Display a Heroes List

In this page, you'll expand the Tour of Heroes app to display a list of heroes, and allow users to select a hero and display the hero's details.

Create mock heroes

You'll need some heroes to display.

Eventually you'll get them from a remote data server. For now, you'll create some mock heroes and pretend they came from the server.

Create a file called mock-heroes.ts in the src/app/ folder. Define a HEROES constant as an array of ten heroes and export it. The file should look like this.

src/app/mock-heroes.ts

```
import { Hero } from './hero';

export const HEROES: Hero[] = [
  { id: 11, name: 'Dr Nice' },
  { id: 12, name: 'Narco' },
  { id: 13, name: 'Bombasto' },
  { id: 14, name: 'Celeritas' },
  { id: 15, name: 'Magneta' },
  { id: 16, name: 'RubberMan' },
  { id: 17, name: 'Dynama' },
  { id: 18, name: 'Dr IQ' },
  { id: 19, name: 'Magma' },
  { id: 20, name: 'Tornado' }
];
```

Displaying heroes

Open the HeroesComponent class file and import the mock HEROES.

src/app/heroes/heroes.component.ts (import HEROES)

```
export class HeroesComponent implements OnInit {

  heroes = HEROES;
}
```

In the same file (HeroesComponent class), define a component property called heroes to expose the HEROES array for binding.

src/app/heroes/heroes.component.ts

```
export class HeroesComponent implements OnInit {

  heroes = HEROES;
}
```

List heroes with *ngFor

Open the HeroesComponent template file and make the following changes:

- Add an <h2> at the top,
- Below it add an HTML unordered list (<ul>)
- Insert an <li> within the <ul> that displays properties of a hero.
- Sprinkle some CSS classes for styling (you'll add the CSS styles shortly).

Make it look like this:

heroes.component.html (heroes template)

```
<h2>My Heroes</h2>
<ul class="heroes">
  <li>
    <span class="badge">{{hero.id}}</span> {{hero.name}}
  </li>
</ul>
```

That shows one hero. To list them all, add an *ngFor to the <li> to iterate through the list of heroes:

<li *ngFor="let hero of heroes">

The *ngFor is Angular's repeater directive. It repeats the host element for each element in a list.

The syntax in this example is as follows:

- <li> is the host element.
- heroes holds the mock heroes list from the HeroesComponent class, the mock heroes list.
- hero holds the current hero object for each iteration through the list.

Don't forget the asterisk (*) in front of ngFor. It's a critical part of the syntax.

After the browser refreshes, the list of heroes appears.

Style the heroes

The heroes list should be attractive and should respond visually when users hover over and select a hero from the list.

In the first tutorial, you set the basic styles for the entire application in styles.css. That stylesheet didn't include styles for this list of heroes.

You could add more styles to styles.css and keep growing that stylesheet as you add components.

You may prefer instead to define private styles for a specific component and keep everything a component needs— the code, the HTML, and the CSS —together in one place.

This approach makes it easier to re-use the component somewhere else and deliver the component's intended appearance even if the global styles are different.

You define private styles either inline in the @Component.styles array or as stylesheet file(s) identified in the @Component.styleUrls array.

When the CLI generated the HeroesComponent, it created an empty heroes.component.css stylesheet for the HeroesComponent and pointed to it in @Component.styleUrls like this.

src/app/heroes/heroes.component.ts (@Component)

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

Open the heroes.component.css file and paste in the private CSS styles for the HeroesComponent src/app/heroes/heroes. .component.css

```css
/* HeroesComponent's private CSS styles */
.heroes {
  margin: 0 0 2em 0;
  list-style-type: none;
  padding: 0;
  width: 15em;
}
.heroes li {
  cursor: pointer;
  position: relative;
  left: 0;
  background-color: #EEE;
  margin: .5em;
  padding: .3em 0;
  height: 1.6em;
  border-radius: 4px;
}
.heroes li:hover {
  color: #607D8B;
  background-color: #DDD;
  left: .1em;
}
.heroes li.selected {
  background-color: #CFD8DC;
  color: white;
}
.heroes li.selected:hover {
  background-color: #BBD8DC;
  color: white;
}
.heroes .badge {
  display: inline-block;
  font-size: small;
  color: white;
  padding: 0.8em 0.7em 0 0.7em;
  background-color:#405061;
  line-height: 1em;
  position: relative;
  left: -1px;
  top: -4px;
  height: 1.8em;
  margin-right: .8em;
  border-radius: 4px 0 0 4px;
}
```

Styles and stylesheets identified in @Component metadata are scoped to that specific component. The heroes.component.css styles apply only to the HeroesComponent and don't affect the outer HTML or the HTML in any other component.

