Display a selection 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.

> For the sample app that this page describes, see the live example / download example.

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)

```
import { HEROES } from '../mock-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`. You'll find them in the final code review at the bottom of this guide.

> 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

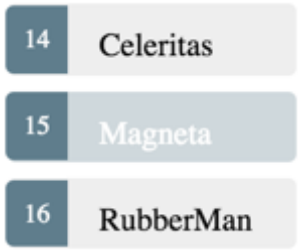
When `selectedHero` is undefined, the `ngIf` removes the hero detail from the DOM. There are no `selectedHero` bindings to consider.

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>
```

Final code review

Here are the code files discussed on this page, including the `HeroesComponent` styles.

src/app/mock-heroes.ts | *src/app/heroes/heroes.component.ts* | *src/app/hero*

```
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' }
];
```

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.