   }  
10 }();  
11  
12  
13 myNameSpace.init(); //It works  
14 myNameSpace.verify(); //Doesn't work
```

CLOSURES

```
1 myNameSpace = function() {  
2   var init = function() {...}  
3   var verify = function() {...}  
4   init(); //Works  
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7   return {  
8     init: init  
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10 }();  
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13 myNameSpace.init(); //It works  
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```



"Private" functions

CLOSURES

```
1 myNameSpace = function() {  
2   var init = function() {...}  
3   var verify = function() {...}  
4   init(); //Works  
5   verify(); //Works  
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7   return {  
8     init: init  
9   }  
10 }();  
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12  
13 myNameSpace.init(); //It works  
14 myNameSpace.verify(); //Doesn't work
```

"Private" functions



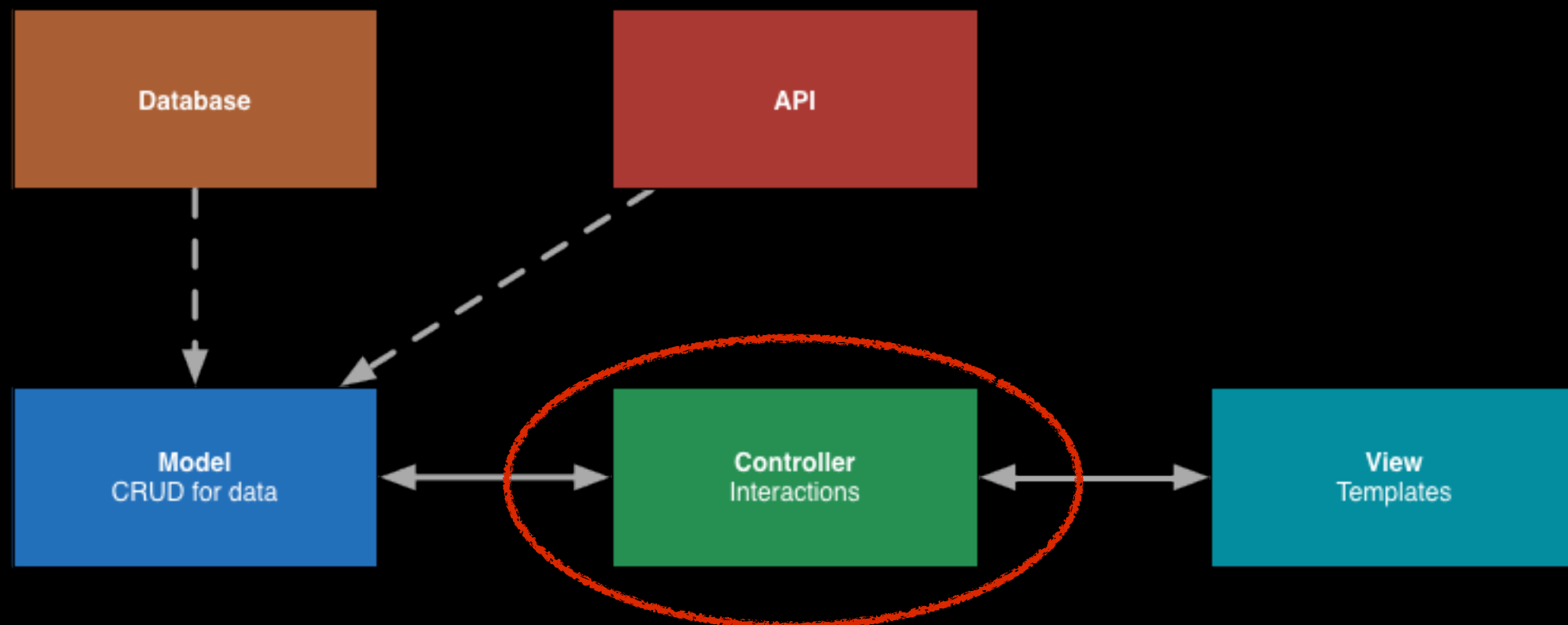
Make init function "public"



CONTROLLER

CONTROLLER

- Handling **user interactions**
 - E. g. button tap, gestures
- Communicate with **View and Model**



CONTROLLER

Create file

`www/views/movies/movies-list.js`

Add to index.html

```
<script src="views/movies/movies-list.js"></script>
```

CONTROLLER

`www/views/movies/movies-list.js`

```
1 app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
2     $scope.data = MoviesService.data;  
3 })
```

