

How Much Magic Is In Angular2?

By Rodric Haddad

@rodyhaddad

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Demo

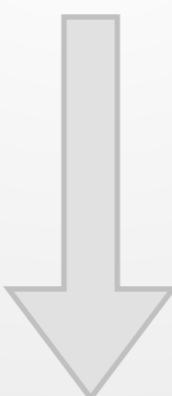
A photograph of two LEGO minifigures standing on a green baseplate. On the left is a yellow-skinned character with brown hair, wearing an orange vest over a blue shirt and orange pants. On the right is a yellow-skinned character with dark hair tied back, wearing a black top and dark pants. They appear to be in a dynamic pose, possibly running or jumping. The background is a solid blue.

Let's build it!

Angular2
+
TypeScript



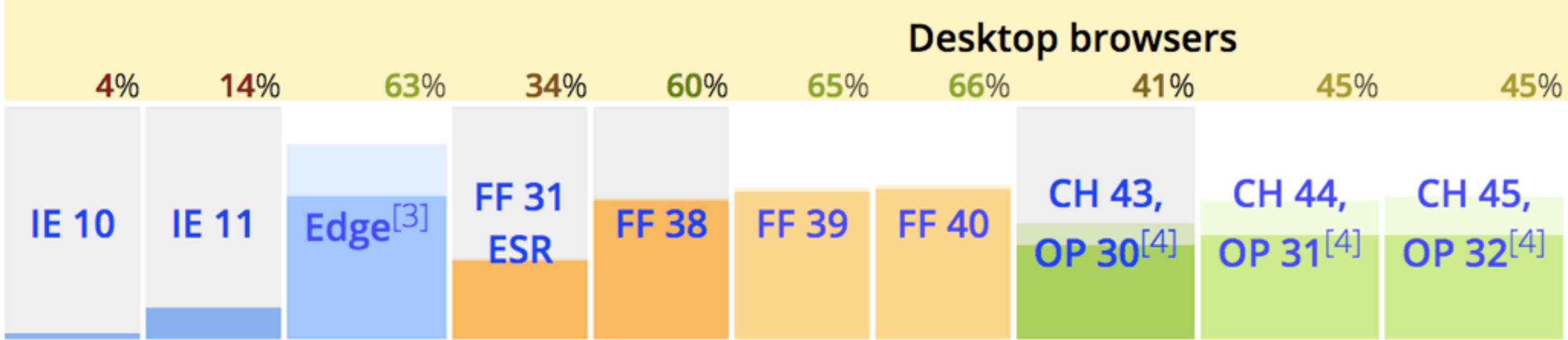
Angular2
+
ES5



Angular1.4
+
ES5

TypeScript

ES6 + Types + Annotations



<https://kangax.github.io/compat-table/es6/>

[1.4.0-beta.5/](#)

[1.4.0-beta.6/](#)

[1.4.0-rc.0/](#)

[1.4.0-rc.1/](#)

[1.4.0-rc.2/](#)

[1.4.0/](#)

[2.0.0-alpha.19/](#)

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[2.0.0-alpha.25/](#)

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[angular2.min.js](#)
[angular2.sfx.dev.js](#)
[router.dev.js](#)
[router.dev.js.map](#)

EXPLORE

▶ WORKING FILES 1 UNSA...

◀ TOURISTS-ON-A-TRIP

◀ src

index.html

• index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5   |
6 </head>
7 <body>
8
9 </body>
10 </html>
```

EXPLORE

▶ WORKING FILES 1 UNSA...

◀ TOURISTS-ON-A-TRIP

◀ src

index.html

• index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <script src="/vendor/angular2.dev.js"></script>
6   </head>
7   <body>
8
9   </body>
10 </html>
```

EXPLORE

▶ WORKING FILES 1 UNSA...

◀ TOURISTS-ON-A-TRIP

◀ src

index.html

• index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <script src="/vendor/system@0.16.11.js"></script>
6     <script src="/vendor/angular2.dev.js"></script>
7   </head>
8   <body>
9
10  </body>
11 </html>
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

◀ src

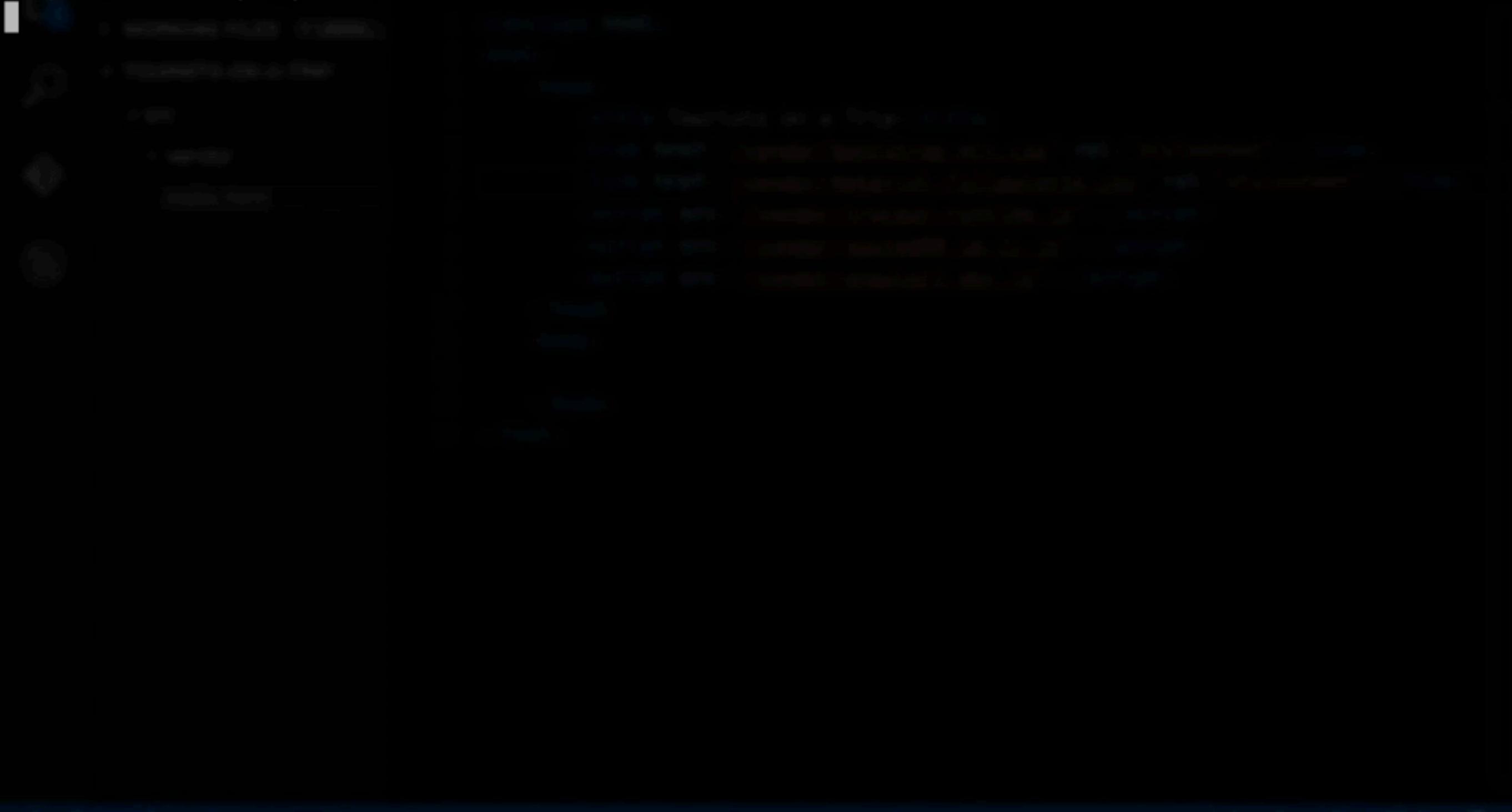
index.html

index.html /src

```
1 <!doctype html>
2 <html>
3     <head>
4         <title>Tourists on a Trip</title>
5         <script src="/vendor/traceur-runtime.js"></script>
6         <script src="/vendor/system@0.16.11.js"></script>
7         <script src="/vendor/angular2.dev.js"></script>
8     </head>
9     <body>
10
11     </body>
12 </html>
```

tourists-on-a-trip\$ npm

```
tourists-on-a-trip$ npm install socket.io --save
```



```
tourists-on-a-trip$ tsd query es6-promise rx rx-lite angular2 socket.io-client --action install --save
```

 EXPLORE

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▶ angular2

▶ es6-promise

▶ rx

▶ socket.io-client

tsd.d.ts

tsd.json

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► angular2

► es6-promise

► rx

► socket.io-client

tsd.d.ts

tsd.json

tsd.d.ts /typings

```
1 /// <reference path="angular2/angular2.d.ts" />
2 /// <reference path="es6-promise/es6-promise.d.ts" />
3 /// <reference path="rx/rx-lite.d.ts" />
4 /// <reference path="rx/rx.d.ts" />
5 /// <reference path="socket.io-client/socket.io-client.d.ts" />
6
```

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src
vendor
index.html
 typings
tsconfig.json
tsd.json

• tsconfig.json /

```
1 {
2   "compilerOptions": {
3     "emitDecoratorMetadata": true,
4     "module": "amd",
5     "target": "es5"
6   },
7   "filesGlob": [
8     "./**/*.ts",
9     "!./node_modules/**/*.ts"
10  ]
11 }
```

EXPLORE

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● tourists-tripping.ts /src

```
1 class TouristsTrippingApp {  
2 |  
3 }
```

EXPLORE

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● tourists-tripping.ts /src

```
1 //> <reference path="../typings/tsd.d.ts" />
2
3
4 class TouristsTrippingApp {
5
6 }
```

EXPLORE

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- tsd.json

● tourists-tripping.ts /src

```
1 //<reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3
4 class TouristsTrippingApp {
5
6 }
```

EXPLORE

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- tsd.json

● tourists-tripping.ts /src

```
1 //<reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3
4 @Component({
5   selector: 'tourists-tripping-app'
6 })
7 class TouristsTrippingApp {
8
9 }
```

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tourists-tripping.html /src

1 Works!



The screenshot shows a code editor interface with a dark theme. On the left is a sidebar titled "EXPLORE" containing a file tree. The "src" folder under "TOURISTS-ON-A-TRIP" is expanded, showing "index.html" which is currently selected. Other files in the tree include "node_modules", "vendor", "tourists-tripping.html", "tourists-tripping.ts", "typings", "tsconfig.json", and "tsd.json". The main pane displays the content of "index.html".

```
• index.html /src
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet"></link>
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular2.dev.js"></script>
10    </head>
11    <body>
12      <tourists-tripping-app></tourists-tripping-app>
13    </body>
14  </html>
```

The screenshot shows a code editor interface with the following details:

- EXPLORE** sidebar:
 - WORKING FILES (2 UNSAVED)
 - TOURISTS-ON-A-TRIP
 - node_modules
 - src
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - typings
 - tsconfig.json
 - tsd.json
- index.html /src** file content:

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet"></link>
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular2.dev.js"></script>
10    </head>
11    <body>
12      <tourists-tripping-app></tourists-tripping-app>
13
14      <script>
15        System.import('tourists-tripping');
16      </script>
17    </body>
18  </html>
```
- Top right icons: Minimize, Maximize, Close.

EXPLORE

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▶ node_modules

◀ src

▶ vendor

index.html

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▶ typings

tsconfig.json

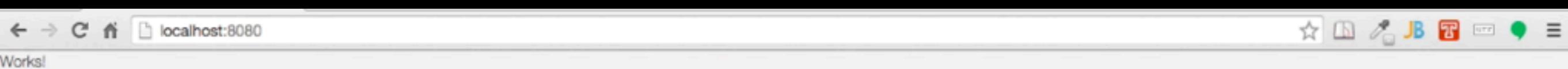
tsd.json

tourists-tripping.ts /src