Master/Detail

When the user clicks a hero in the master list, the component should display the selected hero's details at the bottom of the page.

In this section, you'll listen for the hero item click event and update the hero detail.

Add a click event binding

Add a click event binding to the <li> like this:

heroes.component.html (template excerpt)

```
<li *ngFor="let hero of heroes" (click)="onSelect(hero)">
```

This is an example of Angular's event binding syntax.

The parentheses around click tell Angular to listen for the <li> element's click event. When the user clicks in the <li>, Angular executes the onSelect(hero) expression.

In the next section, define an onSelect() method in HeroesComponent to display the hero that was defined in the *ngFor expression.

Add the click event handler

Rename the component's hero property to selectedHero but don't assign it. There is no selected hero when the application starts.

Add the following onSelect() method, which assigns the clicked hero from the template to the component's selectedHero.

src/app/heroes/heroes.component.ts (onSelect)

```
selectedHero: Hero;
onSelect(hero: Hero): void {
  this.selectedHero = hero;
}
```

Add a details section

Currently, you have a list in the component template. To click on a hero on the list and reveal details about that hero, you need a section for the details to render in the template. Add the following to heroes.component.html beneath the list section:

heroes.component.html (selected hero details)

```
<h2>{{selectedHero.name | uppercase}} Details</h2>
<div><span>id: </span>{{selectedHero.id}}</div>
<div>
  <label>name:
    <input [(ngModel)]="selectedHero.name" placeholder="name"/>
  </label>
</div>
```

After the browser refreshes, the application is broken.

Open the browser developer tools and look in the console for an error message like this:

HeroesComponent.html:3 ERROR TypeError: Cannot read property 'name' of undefined

What happened?

When the app starts, the selectedHero is undefined by design.

Binding expressions in the template that refer to properties of selectedHero—expressions like {{selectedHero.name}}—must fail because there is no selected hero.

The fix - hide empty details with *ngIf

The component should only display the selected hero details if the selectedHero exists.

Wrap the hero detail HTML in a <div>. Add Angular's *ngIf directive to the <div> and set it to selectedHero.

Don't forget the asterisk (*) in front of ngIf. It's a critical part of the syntax.

src/app/heroes/heroes.component.html (*ngIf)

```
<div *ngIf="selectedHero">

  <h2>{{selectedHero.name | uppercase}} Details</h2>
  <div><span>id: </span>{{selectedHero.id}}</div>
  <div>
    <label>name:
      <input [(ngModel)]="selectedHero.name" placeholder="name"/>
    </label>
  </div>

</div>
```

After the browser refreshes, the list of names reappears. The details area is blank. Click a hero in the list of heroes and its details appear. The app seems to be working again. The heroes appear in a list and details about the clicked hero appear at the bottom of the page.

Why it works

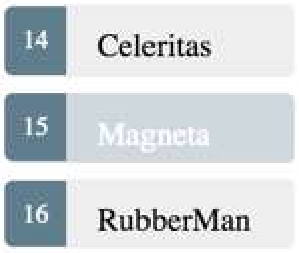
When selectedHero is undefined, the ngIf removes the hero detail from the DOM. There are no selectedHero bindings to consider.

When the user picks a hero, selectedHero has a value and ngIf puts the hero detail into the DOM.

Style the selected hero

It's difficult to identify the selected hero in the list when all <li> elements look alike.

If the user clicks "Magneta", that hero should render with a distinctive but subtle background color like this:



That selected hero coloring is the work of the .selected CSS class in the styles you added earlier. You just have to apply the .selected class to the <li> when the user clicks it.

The Angular class binding makes it easy to add and remove a CSS class conditionally. Just add [class.some-css-class]="some-condition" to the element you want to style.

Add the following [class.selected] binding to the <li> in the HeroesComponent template:

heroes.component.html (toggle the 'selected' CSS class)

```
[class.selected]="hero === selectedHero"
```

When the current row hero is the same as the selectedHero, Angular adds the selected CSS class. When the two heroes are different, Angular removes the class.

The finished <li> looks like this:

heroes.component.html (list item hero)

```
<li *ngFor="let hero of heroes"
  [class.selected]="hero === selectedHero"
  (click)="onSelect(hero)">
  <span class="badge">{{hero.id}}</span> {{hero.name}}
</li>
```

Summary

- The Tour of Heroes app displays a list of heroes in a Master/Detail view.
- The user can select a hero and see that hero's details.
- You used *ngFor to display a list.
- You used *ngIf to conditionally include or exclude a block of HTML.
- You can toggle a CSS style class with a class binding.