CONTROLLER

`www/views/movies/movies-list.js`

```
1 app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
2     $scope.data = MoviesService.data;  
3 })
```

Dependency injection



CONTROLLER

`www/views/movies/movies-list.js`

```
1 app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
2     $scope.data = MoviesService.data;  
3 })
```

Model view relation



Dependency injection



MODEL – VIEW RELATION

`www/model/movies-service.js`

```
app.factory('MoviesService', function () {  
    return new (function () {  
        var service = this;  
        service.data = {};  
        service.data.movies = [  
            {  
                "title": "The Hateful Eight",  
                "release_date": "2015-12-25",  
                "vote_average": "7.12",  
                "vote_count": "497"  
            }  
        ]  
    })();  
});
```

`www/views/movies/movies-list.js`

```
app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
    $scope.data = MoviesService.data;  
})
```

MODEL – VIEW RELATION

www/model/movies-service.js

```
app.factory('MoviesService', function () {  
    return new (function () {  
        var service = this;  
        service.data = {};  
        service.data.movies = [  
            {  
                "title": "The Hateful Eight",  
                "release_date": "2015-12-25",  
                "vote_average": "7.12",  
                "vote_count": "497"  
            }  
        ]  
    })();  
});
```

Injecting MoviesService
as dependency



www/views/movies/movies-list.js

```
app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
    $scope.data = MoviesService.data;  
})
```

MODEL – VIEW RELATION

www/model/movies-service.js

```
app.factory('MoviesService', function () {  
    return new (function () {  
        var service = this;  
        service.data = {};  
        service.data.movies = [  
            {  
                "title": "The Hateful Eight",  
                "release_date": "2015-12-25",  
                "vote_average": "7.12",  
                "vote_count": "197"  
            }  
        ]  
    })();  
});
```

Injecting MoviesService
as dependency



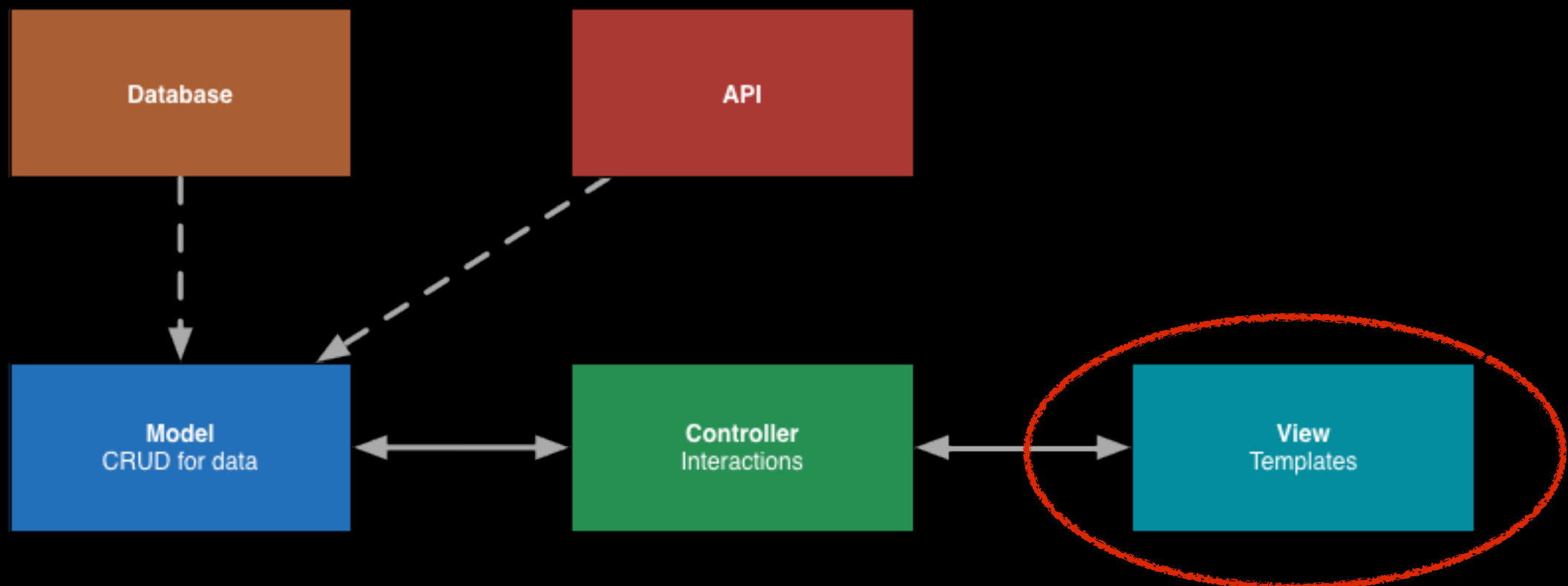
www/views/movies/movies-list.js

```
app.controller('MoviesListCtrl', function ($scope, MoviesService) {  
    $scope.data = MoviesService.data;  
})
```