```
1 //<reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3
4 @Component({
5     selector: 'tourists-tripping-app'
6 })
7 @View({
8     templateUrl: 'tourists-tripping.html'
9 })
10 class TouristsTrippingApp {
11 }
12
13
14 bootstrap(TouristsTrippingApp);
```

```
tourists-on-a-trip$ tsc -w
message TS6042: Compilation complete. Watching for file changes.
```

```
tourists-on-a-trip$ cd src/  
src$ http-server .  
Starting up http-server, serving . on: http://0.0.0.0:8080  
Hit CTRL-C to stop the server
```



EXPLORE

▶ WORKING FILES

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tourists-tripping.ts

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tourists-tripping.js /src

```
8 };
9 if (typeof __metadata !== "function") __metadata = function (k, v) {
10   if (typeof Reflect === "object" && typeof Reflect.metadata === "function") ret
11 };
12 define(["require", "exports", 'angular2/angular2'], function (require, exports, an
13   var TouristsTrippingApp = (function () {
14     function TouristsTrippingApp() {
15   }
16   TouristsTrippingApp = __decorate([
17     angular2_1.Component({
18       selector: 'tourists-tripping-app'
19     }),
20     angular2_1.View({
21       templateUrl: 'tourists-tripping.html'
22     }),
23     __metadata('design:paramtypes', [])
24   ], TouristsTrippingApp);
25   return TouristsTrippingApp;
26 })();
27 angular2_1.bootstrap(TouristsTrippingApp);
28 });
29 
```

Neighborhoods

Service:
NeighborhoodHandler



Model: Neighborhood

- name
- TTAmount

EXPLORE

► WORKING FILES

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tourists-tripping.ts /src

```
1 //<reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3
4 @Component({
5   selector: 'tourists-tripping-app'
6 })
7 @View({
8   templateUrl: 'tourists-tripping.html'
9 })
10 class TouristsTrippingApp {
11
12 }
13
14 bootstrap(TouristsTrippingApp);
```

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▶ WORKING FILES

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neighborhood.ts /src/service/neighborhood-handler

1 |

|



EXPLORE

► WORKING FILES 1 UNSAVED

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► typings

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• neighborhood.ts /src/service/neighborhood-handler

```
1 export class Neighborhood {  
2   name:String;  
3   TTAmount:Number;  
4 }
```

EXPLORE

WORKING FILES 1 UNSAVED

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tsconfig.json

tsd.json

neighborhood.ts /src/service/neighborhood-handler

```
1 export class Neighborhood {  
2     name:String;  
3     TTAmount:Number;  
4  
5     constructor(name:String, TTAmount:Number = 0) {  
6         this.name = name;  
7         this.TTAmount = TTAmount;  
8     }  
9 }
```

EXPLORE

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• neighborhood.ts /src/service/neighborhood-handler

```
1 export class Neighborhood {  
2     name:String;  
3     TTAmount:Number;  
4  
5     constructor(name:String, TTAmount:Number = 0) {  
6         this.name = name;  
7         this.TTAmount = TTAmount;  
8     }  
9  
10    setTTAmount(value:any) {  
11        this.TTAmount = parseFloat(value);  
12        return this;  
13    }  
14 }
```

EXPLORE

WORKING FILES 1 UNSAVED

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tsd.json

neighborhood-handler.ts /src/service/neighborhood-handler

```
1 /// <reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class NeighborhoodHandler {
4
5 }
```

EXPLORE

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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 /// <reference path="../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5
6 }
```

EXPLORE

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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 /// <reference path="../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5     neighborhoods: Neighborhood[];  

6
7     constructor() {
8         this.neighborhoods = [];
9     }
10
11 }
```

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1 WORKING FILES 1 UNSAVED

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• tourists-tripping.ts /src

```
1 /// <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborho
4
5 @Component({
6   selector: 'tourists-tripping-app',
7 })
8 @View({
9   templateUrl: 'tourists-tripping.html'
10 })
11 class TouristsTrippingApp {
12
13 }
14
15 bootstrap(TouristsTrippingApp);
```

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• tourists-tripping.ts /src

```
1 /// <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborho
4
5 @Component({
6   selector: 'tourists-tripping-app',
7   appInjector: [NeighborhoodHandler]
8 })
9 @View({
10   templateUrl: 'tourists-tripping.html'
11 })
12 class TouristsTrippingApp {
13
14 }
15
16 bootstrap(TouristsTrippingApp);
```

EXPLORE

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• tourists-tripping.ts /src

```
1 /// <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborho
4
5 @Component({
6   selector: 'tourists-tripping-app',
7   appInjector: [NeighborhoodHandler]
8 })
9 @View({
10   templateUrl: 'tourists-tripping.html'
11 })
12 class TouristsTrippingApp {
13   |
14   constructor(neighborhoodHandler:NeighborhoodHandler) {
15     |
16   }
17
18 }
19
20 bootstrap(TouristsTrippingApp);
```

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```
1 /// <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborho
4 import {Neighborhood} from 'service/neighborhood-handler/neighborhood';
5
6 @Component({
7   selector: 'tourists-tripping-app',
8   appInjector: [NeighborhoodHandler]
9 })
10 @View({
11   templateUrl: 'tourists-tripping.html'
12 })
13 class TouristsTrippingApp {
14   neighborhoods:Neighborhood[]
15
16   constructor(neighborhoodHandler:NeighborhoodHandler) {
17     this.neighborhoods = neighborhoodHandler.neighborhoods;
18   }
19
20 }
21
22 bootstrap(TouristsTrippingApp);
```

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• tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   |
7 </div>
```

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► WORKING FILES 1 UNSAVED

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tourists-tripping.js

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● tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     {{ neighborhood.name }}
8     {{ neighborhood.TTAmount }}  
[redacted]
9   </div>
10 </div>
```

```
class TouristsTrippingApp {  
    neighborhoods: Neighborhood[]  
  
    constructor(neighborhoodHandler: NeighborhoodHandler) {  
        this.neighborhoods = neighborhoodHandler.neighborhoods;  
    }  
}
```

Array.prototype.push()

▼ SHOW SIDEBAR

Summary

The `push()` method adds one or more elements to the end of an array and returns the new length of the array.

Syntax

```
arr.push(element1, ..., elementN)
```

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tourists-tripping.ts /src

```
6 @Component({  
7   selector: 'tourists-tripping-app',  
8   appInjector: [NeighborhoodHandler]  
9 })  
10 @View({  
11   templateUrl: 'tourists-tripping.html',  
12   directives: [NgFor]  
13 })  
14 class TouristsTrippingApp {  
15   neighborhoods: Neighborhood[]  
16  
17   constructor(neighborhoodHandler: NeighborhoodHandler) {  
18     this.neighborhoods = neighborhoodHandler.neighborhoods;  
19   }  
20  
21 }  
22  
23 bootstrap(TouristsTrippingApp);
```

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 - ◀ src
 - ◀ service
 - ◀ neighborhood-handler
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-handler.js
 - neighborhood-handler.ts
 - ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▷ typings
 - tsconfig.json
 - tsd.json

• tourists-tripping.ts /src

```
6  @Component({
7    selector: 'tourists-tripping-app',
8    appInjector: [NeighborhoodHandler]
9  })
10 @View({
11   templateUrl: 'tourists-tripping.html',
12   directives: [NgFor]
13 })
14 class TouristsTrippingApp {
15   neighborhoods: Neighborhood[]
16
17   constructor(neighborhoodHandler: NeighborhoodHandler) {
18     this.neighborhoods = neighborhoodHandler.neighborhoods;
19
20     neighborhoodHandler.pushNeighborhood(
21       ...
22     )
23   }
24
25 }
26
27 bootstrap(TouristsTrippingApp);
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - ▶ node_modules
 - ◀ src
 - ◀ service
 - ◀ neighborhood-handler
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-handler.js
 - neighborhood-handler.ts
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings
 - tsconfig.json
 - tsd.json

tourists-tripping.ts /src

```
6  @Component({  
7    selector: 'tourists-tripping-app',  
8    appInjector: [NeighborhoodHandler]  
9  })  
10 @View({  
11   templateUrl: 'tourists-tripping.html',  
12   directives: [NgFor]  
13 })  
14 class TouristsTrippingApp {  
15   neighborhoods: Neighborhood[]  
16  
17   constructor(neighborhoodHandler: NeighborhoodHandler) {  
18     this.neighborhoods = neighborhoodHandler.neighborhoods;  
19  
20     neighborhoodHandler.pushNeighborhood(  
21       'Central Amsterdam',  
22       'Red Light District',  
23       'Leidseplein',  
24       'Oud Zuid',  
25       'Rembrandtplein',  
26       'Jordaan',  
27       'The Plantagebuurt',  
28       'De Pijp'  
29     )  
30   }  
}
```

EXPLORE

▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

▶ node_modules

◀ src

◀ service

◀ neighborhood-handler

neighborhood.js

neighborhood.ts

neighborhood-handler.js

neighborhood-handler.ts

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

tsconfig.json

tsd.json

• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5     neighborhoods: Neighborhood[] = [];
6
7     constructor() {
8         this.neighborhoods = [];
9     }
10
11    pushNeighborhood(...names: String[]) {
12        ...
13    }
14 }
```

EXPLORE

▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

▶ node_modules

◀ src

◀ service

◀ neighborhood-handler

neighborhood.js

neighborhood.ts

neighborhood-handler.js

neighborhood-handler.ts

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

tsconfig.json

tsd.json

● neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5     neighborhoods: Neighborhood[] = [];
6
7     constructor() {
8         this.neighborhoods = [];
9     }
10
11    pushNeighborhood(...names: string[]) {
12        names.map(
13            (name) => new Neighborhood(name)
14        );
15    }
16 }
```

EXPLORE

▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

▶ node_modules

◀ src

◀ service

◀ neighborhood-handler

neighborhood.js

neighborhood.ts

neighborhood-handler.js

neighborhood-handler.ts

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

tsconfig.json

tsd.json

● neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5     neighborhoods: Neighborhood[] = [];
6
7     constructor() {
8         this.neighborhoods = [];
9     }
10
11    pushNeighborhood(...names: string[]) {
12        this.neighborhoods.push(
13            ...names.map(
14                (name) => new Neighborhood(name)
15            )
16        );
17    }
18 }
```

Tourists on a Trip

Central Amsterdam 0

Red Light District 0

Leidseplein 0

Oud Zuid 0

Rembrandtplein 0

Jordaan 0

The Plantagebuurt 0

De Pijp 0

Component: PeopleCount

Central Amsterdam

How many Tourists on a trip do you see?