VIEW

VIEW

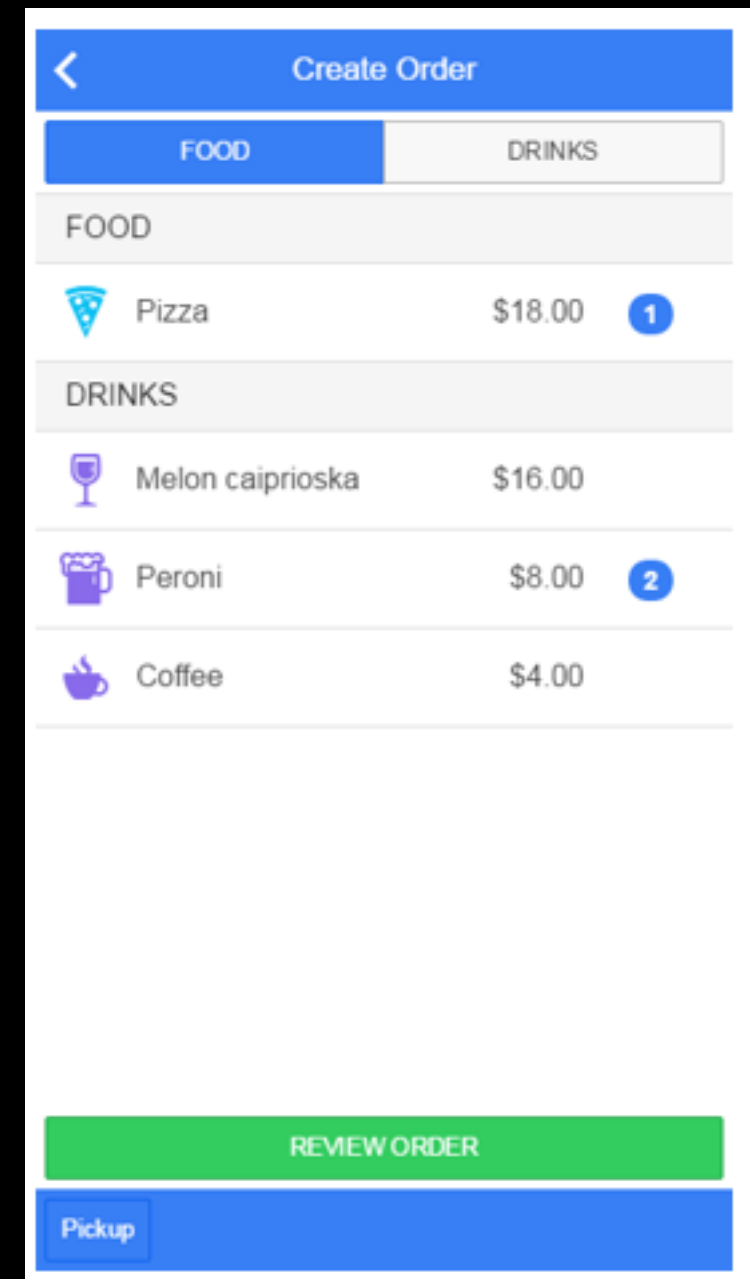
- Angular template
- Can access anything in \$scope variable



VIEW STRUCTURE

```
<ion-view>
  <ion-header-bar></ion-header-bar>
  <ion-subheader-bar></ion-subheader-bar>
  <ion-content></ion-content>
  <ion-subfooter-bar></ion-subfooter-bar>
  <ion-footer-bar></ion-footer-bar>
</ion-view>
```

ion-view

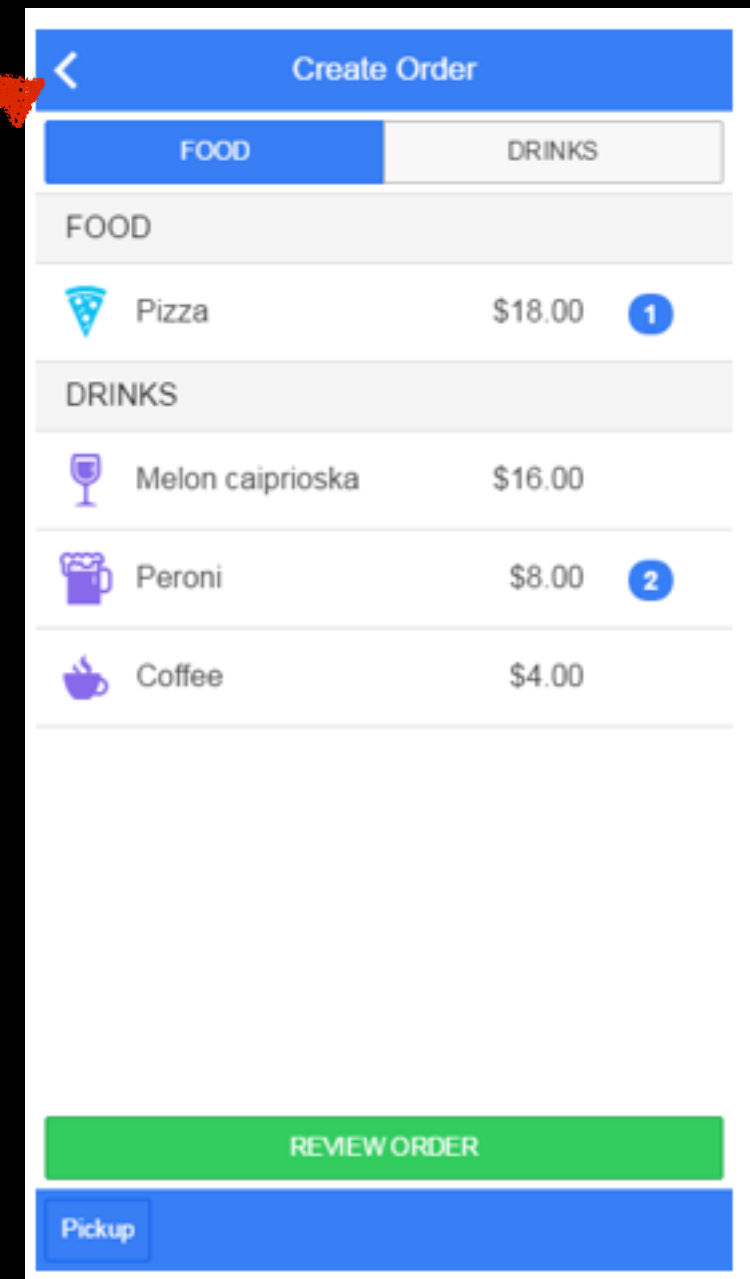


ion-view, ion-content are mandatory

VIEW STRUCTURE

```
<ion-view>
  <ion-header-bar></ion-header-bar>
  <ion-subheader-bar></ion-subheader-bar>
  <ion-content></ion-content>
  <ion-subfooter-bar></ion-subfooter-bar>
  <ion-footer-bar></ion-footer-bar>
</ion-view>
```