Value: 0

REPORT

```
<people-count  
    title="..."  
    amount="..."></people-count>
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - ▷ node_modules
 - △ src
 - ▷ component
 - △ service
 - △ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▷ typings
 - tsconfig.json
 - tsd.json

neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3
4 export class NeighborhoodHandler {
5     neighborhoods: Neighborhood[] = [];
6
7     constructor() {
8         this.neighborhoods = [];
9     }
10
11    pushNeighborhood(...names: String[]): void {
12        this.neighborhoods.push(
13            ...names.map(
14                (name) => new Neighborhood(name)
15            )
16        );
17    }
18 }
```

The image shows a code editor interface with the following details:

- EXPLORE** sidebar:
 - WORKING FILES (1 UNSAVED)
 - TOURISTS-ON-A-TRIP
 - node_modules
 - src
 - component
 - service
 - neighborhood-ha... (highlighted)
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - vendor
 - index.html
 - tourists-tripping.html (highlighted)
 - tourists-tripping.js
 - tourists-tripping.ts
 - typings
 - tsconfig.json
 - tsd.json

File **tourists-tripping.html** /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     {{ neighborhood.name }}
8     {{ neighborhood.TTAmount }}
9     <people-count
10       title="neighborhood.name"
11       amount="neighborhood.TTAmount"
12     ></people-count>
13   </div>
14 </div>
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▷ node_modules
 - ◀ src
 - ▷ component
 - ◀ service
 - ◀ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▷ vendor
 - index.html
- tourists-tripping.html
- tourists-tripping.js
- tourists-tripping.ts
- ▷ typings
 - tsconfig.json
 - tsd.json

● tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     <people-count
8       [title]="neighborhood.name"
9       [amount]="neighborhood.TTAmount"
10      ></people-count>
11    </div>
12 </div>
```

EXPLORE

► WORKING FILES

◀ TOURISTS-ON-A-TRIP

► node_modules

► src

► component

► people-count

people-count.h...

people-count.ts

► service

► neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

► vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

people-count.ts /src/component/people-count

```
1 /// <reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class PeopleCount {
4     title: String;
5     amount: Number;
6 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▶ node_modules
 - ◀ src
 - ◀ component
 - ◀ people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - ◀ service
 - ◀ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js

● people-count.ts /src/component/people-count

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Component, View} from 'angular2/angular2';
3
4 @Component({
5   selector: 'people-count'
6 })
7 @View({
8   templateUrl: 'component/people-count/people-count.html'
9 })
10 export class PeopleCount {
11   title: String;
12   amount: Number;
13 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▷ node_modules
 - ◀ src
 - ◀ component
 - ◀ people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - ◀ service
 - ◀ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js

● people-count.ts /src/component/people-count

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Component, View} from 'angular2/angular2';
3
4 @Component({
5   selector: 'peo Component(arg: _ComponentArg): (target: any) => any
6   properties: ['title', 'amount']
7 })
8 @View({
9   templateUrl: 'component/people-count/people-count.html'
10 })
11 export class PeopleCount {
12   title: String;
13   amount: Number;
14 }
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▶ node_modules

◀ src

▶ component

▶ people-count

people-count.h...

people-count.js

people-count.ts

▶ service

▶ neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

people-count.ts /src/component/people-count

```
1 /// <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Component, View} from 'angular2/angular2';
3
4 @Component({
5   selector: 'peo Component(arg: _ComponentArg): (target: any) => any
6   properties: ['title: tt-title', 'amount: tt-amount']
7 })
8 @View({
9   templateUrl: 'component/people-count/people-count.html'
10 })
11 export class PeopleCount {
12   title: String;
13   amount: Number;
14 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▶ node_modules
 - ◀ src
 - ◀ component
 - ◀ people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - ◀ service
 - ◀ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
- tourists-tripping.html
- tourists-tripping.js

● tourists-tripping.html /src

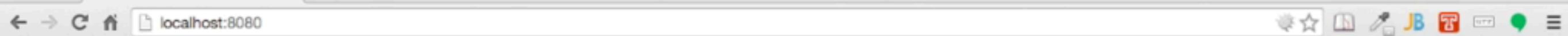
```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     <people-count
8       [tt-title]="neighborhood.name"
9       [tt-amount]="neighborhood.TTAmount"
10    ></people-count>
11  </div>
12 </div>
```

The screenshot shows a code editor interface with a dark theme. On the left is a sidebar titled "EXPLORE" containing a tree view of project files. The "WORKING FILES" section shows "1 UNSA..." and "TOURISTS-ON-A-TRIP". Under "TOURISTS-ON-A-TRIP", there are "node_modules", "src" (which contains "component" and "people-count"), "service", and "vendor". The "people-count" folder contains "people-count.html", "people-count.js", and "people-count.ts". The "index.html", "tourists-tripping.html", and "tourists-tripping.js" files are listed under "vendor". A blue box highlights the "people-count.html" file. The main editor area displays the content of "people-count.html".

```
● people-count.html /src/component/people-count
1
2 <div class="panel panel-default">
3   <div class="panel-heading">
4     {{ tiel }}
5   </div>
6   <div class="panel-body">
7     <p>How many Tourists on a trip do you see?</p>
8     <form>
9       </form>
10    </div>
11    <div class="panel-footer">
12      <button type="button" class="btn btn-success">Report</button>
13    </div>
14  </div>
```

The image shows a code editor interface with a dark theme. On the left is a sidebar titled "EXPLORE" containing a file tree. The tree includes a "WORKING FILES" section with "1 UNSA...", a "TOURISTS-ON-A-TRIP" folder containing "node_modules", "src" (which has "component" and "people-count" subfolders), "service" (with "neighborhood-ha..."), and "vendor" (with "index.html", "tourists-tripping.html", and "tourists-tripping.js"). A file named "people-count.h..." is selected in the "people-count" folder. The main area of the editor displays the content of "people-count.html".

```
● people-count.html /src/component/people-count
1
2 <div class="panel panel-default">
3   <div class="panel-heading">
4     {{ title }}
5   </div>
6   <div class="panel-body">
7     <p>How many Tourists on a trip do you see?</p>
8     <form>
9       {{ amount }}
10      </form>
11    </div>
12    <div class="panel-footer">
13      <button type="button" class="btn btn-success">Report</button>
14    </div>
15 </div>
```



Tourists on a Trip

EXPLORE

- WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
- ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- ▷ typings
 - tsconfig.json
 - tsd.json

● tourists-tripping.ts /src

```
1 //> <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap, NgFor} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborhood-handl
4 import {Neighborhood} from 'service/neighborhood-handler/neighborhood';
5 import {PeopleCount} from 'component/people-count/people-count';
6
7 @Component({
8   selector: 'tourists-tripping-app',
9   appInjector: [NeighborhoodHandler]
10 })
11 @View({
12   templateUrl: 'View(arg: _ViewArg): (target: any) => any',
13   directives: [NgFor, PeopleCount]
14 })
15 class TouristsTrippingApp {
16   neighborhoods: Neighborhood
17
18   constructor(neighborhoodHandler: NeighborhoodHandler) {
19     this.neighborhoods = neighborhoodHandler.neighborhoods;
20
21     neighborhoodHandler.pushNeighborhood(
22       'Central Amsterdam',
23       'Red Light District',
24       'Leidseplein',
25       'Oud Zuid',
```

Forms

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     <people-count
8       [tt-title]="neighborhood.name"
9       [tt-amount]="neighborhood.TTAmount"
10    ></people-count>
11  </div>
12 </div>
```

EXPLORE

- WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - typings

● people-count.ts /src/component/people-count

```
2 import {Component, View, Control} from 'angular2/angular2';
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount']
7 })
8 @View({
9   templateUrl: 'component/people-count/people-count'
10 })
11 export class PeopleCount {
12   title: String;
13   amount: Number;
14
15   amountControl: Control;
16   constructor() {
17     this.amountControl = new Control();
18   }
19 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

● people-count.ts /src/component/people-count

```
2 import {Component, View, Control, ControlGroup} from 'angular2/angular2';
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount']
7 })
8 @View({
9   templateUrl: 'component/people-count/people-count'
10 })
11 export class PeopleCount {
12   title: String;
13   amount: Number;
14
15   amountControl: Control;
16   peopleCountForm: ControlGroup;
17   constructor() {
18     this.amountControl = new Control();
19
20
21   }
22 }
```

EXPLORE

- WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
- vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- typings

● people-count.ts /src/component/people-count

```
2 import {Component, View, Control, ControlGroup, FormBuilder} from 'angular2/angular2'
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount']
7 })
8 @View({
9   templateUrl: 'component/people-count/people-count'
10 })
11 export class PeopleCount {
12   title: String;
13   amount: Number;
14
15   amountControl: Control;
16   peopleCountForm: ControlGroup;
17   constructor(builder: FormBuilder) {
18     this.amountControl = new Control();
19
20     this.peopleCountForm = builder.group({
21       amount: this.amountControl
22     });
23   }
24 }
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▶ component

▶ people-count

people-count.h...

people-count.js

people-count.ts

▶ service

▶ neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

people-count.ts /src/component/people-count



```
2 import {Component, View, Control, ControlGroup, FormBuilder} from 'angular2/angular'
3
4 @Component({
5   selector: 'people-count',
6   properties: ['Component(arg: _ComponentArg): (target: any) => any'],
7   appInjector: [FormBuilder]
8 })
9 @View({
10   templateUrl: 'component/people-count/people-count'
11 })
12 export class PeopleCount {
13   title: String;
14   amount: Number;
15
16   amountControl: Control;
17   peopleCountForm: ControlGroup;
18   constructor(builder: FormBuilder) {
19     this.amountControl = new Control();
20
21     this.peopleCountForm = builder.group({
22       amount: this.amountControl
23     });
24   }
25 }
```

The screenshot shows a code editor interface with a dark theme. On the left is a sidebar titled "EXPLORE" containing a tree view of files and folders. The "TOURISTS-ON-A-TRIP" folder is expanded, showing its contents. The "people-count.html" file is selected and highlighted with a blue background. The main workspace on the right displays the HTML code for this file.

```
● people-count.html /src/component/people-count
1 <div class="panel panel-default">
2   <div class="panel-heading">
3     {{ title }}
4   </div>
5   <div class="panel-body">
6     <p>How many Tourists on a trip do you see?</p>
7     <form>
8       <input type="range" />
9       Value: {{ amountControl.value }}
10      </form>
11    </div>
12    <div class="panel-footer">
13      <button type="button" class="btn btn-success">Report</button>
14    </div>
15  </div>
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - ◀ people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - ◀ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

• people-count.html /src/component/people-count

```
1 <div class="panel panel-default">
2   <div class="panel-heading">
3     {{ title }}
4   </div>
5   <div class="panel-body">
6     <p>How many Tourists on a trip do you see?</p>
7     <form [ng-form-model]="peopleCountForm">
8       <input type="range" ng-control="amount" />
9       Value: {{ amountControl.value }}
10      </form>
11    </div>
12    <div class="panel-footer">
13      <button type="button" class="btn btn-success">Report</button>
14    </div>
15  </div>
16 </div>
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

people-count.ts /src/component/people-count

```
2 import {Component, View, Control, ControlGroup, FormBuilder, formDirectives} from
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount'],
7   appInjector: [FormBuilder]
8 })
9 @View({
10   templateUrl: 'component/people-count/people-count',
11   directives: [formDirectives]
12 })
13 export class PeopleCount {
14   title: String;
15   amount: Number;
16
17   amountControl: Control;
18   peopleCountForm: ControlGroup;
19   constructor(builder: FormBuilder) {
20     this.amountControl = new Control();
21
22     this.peopleCountForm = builder.group({
23       amount: this.amountControl
24     });
25   }
26 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

● people-count.ts /src/component/people-count

```
2 import {Component, View, Control, ControlGroup, FormBuilder, formDirectives, onChange} from '@angular/forms';
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount'],
7   appInjector: [Component(arg: _ComponentArg): (target: any) => any],
8   lifecycle: [onChange]
9 })
10 @View({
11   templateUrl: 'component/people-count/people-count',
12   directives: [formDirectives]
13 })
14 export class PeopleCount {
15   title: String;
16   amount: Number;
17
18   amountControl: Control;
19   peopleCountForm: ControlGroup;
20   constructor(builder: FormBuilder) {
21     this.amountControl = new Control();
22
23     this.peopleCountForm = builder.group({
24       amount: this.amountControl
25     });
26 }
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▶ component

▶ people-count

people-count.h...

people-count.js

people-count.ts

▶ service

▶ neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

people-count.ts /src/component/people-count

```
22  
23     this.peopleCountForm = builder.group({  
24         amount: this.amountControl  
25     });  
26 }  
27  
28 onChange() {  
29     this.amountControl.updateValue(this.amount);  
30 }  
31 }
```



One Way Data-binding

localhost:8080

Tourists on a Trip

Central Amsterdam

How many Tourists on a trip do you see?

Value: 0

REPORT

Red Light District

How many Tourists on a trip do you see?

Value: 0

REPORT

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT



QuickTime Player

EXPLORE

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 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ▶ typings

● tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       [tt-title]="neighborhood.name"
10      [tt-amount]="neighborhood.TTAmount"
11      ></people-count>
12    </div>
13  </div>
```

localhost:8080

Tourists on a Trip

ModelValue: 0

Central Amsterdam

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelError: 0

Red Light District

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelError: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
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 - ▶ vendor
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 - tourists-tripping.ts
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tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       [tt-title]="neighborhood.name"
10      [tt-amount]="neighborhood.TTAmount"
11      (tt-amount-change)="neighborhood.setTTAmount($event.amount)"
12      ></people-count>
13    </div>
14  </div>
```



EXPLORE

► WORKING FILES 1 UNSA...