ion-view

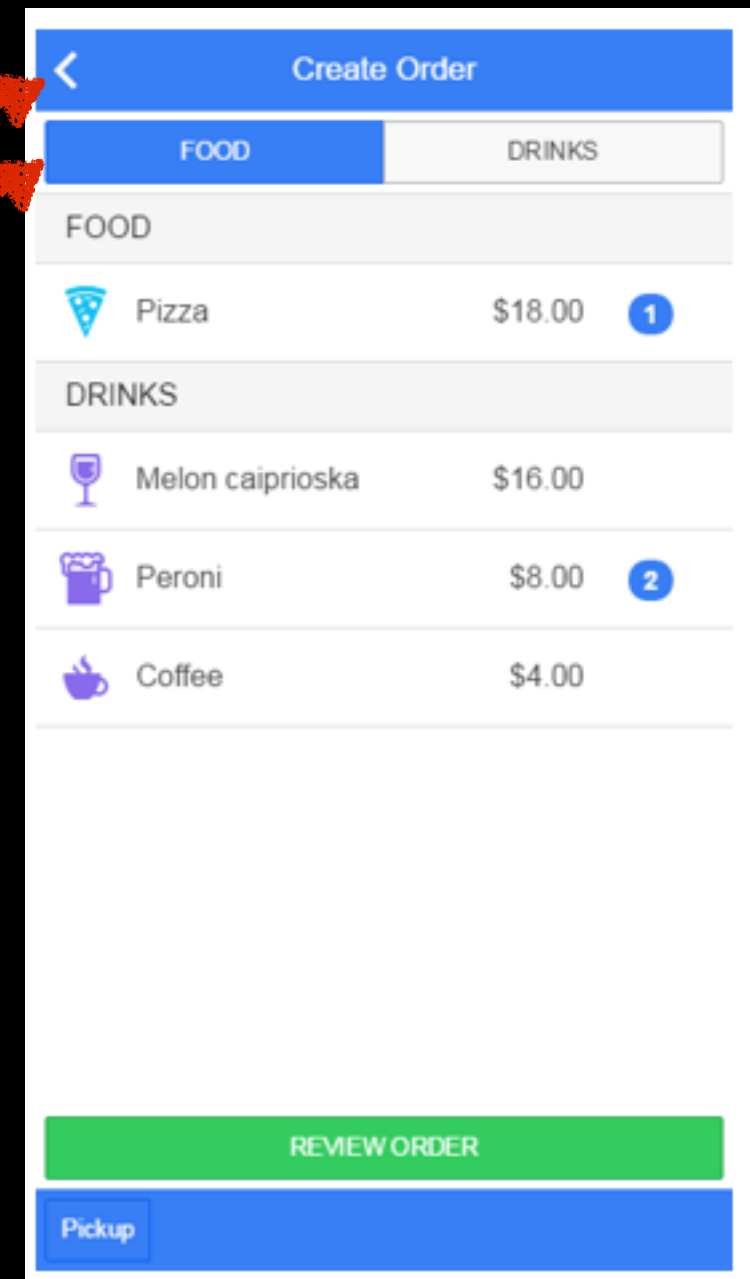


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VIEW STRUCTURE

```
<ion-view>
  <ion-header-bar></ion-header-bar>
  <ion-subheader-bar></ion-subheader-bar>
  <ion-content></ion-content>
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  <ion-footer-bar></ion-footer-bar>
</ion-view>
```