► TOURISTS-ON-A-TRIP

◀ component

◀ people-count

people-count.h...

people-count.js

people-count.ts

► service

◀ neighborhood-ha...

neighborhood.is

neighborhood.ts

neighborhood-.

neighborhood-.

► vendor

index.html

[tourists-tripping.html](#)

tourists-tripping.is

tourists-tripping ts

► **typings**

- people-count.ts /src/component/people-count

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Component, View, Control, ControlGroup, FormBuilder, formDirectives, onChange}
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount'],
7   appInjector: [FormBuilder],
8   lifecycle: [onChange],
9   events: ['ttAmountChange']
10 })
11 @View({
12   templateUrl: 'component/people-count/people-count',
13   directives: [formDirectives]
14 })
15 export class PeopleCount {
16   title: String;
17   amount: Number;
18
19   amountControl: Control;
20   peopleCountForm: ControlGroup;
21   constructor(builder: FormBuilder) {
22     this.amountControl = new Control();
23
24     this.peopleCountForm = builder.group({
25       amount: this.amountControl
26     });
27   }
28
29   onChange(amount: number) {
30     console.log(`The amount is now ${amount}`);
31   }
32 }
33
34 
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

component

people-count

people-count.h...

people-count.js

people-count.ts

service

neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

▶ typings

people-count.ts /src/component/people-count

```
15 export class PeopleCount {  
16     title: String;  
17     amount: Number;  
18  
19     ttAmountChange: EventEmitter;  
20  
21     amountControl: Control;  
22     peopleCountForm: ControlGroup;  
23     constructor(builder: FormBuilder) {  
24         this.ttAmountChange = new EventEmitter();  
25  
26         this.amountControl = new Control();  
27  
28         this.peopleCountForm = builder.group({  
29             amount: this.amountControl  
30         });  
31     }  
32  
33     onChange() {  
34         this.amountControl.updateValue(this.amount);  
35     }  
36 }
```

The image shows a screenshot of a code editor interface. On the left is a sidebar with various icons: a document with a blue circle containing the number '1', a magnifying glass, a play button, and a circular icon with a checkmark. The main area has a title bar with 'EXPLORE' and a file path 'people-count.html /src/component/people-count'. The code editor displays the following HTML and its tooltip:

```
1 <div class="panel panel-default">
2   <div class="panel-heading">
3     {{ title }}
4   </div>
5   <div class="panel-body">
6     <p>How many people are you?</p>
7     <form [ngForm]>
8       <input type="text" value="Value:<br/>"/>
9     </form>
10    <div class="panel-footer">
11      <button type="button" (click)="reportAmount()">Report</button>
12    </div>
13  </div>
14 </div>
15 </div>
16 </div>
17 </div>
```

A tooltip is displayed over the word 'accesskey' in the second line of the code. The tooltip lists several attributes starting with 'data-' and ends with 'accesskey', with 'accesskey' being the currently selected item. The tooltip also includes a small arrow pointing towards the 'accesskey' word.

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 - neighborhood-...
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 - tourists-tripping.js
 - tourists-tripping.ts
- ▶ typings

people-count.ts /src/component/people-count

```
18
19     ttAmountChange: EventEmitter;
20
21     amountControl: Control;
22     peopleCountForm: ControlGroup;
23     constructor(builder: FormBuilder) {
24         this.ttAmountChange = new EventEmitter();
25
26         this.amountControl = new Control();
27
28         this.peopleCountForm = builder.group({
29             amount: this.amountControl
30         });
31     }
32
33     onChange() {
34         this.amountControl.updateValue(this.amount);
35     }
36
37     reportAmount() {
38         var event = {
39             amount: this.amountControl.value
40         };
41         this.ttAmountChange.next(event);
42     }
```

localhost:8080

ModelValue: 0

Central Amsterdam

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelValue: 0

Red Light District

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelValue: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

Service:
SocketHandler

Tourists on a Trip

ModelValue: 0

Central Amsterdam

How many Tourists on a trip do you see?

Value: 0

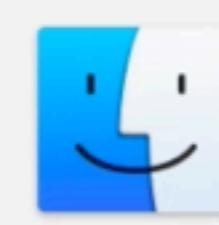
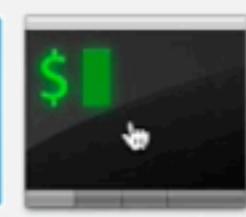
REPORT

ModelValue: 0

Red Light District

How many Tourists on a trip do you

Value: 0



REPORT

ModelValue: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

EXPLORE

1 WORKING FILES 1 UNSA...

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 - neighborhood.ts
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 - neighborhood-...
 - socket-handler
 - socket-handler.ts
 - vendor
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 - tourists-tripping.html
 - tourists-tripping.js

● socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4
5 }
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

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 - people-count.js
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 - socket-handler
 - socket-handler.ts
- vendor
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 - tourists-tripping.js

• socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5 }
```

EXPLORE

- WORKING FILES 1 UNSA...
- ▲ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.h...
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 - neighborhood-...
 - socket-handler
 - socket-handler.ts
 - ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js

● socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5
6     constructor() {
7         this.socket = io.connect("http://localhost:9898");
8     }
9 }
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- component
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 - socket-handler
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 - index.html
 - tourists-tripping.html
 - tourists-tripping.js

• socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5
6     constructor() {
7         this.socket = io.connect("http://localhost:9898");
8     }
9
10    updateNeighborhood(name: string, TTAmount: number) {
11        |
12    }
13 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▶ component
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 - index.html
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● socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5
6     constructor() {
7         this.socket = io.connect("http://localhost:9898");
8     }
9
10    updateNeighborhood(name: string, TTAmount: number) {
11        this.socket.emit('updateNeighborhoods', {
12            [name]: TTAmount
13        });
14    }
15 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
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 - tourists-tripping.js

● socket-handler.ts /src/service/socket-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5
6     constructor() {
7         this.socket = io.connect("http://localhost:9898");
8     }
9
10    updateNeighborhood(name: string, TTAmount: number) {
11        this.socket.emit('updateNeighborhoods', {
12            [name]: TTAmount
13        });
14    }
15
16    onUpdateNeighborhood(listener: Function) {
17        ...
18    }
19 }
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

component

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people-count.h...

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socket-handler

socket-handler.ts

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

socket-handler.ts /src/service/socket-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2
3 export class SocketHandler {
4     socket: SocketIOClient.Socket;
5
6     constructor() {
7         this.socket = io.connect("http://localhost:9898");
8     }
9
10    updateNeighborhood(name: string, TTAmount: number) {
11        this.socket.emit('updateNeighborhoods', {
12            [name]: TTAmount
13        });
14    }
15
16    onUpdateNeighborhood(listener: Function) {
17        this.socket.on('updateNeighborhoods', (data) => {
18            Object.keys(data).forEach(
19                (name) => listener(name, data[name])
20            );
21        });
22    }
23 }
```

EXPLORE

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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Neighborhood} from './neighborhood';
3 import {SocketHandler} from '../../../../../service/socket-handler/socket-handler';
4
5 export class NeighborhoodHandler {
6     neighborhoods: Neighborhood[] = [];
7
8     constructor(socketHandler: SocketHandler) {
9         this.neighborhoods = [];
10    }
11
12     pushNeighborhood(...names: string[]): void {
13         this.neighborhoods.push(
14             ...names.map(
15                 (name) => new Neighborhood(name)
16             )
17         );
18     }
19 }
```

EXPLORE

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 - socket-handler.ts
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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[] =
8
9     constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
10       this.neighborhoods = [];
11     }
12
13   pushNeighborhood(...names: String[]) {
14     this.neighborhoods.push(
15       ...names.map(
16         (name) => new Neighborhood(name)
17       )
18     );
19   }
20 }
```

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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[];
8   socketHandler: SocketHandler;
9
10  constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
11    this.neighborhoods = [];
12    this.socketHandler = socketHandler;
13
14    this.socketHandler.onUpdateNeighborhood((name, amount) => {
15      |
16    });
17  }
18
19  pushNeighborhood(...names:String[]) {
20    this.neighborhoods.push(
21      ...names.map(
22        (name) => new Neighborhood(name)
23      )
24    );
25  }

```

EXPLORE

- WORKING FILES 1 UNSA...
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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[];
8   socketHandler: SocketHandler;
9
10  constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
11    this.neighborhoods = [];
12    this.socketHandler = socketHandler;
13
14    this.socketHandler.onUpdateNeighborhood((name, amount) => {
15      var neighborhood: Neighborhood = this.neighborhoods.filter(
16        (n) => n.name === name
17      );
18    });
19  }
20
21  pushNeighborhood(...names:String[]) {
22    this.neighborhoods.push(
23      ...names.map(
24        (name) => new Neighborhood(name)
25      )
26    );
27  }
28}
```

EXPLORE

- WORKING FILES 1 UNSA...
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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[];
8   socketHandler: SocketHandler;
9
10  constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
11    this.neighborhoods = [];
12    Type 'Neighborhood[]' is not assignable to type 'Neighborhood'. Property 'name'
13    is missing in type 'Neighborhood[]'.
14    (local var) neighborhood: Neighborhood
15    var neighborhood: Neighborhood = this.neighborhoods.filter(
16      (n) => n.name === name
17    );
18  }
19
20
21  pushNeighborhood(...names:String[]) {
22    this.neighborhoods.push(
23      ...names.map(
24        (name) => new Neighborhood(name)
25      )
26    )
27  }
28}
```

EXPLORE

- WORKING FILES 1 UNSA...
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• neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //<reference path="../../../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[];
8   socketHandler: SocketHandler;
9
10  constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
11    this.neighborhoods = [];
12    this.socketHandler = socketHandler;
13
14    this.socketHandler.onUpdateNeighborhood((name, amount) => {
15      var neighborhood: Neighborhood = this.neighborhoods.filter(
16        (n) => n.name === name
17      )[0];
18    });
19  }
20
21  pushNeighborhood(...names:String[]) {
22    this.neighborhoods.push(
23      ...names.map(
24        (name) => new Neighborhood(name)
25      )
26    );
27  }
28}
```

Data Propagation

The screenshot shows a software interface, likely an Integrated Development Environment (IDE), with a dark-themed interface. On the left side, there is a vertical file tree (Explorer) with the following structure:

- EXPLORE
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 - neighborhood.ts
 - neighborhood-...
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 - ◀ typings
 - ◀ angular2
 - angular2.d.ts
 - ▶ es6-promise

The file `tourists-tripping.html` is currently selected and is displayed in the main code editor area. The code is written in HTML and includes some Angular 2 specific directives and binding syntax.

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       [tt-title]="neighborhood.name"
10      [tt-amount]="neighborhood.TTAmount"
11      (tt-amount-change)="neighborhood.setTTAmount($event.amount)"
12      ></people-count>
13    </div>
14  </div>
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - ▶ component
 - people-count
 - people-count.h...
 - people-count.js
 - people-count.ts
 - ▶ service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▶ socket-handler
 - socket-handler.js
 - socket-handler.ts
- ▶ vendor
 - index.html
 - tourists-tripping.html

neighborhood-handler.ts /src/service/neighborhood-handler

```
1 //> <reference path="../../../../typings/tsd.d.ts" />
2 import {Inject} from 'angular2/angular2';
3 import {Neighborhood} from './neighborhood';
4 import {SocketHandler} from '../../service/socket-handler/socket-handler';
5
6 export class NeighborhoodHandler {
7   neighborhoods: Neighborhood[];
8   socketHandler: SocketHandler;
9
10  constructor(@Inject(SocketHandler) socketHandler: SocketHandler) {
11    this.neighborhoods = [];
12    this.socketHandler = socketHandler;
13
14    this.socketHandler.onUpdateNeighborhood((name, amount) => {
15      var neighborhood: Neighborhood = this.neighborhoods.filter(
16        (n) => n.name === name
17      )[0];
18
19      if (neighborhood) {
20        neighborhood.setTTAmount(amount);
21      }
22    });
23  }
24
25  pushNeighborhood(...names:String[]) {
```

EXPLORE

- WORKING FILES 1 UNSA...
- TOURISTS-ON-A-TRIP
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - socket-handler
 - socket-handler.js
 - socket-handler.ts
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- typings
 - angular2
 - angular2.d.ts
- es6-promise

● tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" *ng-for="#neighborhood of neighborhoods;">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       [tt-title]="neighborhood.name"
10      [tt-amount]="neighborhood.TTAmount"
11      (tt-amount-change)="updateNeighborhood(neighborhood, $event.amount)"
12    ></people-count>
13  </div>
14 </div>
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▲ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▲ socket-handler
 - socket-handler.js
 - socket-handler.ts
 - ▷ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- ◀ typings
 - ◀ angular2
 - angular2.d.ts
 - ▷ es6-promise

- tourists-tripping.ts /src

```
15 class TouristsTrippingApp {  
16     neighborhoods: Neighborhood[];  
17  
18     constructor(neighborhoodHandler: NeighborhoodHandler) {  
19         this.neighborhoods = neighborhoodHandler.neighborhoods;  
20  
21         neighborhoodHandler.pushNeighborhood(  
22             'Central Amsterdam',  
23             'Red Light District',  
24             'Leidseplein',  
25             'Oud Zuid',  
26             'Rembrandtplein',  
27             'Jordaan',  
28             'The Plantagebuurt',  
29             'De Pijp'  
30     )  
31 }  
32  
33     updateNeighborhood(neighborhood: Neighborhood, amount: Number) {  
34         |  
35     }  
36  
37 }  
38  
39 bootstrap(TouristsTrippingApp);
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▲ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▲ socket-handler
 - socket-handler.js
 - socket-handler.ts
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 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- ◀ typings
- ◀ angular2
 - angular2.d.ts
- ▶ es6-promise

● tourists-tripping.ts /src

```
15 class TouristsTrippingApp {  
16   neighborhoods: Neighborhood[];  
17   neighborhoodHandler: NeighborhoodHandler;  
18  
19   constructor(neighborhoodHandler: NeighborhoodHandler) {  
20     this.neighborhoodHandler = neighborhoodHandler;  
21  
22     this.neighborhoods = neighborhoodHandler.neighborhoods;  
23  
24     neighborhoodHandler.pushNeighborhood(  
25       'Central Amsterdam',  
26       'Red Light District',  
27       'Leidseplein',  
28       'Oud Zuid',  
29       'Rembrandtplein',  
30       'Jordaan',  
31       'The Plantagebuurt',  
32       'De Pijp'  
33     )  
34   }  
35  
36   updateNeighborhood(neighborhood: Neighborhood, amount: Number) {  
37     this.neighborhoodHandler.updateNeighborhood(neighborhood, amount);  
38   }  
39 }
```

EXPLORE

- ▶ WORKING FILES 2 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▲ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▲ socket-handler
 - socket-handler.js
 - socket-handler.ts
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ◀ typings
 - ◀ angular2
 - angular2.d.ts
 - ▶ es6-promise

```
● neighborhood-handler.ts /src/service/neighborhood-handler

13
14      this.socketHandler.onUpdateNeighborhood((name, amount) => {
15          var neighborhood: Neighborhood = this.neighborhoods.filter(
16              (n) => n.name === name
17          )[0];
18
19          if (neighborhood) {
20              neighborhood.setTTAmount(amount);
21          }
22      });
23  }
24
25  pushNeighborhood(...names:String[])
26  {
27      this.neighborhoods.push(
28          ...names.map(
29              (name) => new Neighborhood(name)
30          )
31      );
32
33  updateNeighborhood(neighborhood: Neighborhood, amount: Number) {
34
35  }
36 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - ▲ neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - ▲ socket-handler
 - socket-handler.js
 - socket-handler.ts
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
 - ◀ typings
 - ◀ angular2
 - angular2.d.ts
 - ▶ es6-promise

neighborhood-handler.ts /src/service/neighborhood-handler

```
13
14      this.socketHandler.onUpdateNeighborhood((name, amount) => {
15          var neighborhood: Neighborhood = this.neighborhoods.filter(
16              (n) => n.name === name
17          )[0];
18
19          if (neighborhood) {
20              neighborhood.setTTAmount(amount);
21          }
22      });
23  }
24
25  pushNeighborhood(...names:String[])
26  {
27      this.neighborhoods.push(
28          ...names.map(
29              (name) => new Neighborhood(name)
30          )
31      );
32
33  updateNeighborhood(neighborhood: Neighborhood, amount: Number) {
34      neighborhood.setTTAmount(amount);
35      this.socketHandler.updateNeighborhood(neighborhood.name, amount);
36  }
37 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood.ts
 - neighborhood-...
 - neighborhood-...
 - socket-handler
 - socket-handler.js
 - socket-handler.ts
- ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - tourists-tripping.ts
- ▶ typings
 - tsconfig.json
 - tsd.json

● tourists-tripping.ts /src

```
1 //> <reference path="../typings/tsd.d.ts" />
2 import {Component, View, bootstrap, NgFor} from 'angular2/angular2';
3 import {NeighborhoodHandler} from 'service/neighborhood-handler/neighborhood-handl
4 import {Neighborhood} from 'service/neighborhood-handler/neighborhood';
5 import {PeopleCount} from 'component/people-count/people-count';
6 import {SocketHandler} from 'service/socket-handler/socket-handler';
7
8 @Component({
9   selector: 'tourists-tripping-app',
10  appInjector: [NeighborhoodHandler, SocketHandler]
11 })
12 @View({
13   templateUrl: 'tourists-tripping.html',
14   directives: [NgFor, PeopleCount]
15 })
16 class TouristsTrippingApp {
17   neighborhoods: Neighborhood[];
18   neighborhoodHandler: NeighborhoodHandler;
19
20   constructor(neighborhoodHandler: NeighborhoodHandler) {
21     this.neighborhoodHandler = neighborhoodHandler;
22
23     this.neighborhoods = neighborhoodHandler.neighborhoods;
24
25     neighborhoodHandler.pushNeighborhood(
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▲ neighborhood-ha...

neighborhood.js

neighborhood.ts

neighborhood-...

neighborhood-...

▲ socket-handler

socket-handler.js

socket-handler.ts

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

tourists-tripping.ts

◀ typings

▲ angular2

angular2.d.ts

▶ es6-promise

tourists-tripping.ts /src

```
35      }
36
37      updateNeighborhood(neighborhood: Neighborhood, amount: Number) {
38          this.neighborhoodHandler.updateNeighborhood(neighborhood, amount);
39      }
40
41  }
42
43 bootstrap(TouristsTrippingApp, [SocketHandler]);
```

Tourists on a Trip

ModelError: 8

Central Amsterdam

How many Tourists on a trip do you see?

Value: 8

REPORT

ModelError: 78

Red Light District

How many Tourists on a trip do you see?

Value: 78

REPORT

ModelError: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

Tourists on a Trip

ModelError: 8

Central Amsterdam

How many Tourists on a trip do you see?

Value: 8

REPORT

ModelError: 78

Red Light District

How many Tourists on a trip do you see?

Value: 78

REPORT

ModelError: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

Convert this to ES5

 EXPLORE

► WORKING FILES

◀ TOURISTS-ON-A-TRIP

 ▲ component

 ▲ people-count

 people-count.html

 people-count.ts

 ▲ service

 ▲ neighborhood-ha...

 neighborhood.ts

 neighborhood-h...

 ▲ socket-handler

 socket-handler.ts

 ► vendor

 index.html

 tourists-tripping.html

 tourists-tripping.ts

 ► typings

 tsconfig.json

 tsd.json

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- node_modules
- src
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.ts
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - typings

• neighborhood.js /src/service/neighborhood-handler

```
1 function Neighborhood(name: String, TTAmount: Number = 0) {  
2     this.name = name;  
3     this.TTAmount = TTAmount;  
4 }  
5  
6 Neighborhood.prototype.setTTAmount = function (value) {  
7     this.TTAmount = parseFloat(value);  
8     return this;  
9 }  
10
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- node_modules
- src
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.ts
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - typings

• neighborhood.js /src/service/neighborhood-handler

```
1 function Neighborhood(name, TTAmount) {  
2     this.name = name;  
3     this.TTAmount = TTAmount || 0;  
4 }  
5  
6 Neighborhood.prototype.setTTAmount = function (value) {  
7     this.TTAmount = parseFloat(value);  
8     return this;  
9 }  
10
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.html
 - people-count.ts
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 - neighborhood.js
 - neighborhood-h...
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 - socket-handler.js
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - ▶ typings
 - tsconfig.json
 - tsd.json

● socket-handler.js /src/service/socket-handler

```
1 function SocketHandler() {
2     this.socket = io.connect("http://localhost:9898");
3 }
4
5 SocketHandler.prototype.updateNeighborhood = function(name, TTAmount) {
6     this.socket.emit('updateNeighborhoods', {
7         [name]: TTAmount
8     });
9 }
10 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {
11     this.socket.on('updateNeighborhoods', (data) => {
12         Object.keys(data).forEach((name) => listener(name, data[name]));
13     });
14 }
15
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - ▶ typings
 - tsconfig.json
 - tsd.json

● socket-handler.js /src/service/socket-handler

```
1 function SocketHandler() {
2     this.socket = io.connect("http://localhost:9898");
3 }
4
5 SocketHandler.prototype.updateNeighborhood = function(name, TTAmount) {
6     var event = {};
7     event[name] = TTAmount;
8     this.socket.emit('updateNeighborhoods', {
9         [name]: TTAmount
10    });
11 }
12 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {
13     this.socket.on('updateNeighborhoods', (data) => {
14         Object.keys(data).forEach((name) => listener(name, data[name]));
15     });
16 }
17
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
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 - index.html
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 - tourists-tripping.ts
 - ▶ typings
 - tsconfig.json
 - tsd.json

● socket-handler.js /src/service/socket-handler

```
1 function SocketHandler() {  
2     this.socket = io.connect("http://localhost:9898");  
3 }  
4  
5 SocketHandler.prototype.updateNeighborhood = function(name, TTAmount) {  
6     var event = {};  
7     event[name] = TTAmount;  
8     this.socket.emit('updateNeighborhoods', event);  
9 }  
10 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {  
11     this.socket.on('updateNeighborhoods', (data) => {  
12         Object.keys(data).forEach((name) => listener(name, data[name]));  
13     });  
14 }  
15
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
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 - socket-handler.js
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 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - ▷ typings
- tsconfig.json
- tsd.json

socket-handler.js /src/service/socket-handler