ion-view

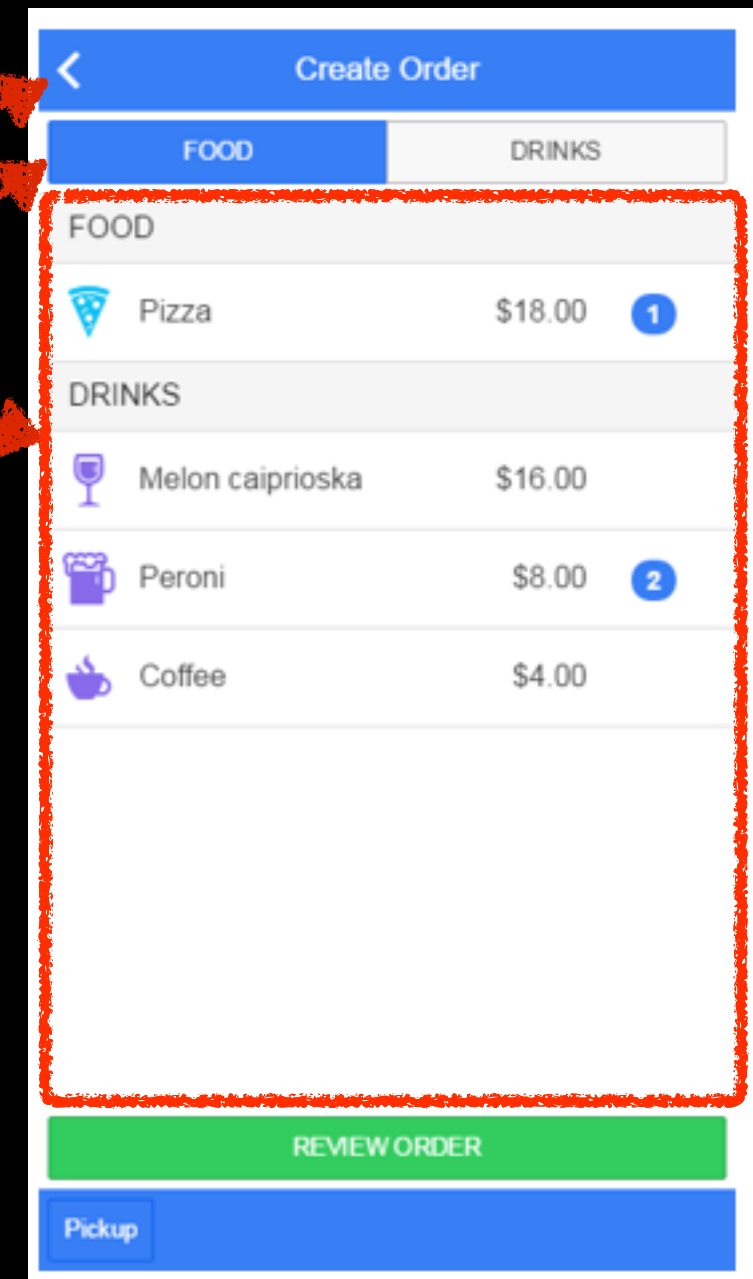


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VIEW STRUCTURE

```
<ion-view>
  <ion-header-bar></ion-header-bar>
  <ion-subheader-bar></ion-subheader-bar>
  <ion-content></ion-content>
  <ion-subfooter-bar></ion-subfooter-bar>
  <ion-footer-bar></ion-footer-bar>
</ion-view>
```

ion-view

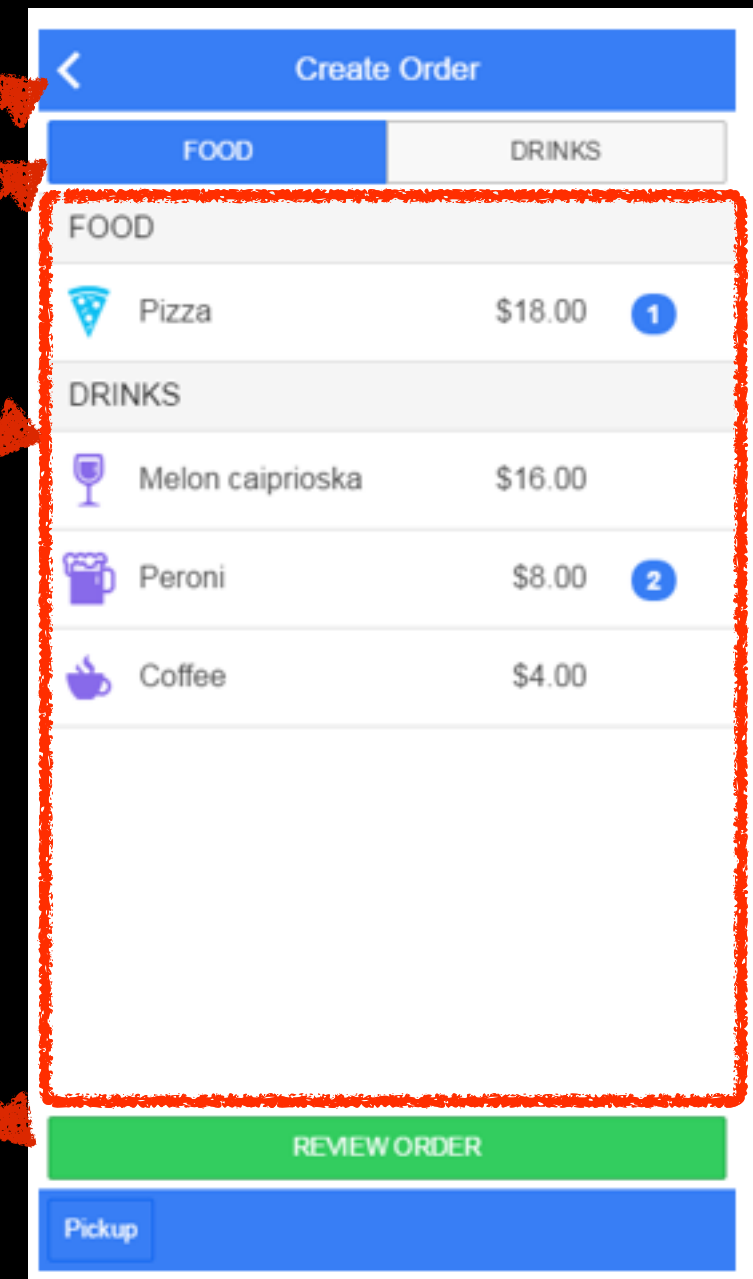


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VIEW STRUCTURE

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  <ion-footer-bar></ion-footer-bar>  
</ion-view>
```

ion-view

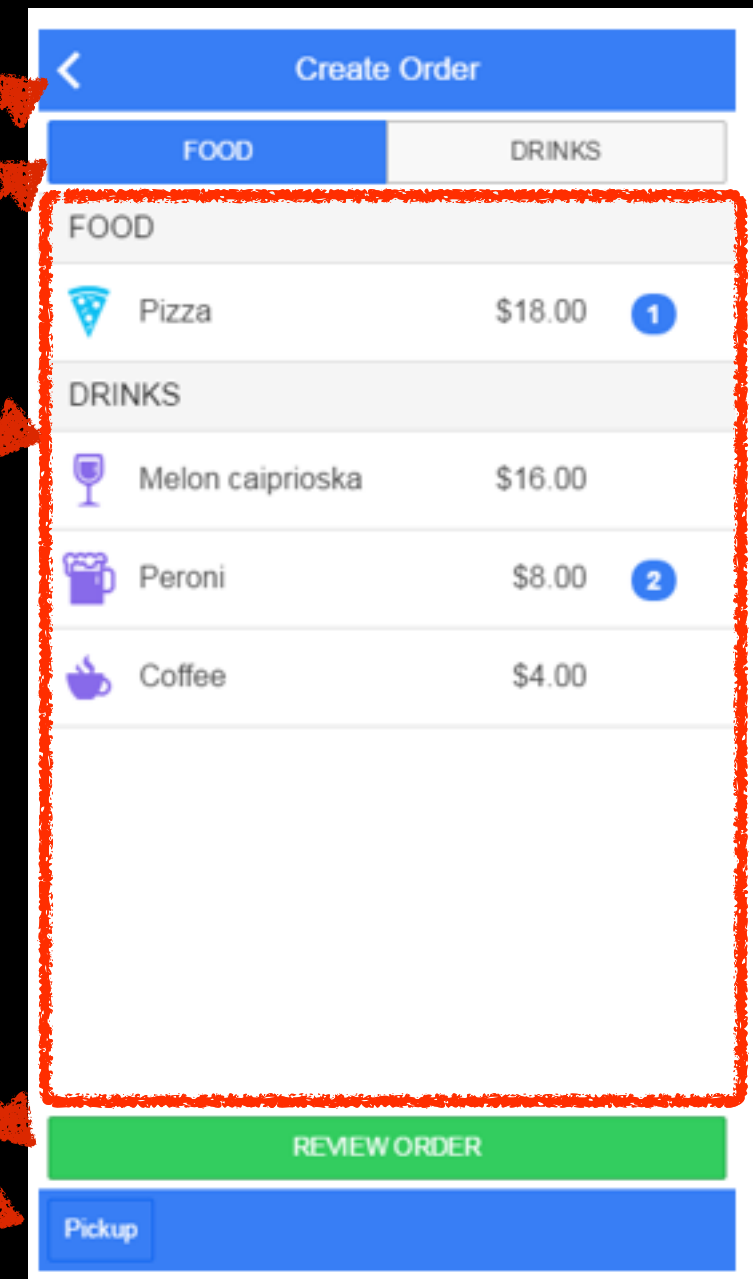


ion-view, ion-content are mandatory

VIEW STRUCTURE

```
<ion-view>  
  <ion-header-bar></ion-header-bar>  
  <ion-subheader-bar></ion-subheader-bar>  
  <ion-content></ion-content>  
  <ion-subfooter-bar></ion-subfooter-bar>  
  <ion-footer-bar></ion-footer-bar>  
</ion-view>
```

ion-view



ion-view, ion-content are mandatory

VIEW

`www/views/movies/movies-list.html`