```
1 function SocketHandler() {  
2     this.socket = io.connect("http://localhost:9898");  
3 }  
4  
5 SocketHandler.prototype.updateNeighborhood = function(name, TTAmount) {  
6     var event = {};  
7     event[name] = TTAmount;  
8     this.socket.emit('updateNeighborhoods', event);  
9 }  
10 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {  
11     this.socket.on('updateNeighborhoods', function(data) {  
12         Object.keys(data).forEach(function(name) {  
13             listener(name, data[name]);  
14         });  
15     });  
16 }  
17
```

EXPLORE

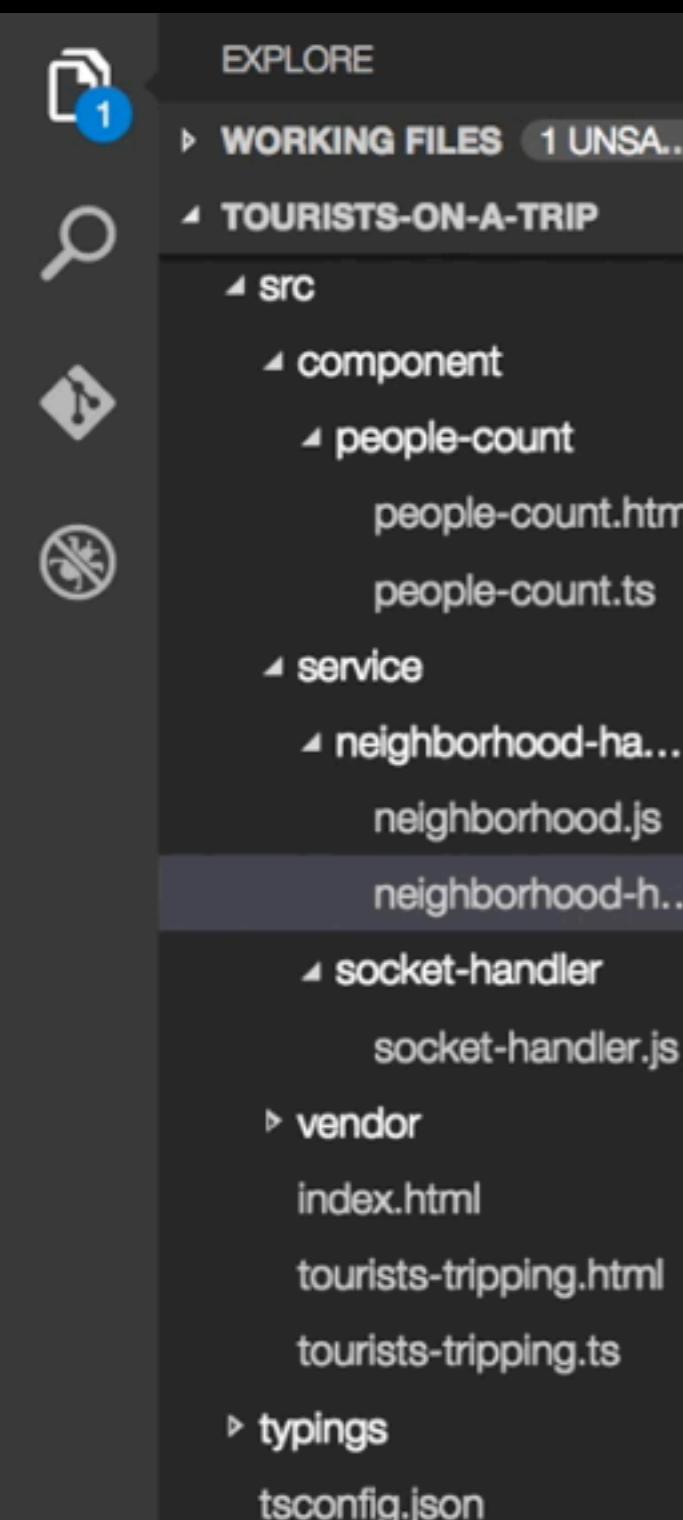
► WORKING FILES 1 UNSA...

▲ TOURISTS-ON-A-TRIP

- src
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
- vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
- typings
- tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
1 function NeighborhoodHandler(@Inject(SocketHandler) socketHandler: SocketHandler) {
2   this.neighborhoods = [];
3   this.socketHandler = socketHandler;
4
5   this.socketHandler.onUpdateNeighborhood((name, amount) => {
6     var neighborhood: Neighborhood = this.neighborhoods.filter(
7       (n) => n.name === name
8     )[0];
9
10    if (neighborhood) {
11      neighborhood.setTTAmount(amount);
12    }
13  });
14}
15
16 pushNeighborhood(...names:String[])
17 {
18   this.neighborhoods.push(
19     ...names.map(
20       (name) => new Neighborhood(name)
21     )
22   );
23
24 updateNeighborhood(neighborhood: Neighborhood, amount: Number) {
25   neighborhood.setTTAmount(amount);
```



- neighborhood-handler.js /src/service/neighborhood-handler

```
1 NeighborhoodHandler.parameters = [
2     [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5     this.neighborhoods = [];
6     this.socketHandler = socketHandler;
7
8     this.socketHandler.onUpdateNeighborhood((name, amount) => {
9         var neighborhood: Neighborhood = this.neighborhoods.filter(
10             (n) => n.name === name
11         )[0];
12
13         if (neighborhood) {
14             neighborhood.setTTAmount(amount);
15         }
16     });
17 }
18
19 pushNeighborhood(...names:String[])
20     this.neighborhoods.push(
21         ...names.map(
22             (name) => new Neighborhood(name)
23         )
24     );
25 }
```

The screenshot shows a code editor interface with a dark theme. On the left is the 'EXPLORE' sidebar, which lists the project structure. The 'src' folder contains 'component', 'service', 'socket-handler', and 'typings' subfolders. Under 'component', there are 'people-count' and 'tourists-on-a-trip' files. Under 'service', there are 'neighborhood-h...' and 'neighborhood.js' files. Under 'socket-handler', there is 'socket-handler.js'. Under 'typings', there is 'tsconfig.json'. A file named 'neighborhood-handler.js' is open in the main editor area. The code defines a class 'NeighborhoodHandler' with methods for handling neighborhood data via a socket handler.

```
• neighborhood-handler.js /src/service/neighborhood-handler
1 NeighborhoodHandler.parameters = [
2   [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5   this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   this.socketHandler.onUpdateNeighborhood((name, amount) => {
9     var neighborhood: Neighborhood = this.neighborhoods.filter(
10       (n) => n.name === name
11     )[0];
12
13     if (neighborhood) {
14       neighborhood.setTTAmount(amount);
15     }
16   });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function(...names:String[]) {
20   this.neighborhoods.push(
21     ...names.map(
22       (name) => new Neighborhood(name)
23     )
24   );
25 }
```

EXPLORE

► WORKING FILES 1 UNSA...

◀ TOURISTS-ON-A-TRIP

- ▲ src
 - ▲ component
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 - people-count.html
 - people-count.ts
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 - ▲ neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - ▲ socket-handler
 - socket-handler.js
- ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
- ▶ typings
- tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
1 NeighborhoodHandler.parameters = [
2   [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5   this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   this.socketHandler.onUpdateNeighborhood(function(name, amount) {
9     var neighborhood = this.neighborhoods.filter(
10       (n) => n.name === name
11     )[0];
12
13     if (neighborhood) {
14       neighborhood.setTTAmount(amount);
15     }
16   });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function(...names:String[]) {
20   this.neighborhoods.push(
21     ...names.map(
22       (name) => new Neighborhood(name)
23     )
24   );
25 }
```

EXPLORE

WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- src
 - component
 - people-count
 - people-count.html
 - people-count.ts
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
- vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
- typings
- tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
1 NeighborhoodHandler.parameters = [
2   [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5   this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   var that = this;
9   this.socketHandler.onUpdateNeighborhood(function(name, amount) {
10     var neighborhood = that.neighborhoods.filter(
11       n => n.name === name
12     )[0];
13
14     if (neighborhood) {
15       neighborhood.setTTAmount(amount);
16     }
17   });
18 }
19
20 NeighborhoodHandler.prototype.pushNeighborhood = function(...names:String[]) {
21   this.neighborhoods.push(
22     ...names.map(
23       name => new Neighborhood(name)
24     )
25   );
}
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- src
 - component
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 - people-count.html
 - people-count.ts
 - service
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 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
- vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
- typings
- tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
1 NeighborhoodHandler.parameters = [
2   [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5   this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   var that = this;
9   this.socketHandler.onUpdateNeighborhood(function(name, amount) {
10     var neighborhood = that.neighborhoods.filter(
11       function(n) { return n.name === name; }
12     )[0];
13
14     if (neighborhood) {
15       neighborhood.setTTAmount(amount);
16     }
17   });
18 }
19
20 NeighborhoodHandler.prototype.pushNeighborhood = function(...names:String[]) {
21   this.neighborhoods.push(
22     ...names.map(
23       (name) => new Neighborhood(name)
24     )
25   );
}
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- src
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 - people-count.ts
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 - neighborhood.js
 - neighborhood-h...
 - socket-handler
 - socket-handler.js
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- typings
- tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
1 NeighborhoodHandler.parameters = [
2   [SocketHandler]
3 ];
4 function NeighborhoodHandler(socketHandler) {
5   var neighborhoods = this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   this.socketHandler.onUpdateNeighborhood(function(name, amount) {
9     var neighborhood = neighborhoods.filter(
10       function(n) { return n.name === name; }
11     )[0];
12
13     if (neighborhood) {
14       neighborhood.setTTAmount(amount);
15     }
16   });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function(...names:String[]) {
20   this.neighborhoods.push(
21     ...names.map(
22       (name) => new Neighborhood(name)
23     )
24   );
25 }
```

EXPLORE

1 WORKING FILES 1 UNSA...
TOURISTS-ON-A-TRIP
src
 component
 people-count
 people-count.html
 people-count.ts
 service
 neighborhood-h...
 neighborhood.js
 neighborhood-h...
 socket-handler
 socket-handler.js
vendor
 index.html
 tourists-tripping.html
 tourists-tripping.ts
 typings
tsconfig.json

- neighborhood-handler.js /src/service/neighborhood-handler

```
5  var neighborhoods = this.neighborhoods = [];
6  this.socketHandler = socketHandler;
7
8  this.socketHandler.onUpdateNeighborhood(function(name, amount) {
9    var neighborhood = neighborhoods.filter(
10      function(n) { return n.name === name; }
11    )[0];
12
13    if (neighborhood) {
14      neighborhood.setTTAmount(amount);
15    }
16  });
17
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function() {
20   this.neighborhoods.push(
21     Array.prototype.slice.call(arguments).map(
22       (name) => new Neighborhood(name)
23     )
24   );
25
26
27 NeighborhoodHandler.prototype.updateNeighborhood = function(neighborhood: Neighborhood, amount) {
28   neighborhood.setTTAmount(amount);
29   this.socketHandler.updateNeighborhood(neighborhood.name, amount);
30 }
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- src
 - component
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 - people-count.ts
 - service
 - neighborhood-ha...
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 - tsconfig.json

• neighborhood-handler.js /src/service/neighborhood-handler

```
7
8     this.socketHandler.onUpdateNeighborhood(function(name, amount) {
9         var neighborhood = neighborhoods.filter(
10             function(n) { return n.name === name; })
11         )[0];
12
13         if (neighborhood) {
14             neighborhood.setTTAmount(amount);
15         }
16     });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function() {
20     this.neighborhoods.push(
21         Array.prototype.slice.call(arguments).map(
22             function(name) { return new Neighborhood(name); })
23     );
24 }
25
26
27 NeighborhoodHandler.prototype.updateNeighborhood = function(neighborhood: Neighborhood,
28     neighborhood.setTTAmount(amount);
29     this.socketHandler.updateNeighborhood(neighborhood.name, amount);
30 }
31
```

EXPLORE

1 WORKING FILES 1 UNSA...

TOURISTS-ON-A-TRIP

- src
 - component
 - people-count
 - people-count.html
 - people-count.ts
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 - neighborhood-h...
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 - neighborhood-h...
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- vendor
 - index.html
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 - tourists-tripping.ts
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 - tsconfig.json

- neighborhood-handler.js /src/service/neighborhood-handler

```
8     this.socketHandler.onupdateNeighborhood(function(name, amount) {
9         var neighborhood = neighborhoods.filter(
10             function(n) { return n.name === name; })
11         )[0];
12
13         if (neighborhood) {
14             neighborhood.setTTAmount(amount);
15         }
16     });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function() {
20     this.neighborhoods.push.apply(
21         this.neighborhoods,
22         Array.prototype.slice.call(arguments).map(
23             function(name) { return new Neighborhood(name); })
24     )
25 }
26 }
27
28 NeighborhoodHandler.prototype.updateNeighborhood = function(neighborhood: Neighborhood,
29     neighborhood.setTTAmount(amount);
30     this.socketHandler.updateNeighborhood(neighborhood.name, amount);
31 }
32 }
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▶ src

▶ component

▶ people-count

people-count.html

people-count.ts

▶ service

▶ neighborhood-ha...

neighborhood.js

neighborhood-h...