```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <ion-list>
4       <ion-item ng-repeat="movie in data.movies">
5         {{movie.title}}
6       </ion-item>
7     </ion-list>
8   </ion-content>
9 </ion-view>
```

VIEW

www/views/movies/movies-list.html

```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <ion-list>
4       <ion-item ng-repeat="movie in data.movies">
5         {{movie.title}}
6       </ion-item>
7     </ion-list>
8   </ion-content>
9 </ion-view>
```

For each in \$scope.data.movies



VIEW

www/views/movies/movies-list.html

```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <ion-list>
4       <ion-item ng-repeat="movie in data.movies">
5         {{movie.title}}
6       </ion-item>
7     </ion-list>
8   </ion-content>
9 </ion-view>
```

Display movie title



For each in \$scope.data.movies



VIEW

www/views/movies/movies-list.html

```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <ion-list>
4       <ion-item ng-repeat="movie in data.movies">
5         {{movie.title}}
6       </ion-item>
7     </ion-list>
8   </ion-content>
9 </ion-view>
```



```
1 <ion-item>Inglourious Basterds</ion-item>
2 <ion-item>Pulp Fiction</ion-item>
```


DIRECTIVES

DIRECTIVES

- **“Component” with custom functionality**
- Can have own template and controller
- Can be **defined as element, attribute**, class, comment

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

DIRECTIVES

```
<ion-item ng-repeat="movie in data.movies">  
  <strong>{{movie.title}}</strong>  
</ion-item>
```

DIRECTIVES

ion-item is an
element directive



```
<ion-item ng-repeat="movie in data.movies">  
  <strong>{{movie.title}}</strong>  
</ion-item>
```

DIRECTIVES

ion-item is an
element directive

```
<ion-item ng-repeat="movie in data.movies">  
  <strong>{{movie.title}}</strong>  
</ion-item>
```

ng-repeat is an
attribute directive

EXAMPLES OF DIRECTIVES

- **ng-repeat** (A)
 - Foreach in view
- **ion-list** (E)
 - Render list with default style for mobile devices
- **ng-if** (A)
 - Condition for rendering element

FILTERS

FILTERS

- Helps with **data filtering and formatting**
- Also for using in ng-repeat directive in views
- You can specify own filters

BASIC SEARCH IN LIST

www/views/movies/movies-list.html


```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <div class="item-input-inset">
4       <label class="item-input-wrapper">
5         <i class="icon ion-ios-search"></i>
6         <input type="search" ng-model="searchString"
           placeholder="Search">
7       </label>
8     </div>
9     <ion-list>
10      <ion-item
11        ng-repeat="movie in data.movies | filter: searchString">
12        {{movie.title}}
13      </ion-item>
14    </ion-list>
15  </ion-content>
16</ion-view>
```

BASIC SEARCH IN LIST

Using filter called "filter"
with argument "searchString"

www/views/movies/movies-list.html

```
1 <ion-view title="Movie list" id="view-movies-list">
2   <ion-content>
3     <div class="item-input-inset">
4       <label class="item-input-wrapper">
5         <i class="icon ion-ios-search"></i>
6         <input type="search" ng-model="searchString"
          placeholder="Search">
7       </label>
8     </div>
9     <ion-list>
10      <ion-item
11        ng-repeat="movie in data.movies | filter: searchString">
12        {{movie.title}}
13      </ion-item>
14    </ion-list>
15  </ion-content>
16</ion-view>
```



DONE!

Movie list

🔍

Search

The Hateful Eight

The Revenant

HEADER BAR COLOR

www/index.html

```
<ion-nav-bar class="bar-positive">  
  <ion-nav-back-button>  
  </ion-nav-back-button>  
</ion-nav-bar>
```

scss/partials/_variables.scss

```
$positive: #08b1ff !default;
```

bar-light
bar-stable
bar-positive
bar-calm
bar-balanced
bar-energized
bar-assertive
bar-royal
bar-dark

HEADER BAR COLOR

www/index.html

```
<ion-nav-bar class="bar-positive">  
  <ion-nav-back-button>  
  </ion-nav-back-button>  
</ion-nav-bar>
```

scss/partials/_variables.scss

```
$positive: #08b1ff !default;
```



HOMEWORK

Implement new features

<http://goo.gl/GnEE8E>

<http://zdrojak.cz/clanky/vyvijime-hybridni-aplikace-v-ionicu>

QUESTIONS?



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WWW.USERTECHNOLOGIES.COM