▶ socket-handler

socket-handler.js

▶ vendor

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tourists-tripping.html

tourists-tripping.ts

▶ typings

tsconfig.json

neighborhood-handler.js /src/service/neighborhood-handler

10 function(n) { return n.name === name; }

11)[0];

13 if (neighborhood) {

14 neighborhood.setTTAmount(amount);

15 }

16);

17 }

18

19 NeighborhoodHandler.prototype.pushNeighborhood = function() {

20 this.neighborhoods.push.apply(

21 this.neighborhoods,

22 Array.prototype.slice.call(arguments).map(

23 function(name) { return new Neighborhood(name); }

24)

25);

26 }

27

28 NeighborhoodHandler.prototype.updateNeighborhood = function(neighborhood, amount)

29 neighborhood.setTTAmount(amount);

30 this.socketHandler.updateNeighborhood(neighborhood.name, amount);

31

32

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

▶ src

▶ component

▶ people-count

people-count.h...

people-count.ts

▶ service

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neighborhood-...

▶ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.ts

▶ typings

tsconfig.json

people-count.ts /src/component/people-count

```
1 //<reference path="../../../../typings/tsd.d.ts"/>
2 import {Component, View, Control, ControlGroup, FormBuilder, formDirectives, onChange} from '@angular/core';
3
4 @Component({
5   selector: 'people-count',
6   properties: ['title: tt-title', 'amount: tt-amount'],
7   appInjector: [FormBuilder],
8   lifecycle: [onChange],
9   events: ['ttAmountChange']
10 })
11 @View({
12   templateUrl: 'component/people-count/people-count.html',
13   directives: [formDirectives]
14 })
15 export class PeopleCount{
16   title: String;
17   amount: Number;
18
19   ttAmountChange: EventEmitter;
20
21   amountControl: Control;
22   peopleCountForm: ControlGroup;
23   constructor(builder: FormBuilder) {
24     this.ttAmountChange = new EventEmitter();
25   }
}
```

EXPLORE

WORKING FILES 1 UNSA...

- TOURISTS-ON-A-TRIP
 - node_modules
 - src
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 - people-count
 - people-count.h...
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 - neighborhood.js
 - neighborhood-...
 - socket-handler
 - socket-handler.js
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.ts
 - typings

● people-count.js /src/component/people-count

```
13     directives: [formDirectives]
14 }
15 function PeopleCount(builder: FormBuilder) {
16     this.ttAmountChange = new EventEmitter();
17
18     this.amountControl = new Control()
19
20     this.peopleCountForm = builder.group({
21         amount: this.amountControl
22     });
23 }
24
25 PeopleCount.prototype.onChange = function() {
26     this.amountControl.updateValue(this.amount);
27 }
28
29 PeopleCount.prototype.reportAmount = function() {
30     var event = {
31         amount: this.amountControl.value
32     };
33     this.ttAmountChange.next(event);
34 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
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 - ◀ socket-handler
 - socket-handler.js
 - ▷ vendor
 - index.html
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 - ▷ typings

● people-count.js /src/component/people-count

```
1 PeopleCount.annotations = [  
2     new angular.ComponentAnnotation({  
3         selector: 'people-count',  
4         properties: ['title: tt-title', 'amount: tt-amount'],  
5         appInjector: [FormBuilder],  
6         lifecycle: [onChange],  
7         events: ['ttAmountChange']  
8     }),  
9     new angular.ViewAnnotation({  
10        templateUrl: 'component/people-count/people-count.html',  
11        directives: [formDirectives]  
12    })  
13];  
14 function PeopleCount(builder: FormBuilder) {  
15     this.ttAmountChange = new EventEmitter();  
16  
17     this.amountControl = new Control()  
18  
19     this.peopleCountForm = builder.group({  
20         amount: this.amountControl  
21     });  
22 }  
23  
24 PeopleCount.prototype.onChange = function() {  
25     this.amountControl.updateValue(this.amount);  
26 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
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 - index.html
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 - tourists-tripping.ts
 - ▷ typings

● people-count.js /src/component/people-count

```
1 PeopleCount.annotations = [  
2     new angular.ComponentAnnotation({  
3         selector: 'people-count',  
4         properties: ['title: tt-title', 'amount: tt-amount'],  
5         appInjector: [angular.FormBuilder],  
6         lifecycle: [angular.onChange],  
7         events: ['ttAmountChange']  
8     }),  
9     new angular.ViewAnnotation({  
10        templateUrl: 'component/people-count/people-count.html',  
11        directives: [angular.formDirectives]  
12    })  
13];  
14 function PeopleCount(builder: angular.FormBuilder) {  
15     this.ttAmountChange = new angular.EventEmitter();  
16  
17     this.amountControl = new angular.Control()  
18  
19     this.peopleCountForm = builder.group({  
20         amount: this.amountControl  
21     });  
22 }  
23  
24 PeopleCount.prototype.onChange = function() {  
25     this.amountControl.updateValue(this.amount);  
26 }
```

EXPLORE

- ▶ WORKING FILES
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people-count.js /src/component/people-count

```
1 PeopleCount.annotations = [  
2     new angular.ComponentAnnotation({  
3         selector: 'people-count',  
4         properties: ['title: tt-title', 'amount: tt-amount'],  
5         appInjector: [angular.FormBuilder],  
6         lifecycle: [angular.onChange],  
7         events: ['ttAmountChange']  
8     }),  
9     new angular.ViewAnnotation({  
10        templateUrl: 'component/people-count/people-count.html',  
11        directives: [angular.formDirectives]  
12    })  
13];  
14 PeopleCount.parameters = [  
15     [angular FormBuilder]  
16];  
17 function PeopleCount(builder) {  
18     this.ttAmountChange = new angular.EventEmitter();  
19  
20     this.amountControl = new angular.Control();  
21  
22     this.peopleCountForm = builder.group({  
23         amount: this.amountControl  
24     });  
25 }
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
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 - tourists-tripping.html
 - tourists-tripping.js
- ▶ typings
- tsconfig.json
- tsd.json

● tourists-tripping.js /src

```
1 @Component({
2   selector: 'tourists-tripping-app',
3   appInjector: [NeighborhoodHandler]
4 })
5 @View({
6   templateUrl: 'tourists-tripping.html',
7   directives: [NgFor, PeopleCount]
8 })
9 function TouristsTrippingApp(neighborhoodHandler:NeighborhoodHandler) {
10   this.neighborhoodHandler = neighborhoodHandler;
11
12   this.neighborhoods = neighborhoodHandler.neighborhoods;
13
14   neighborhoodHandler.pushNeighborhood(
15     'Central Amsterdam',
16     'Red Light District',
17     'Leidseplein',
18     'Oud Zuid',
19     'Rembrandtplein',
20     'Jordaan',
21     'The Plantagebuurt',
22     'De Pijp'
23   );
24 }
25 
```

EXPLORE

- ▶ WORKING FILES 1 UNSA...
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 - socket-handler.js
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 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - ▷ typings
 - tsconfig.json
 - tsd.json

● tourists-tripping.js /src

```
1 TouristsTrippingApp.annotations = [  
2     new angular.ComponentAnnotation({  
3         selector: 'tourists-tripping-app',  
4         appInjector: [NeighborhoodHandler]  
5     }),  
6     new angular.ViewAnnotation({  
7         templateUrl: 'tourists-tripping.html',  
8         directives: [angular.NgFor, PeopleCount]  
9     })  
10];  
11 function TouristsTrippingApp(neighborhoodHandler:NeighborhoodHandler) {  
12     this.neighborhoodHandler = neighborhoodHandler;  
13  
14     this.neighborhoods = neighborhoodHandler.neighborhoods;  
15  
16     neighborhoodHandler.pushNeighborhood(  
17         'Central Amsterdam',  
18         'Red Light District',  
19         'Leidseplein',  
20         'Oud Zuid',  
21         'Rembrandtplein',  
22         'Jordaan',  
23         'The Plantagebuurt',  
24         'De Pijp'  
25     );
```

EXPLORE

- ▶ WORKING FILES
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 - socket-handler.js
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 - tourists-tripping.html
 - tourists-tripping.js
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 - tsconfig.json
 - tsd.json

tourists-tripping.js /src

```
1 TouristsTrippingApp.annotations = [  
2     new angular.ComponentAnnotation({  
3         selector: 'tourists-tripping-app',  
4         appInjector: [NeighborhoodHandler]  
5     }),  
6     new angular.ViewAnnotation({  
7         templateUrl: 'tourists-tripping.html',  
8         directives: [angular.NgFor, PeopleCount]  
9     })  
10];  
11 TouristsTrippingApp.parameters = [  
12     [NeighborhoodHandler]  
13];  
14 function TouristsTrippingApp(neighborhoodHandler) {  
15     this.neighborhoodHandler = neighborhoodHandler;  
16  
17     this.neighborhoods = neighborhoodHandler.neighborhoods;  
18  
19     neighborhoodHandler.pushNeighborhood(  
20         'Central Amsterdam',  
21         'Red Light District',  
22         'Leidseplein',  
23         'Oud Zuid',  
24         'Rembrandtplein',  
25         'Jordaan',
```

EXPLORE

- ▶ WORKING FILES
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tourists-tripping.js /src

```
20      'Central Amsterdam',
21      'Red Light District',
22      'Leidseplein',
23      'Oud Zuid',
24      'Rembrandtplein',
25      'Jordaan',
26      'The Plantagebuurt',
27      'De Pijp'
28    );
29 }
30
31 TouristsTrippingApp.prototype.updateNeighborhood = function(neighborhood, amount)
32   this.neighborhoodHandler.updateNeighborhood(neighborhood, amount);
33 }
34
35
36 bootstrap(TouristsTrippingApp, [SocketHandler]);
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
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tourists-tripping.js /src

```
20      'Central Amsterdam',
21      'Red Light District',
22      'Leidseplein',
23      'Oud Zuid',
24      'Rembrandtplein',
25      'Jordaan',
26      'The Plantagebuurt',
27      'De Pijp'
28    );
29 }
30
31 TouristsTrippingApp.prototype.updateNeighborhood = function(neighborhood, amount)
32   this.neighborhoodHandler.updateNeighborhood(neighborhood, amount);
33 }
34
35 document.addEventListener('DOMContentLoaded', function() {
36   angular.bootstrap(TouristsTrippingApp, [SocketHandler]);
37 });
```

The screenshot shows a code editor interface with the following details:

- EXPLORE** sidebar:
 - WORKING FILES** (1 UNSA...)
 - TOURISTS-ON-A-TRIP** folder
 - component
 - people-count
 - people-count.h...
 - people-count.js
 - service
 - neighborhood-ha...
 - neighborhood.js
 - neighborhood-...
 - socket-handler
 - socket-handler.js
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - typings
 - tsconfig.json
 - tsd.json
- index.html /src** file content:

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet"></link>
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular2.sfx.dev.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"></script>
11  </head>
12  <body>
13    <tourists-tripping-app></tourists-tripping-app>
14
15    <script>
16      System.import('tourists-tripping');
17    </script>
18  </body>
19 </html>
```
- Top right icons: minimize, maximize, close.

EXPLORE

- ▶ WORKING FILES 1 UNSA...
- ◀ TOURISTS-ON-A-TRIP
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 - people-count.js
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 - tsd.json

• index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet"></link>
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular2.sfx.dev.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"></script>
11
12    <script src="/component/people-count/people-count.js"></script>
13    <script src="/service/socket-handler/socket-handler.js"></script>
14    <script src="/service/neighborhood-handler/neighborhood.js"></script>
15    <script src="/service/neighborhood-handler/neighborhood-handler.js"></script>
16    <script src="/tourists-tripping.js"></script>
17  </head>
18  <body>
19    <tourists-tripping-app></tourists-tripping-app>
20
21    <script>
22      System.import('tourists-tripping');
23    </script>
24  </body>
25 </html>
```

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - ▶ component
 - ▶ people-count
 - people-count.h...
 - people-count.js
 - ▶ service
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 - neighborhood.js
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 - tourists-tripping.js
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 - tsconfig.json
 - tsd.json

index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet"></link>
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular2.sfx.dev.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"></script>
11
12    <script src="/component/people-count/people-count.js"></script>
13    <script src="/service/socket-handler/socket-handler.js"></script>
14    <script src="/service/neighborhood-handler/neighborhood.js"></script>
15    <script src="/service/neighborhood-handler/neighborhood-handler.js"></script>
16    <script src="/tourists-tripping.js"></script>
17  </head>
18  <body>
19    <tourists-tripping-app></tourists-tripping-app>
20  </body>
21 </html>
```

Convert to NG1

EXPLORE

- ▶ WORKING FILES
- ◀ TOURISTS-ON-A-TRIP
 - ◀ src
 - ◀ component
 - ◀ people-count
 - people-count.html
 - people-count.js
 - ◀ service
 - ◀ neighborhood-handler
 - neighborhood.js
 - neighborhood-handler.js
 - ◀ socket-handler
 - socket-handler.js
 - ▶ vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - ▶ typings
 - tsconfig.json

tourists-tripping.js /src

```
1 TouristsTrippingApp.annotations = [  
2   new angular.ComponentAnnotation({  
3     selector: 'tourists-tripping-app',  
4     appInjector: [NeighborhoodHandler]  
5   }),  
6   new angular.ViewAnnotation({  
7     templateUrl: 'tourists-tripping.html',  
8     directives: [angular.NgFor, PeopleCount]  
9   })  
10];  
11 TouristsTrippingApp.parameters = [  
12   [NeighborhoodHandler]  
13];  
14 function TouristsTrippingApp(neighborhoodHandler) {  
15   this.neighborhoodHandler = neighborhoodHandler;  
16  
17   this.neighborhoods = neighborhoodHandler.neighborhoods;  
18  
19   neighborhoodHandler.pushNeighborhood(  
20     'Central Amsterdam',  
21     'Red Light District',  
22     'Leidseplein',  
23     'Oud Zuid',  
24     'Rembrandtplein',  
25     'Jordaan',
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

◀ src

◀ component

◀ people-count

people-count.html

people-count.js

◀ service

◀ neighborhood-handler

neighborhood.js

neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet">
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular-1.4.0.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"><sc
11
12    <script src="/component/people-count/people-count.js"></script>
13    <script src="/service/socket-handler/socket-handler.js"><sc
14    <script src="/service/neighborhood-handler/neighborhood.js"><sc
15    <script src="/service/neighborhood-handler/neighborhood-handl
16    <script src="/tourists-tripping.js"></script>
17  </head>
18  <body>
19    <tourists-tripping-app></tourists-tripping-app>
20  </body>
21 </html>
```

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▶ WORKING FILES

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◀ src

◀ component

◀ people-count

people-count.html

people-count.js

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neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet">
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular-1.4.0.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"><sc
11
12    <script src="/tourists-tripping.js"></script>
13    <script src="/component/people-count/people-count.js"></script>
14    <script src="/service/socket-handler/socket-handler.js"><scrip
15    <script src="/service/neighborhood-handler/neighborhood.js"><s
16    <script src="/service/neighborhood-handler/neighborhood-handl
17  </head>
18  <body>
19    <tourists-tripping-app></tourists-tripping-app>
20  </body>
21 </html>
```

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tourists-tripping.js

▶ typings

tsconfig.json

• tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
2   .directive('', function () {
3     |
4   })
5
6 TouristsTrippingApp.annotations = [
7   new angular.ComponentAnnotation({
8     selector: 'tourists-tripping-app',
9     appInjector: [NeighborhoodHandler]
10  }),
11  new angular.ViewAnnotation({
12    templateUrl: 'tourists-tripping.html',
13    directives: [angular.NgFor, PeopleCount]
14  })
15];
16 TouristsTrippingApp.parameters = [
17  [NeighborhoodHandler]
18];
19 function TouristsTrippingApp(neighborhoodHandler) {
20   this.neighborhoodHandler = neighborhoodHandler;
21
22   this.neighborhoods = neighborhoodHandler.neighborhoods;
23
24   neighborhoodHandler.pushNeighborhood(
25     'Central Amsterdam',
```

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▶ vendor

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▶ typings

tsconfig.json

• tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
2   .directive('touristsTrippingApp', function () {
3     return {
4       restrict: 'E',
5     }
6   })
7
8 TouristsTrippingApp.annotations = [
9   new angular.ComponentAnnotation({
10     selector: 'tourists-tripping-app',
11     appInjector: [NeighborhoodHandler]
12   }),
13   new angular.ViewAnnotation({
14     templateUrl: 'tourists-tripping.html',
15     directives: [angular.NgFor, PeopleCount]
16   })
17 ];
18 TouristsTrippingApp.parameters = [
19   [NeighborhoodHandler]
20 ];
21 function TouristsTrippingApp(neighborhoodHandler) {
22   this.neighborhoodHandler = neighborhoodHandler;
23
24   this.neighborhoods = neighborhoodHandler.neighborhoods;
25 }
```

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▶ vendor

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tsconfig.json

• tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
2   .directive('touristsTrippingApp', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'tourists-tripping.html'
6     }
7   })
8
9 TouristsTrippingApp.annotations = [
10   new angular.ComponentAnnotation({
11     selector: 'tourists-tripping-app',
12     appInjector: [NeighborhoodHandler]
13   }),
14   new angular.ViewAnnotation({
15     templateUrl: 'tourists-tripping.html',
16     directives: [angular.NgFor, PeopleCount]
17   })
18 ];
19 TouristsTrippingApp.parameters = [
20   [NeighborhoodHandler]
21 ];
22 function TouristsTrippingApp(neighborhoodHandler) {
23   this.neighborhoodHandler = neighborhoodHandler;
24   this.neighborhoods = neighborhoodHandler.neighborhoods;
```

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socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

• tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
  .directive('touristsTrippingApp', function () {
    return {
      restrict: 'E',
      templateUrl: 'tourists-tripping.html',
      link: function (scope) {
        }
    }
  })
12 TouristsTrippingApp.annotations = [
13   new angular.ComponentAnnotation({
14     selector: 'tourists-tripping-app',
15     appInjector: [NeighborhoodHandler]
16   }),
17   new angular.ViewAnnotation({
18     templateUrl: 'tourists-tripping.html',
19     directives: [angular.NgFor, PeopleCount]
20   })
21 ];
22 TouristsTrippingApp.parameters = [
23   [NeighborhoodHandler]
24 ];
25 function TouristsTrippingApp(neighborhoodHandler) {
```

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▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

● tourists-tripping.js /src

```
11      }
12    })
13
14  TouristsTrippingApp.annotations = [
15    new angular.ComponentAnnotation({
16      selector: 'tourists-tripping-app',
17      appInjector: [NeighborhoodHandler]
18    }),
19    new angular.ViewAnnotation({
20      templateUrl: 'tourists-tripping.html',
21      directives: [angular.NgFor, PeopleCount]
22    })
23  ];
24  TouristsTrippingApp.parameters = [
25    [NeighborhoodHandler]
26  ];
27  function TouristsTrippingApp(neighborhoodHandler) {
28    this.neighborhoodHandler = neighborhoodHandler;
29
30    this.neighborhoods = neighborhoodHandler.neighborhoods;
31
32    neighborhoodHandler.pushNeighborhood(
33      'Central Amsterdam',
34      'Red Light District',
35      'Leidseplein',
```

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▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

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vendor

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tourists-tripping.js

▶ typings

tsconfig.json

● tourists-tripping.js /src

```
3  :turn {
4    restrict: 'E',
5    templateUrl: 'tourists-tripping.html',
6    link: function (scope) {
7      scope.neighborhoods = neighborhoodHandler.neighborhoods;
8
9      scope.updateNeighborhood = function(neighborhood, amount) {
10        neighborhoodHandler.updateNeighborhood(neighborhood, amount);
11      };
12    }
13
14
15
16  'ouristsTrippingApp(neighborhoodHandler) {
17  neighborhoodHandler = neighborhoodHandler;
18
19  neighborhoods = neighborhoodHandler.neighborhoods;
20
21  neighborhoodHandler.pushNeighborhood(
22  'entral Amsterdam',
23  'ed Light District',
24  'eidseplein',
25  'ud Zuid',
26  'embrandtplein',
27  'ordaan',
```

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▶ WORKING FILES

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▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
  2   .directive('touristsTrippingApp', function (neighborhoodHandler) {
  3     return {
  4       restrict: 'E',
  5       templateUrl: 'tourists-tripping.html',
  6       link: function (scope) {
  7         scope.neighborhoods = neighborhoodHandler.neighborhoods
  8
  9         scope.updateNeighborhood = function(neighborhood, amount) {
 10           neighborhoodHandler.updateNeighborhood(neighborhood,
 11             amount);
 12         }
 13       }
 14     })
 15
 16   function TouristsTrippingApp(neighborhoodHandler) {
 17
 18     neighborhoodHandler.pushNeighborhood(
 19       'Central Amsterdam',
 20       'Red Light District',
 21       'Leidseplein',
 22       'Oud Zuid',
 23       'Rembrandtplein',
 24       'Jordaan',
 25       'The Plantagebuurt',
```

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tourists-tripping.js

▶ typings

tsconfig.json

tourists-tripping.js /src

```
1 angular.module('tourists-tripping', [])
2   .run(function (neighborhoodHandler) {
3     neighborhoodHandler.pushNeighborhood(
4       'Central Amsterdam',
5       'Red Light District',
6       'Leidseplein',
7       'Oud Zuid',
8       'Rembrandtplein',
9       'Jordaan',
10      'The Plantagebuurt',
11      'De Pijp'
12    );
13  })
14  .directive('touristsTrippingApp', function (neighborhoodHandler) {
15    return {
16      restrict: 'E',
17      templateUrl: 'tourists-tripping.html',
18      link: function (scope) {
19        scope.neighborhoods = neighborhoodHandler.neighborhoods;
20
21        scope.updateNeighborhood = function(neighborhood, amount) {
22          neighborhoodHandler.updateNeighborhood(neighborhood,
23            amount);
24        };
25      }
26    }
27  });
28
```

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▶ typings

tsconfig.json

• tourists-tripping.js /src

```
12      );
13  });
14  .directive('touristsTrippingApp', function (neighborhoodHandler) {
15    return {
16      restrict: 'E',
17      templateUrl: 'tourists-tripping.html',
18      link: function (scope) {
19        scope.neighborhoods = neighborhoodHandler.neighborhoods;
20
21        scope.updateNeighborhood = function(neighborhood, amount) {
22          neighborhoodHandler.updateNeighborhood(neighborhood,
23            amount);
24        }
25      }
26    });
27
28  document.addEventListener('DOMContentLoaded', function () {
29    angular.bootstrap(document, ['tourists-tripping']);
30  });
31
```

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▶ WORKING FILES 1 UNSAVED

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▶ vendor

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▶ typings

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● neighborhood-handler.js /src/service/neighborhood-handler

```
1 angular.module('tourists-tripping')
2   .service('neighborhoodHandler', NeighborhoodHandler);
3
4 function NeighborhoodHandler(socketHandler) {
5   var neighborhoods = this.neighborhoods = [];
6   this.socketHandler = socketHandler;
7
8   this.socketHandler.onUpdateNeighborhood(function(name, amount) {
9     var neighborhood = neighborhoods.filter(
10       function(n) { return n.name === name; })
11     )[0];
12
13     if (neighborhood) {
14       neighborhood.setTTAmount(amount);
15     }
16   });
17 }
18
19 NeighborhoodHandler.prototype.pushNeighborhood = function() {
20   this.neighborhoods.push.apply(
21     this.neighborhoods,
22     Array.prototype.slice.call(arguments).map(
23       function(name) { return new Neighborhood(name); })
24   );
25 }
```

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▶ typings

tsconfig.json

neighborhood-handler.js /src/service/neighborhood-handler

```
10     var neighborhood = neighborhoods.filter(
11         function(n) { return n.name === name; }
12     )[0];
13
14     if (neighborhood) {
15         neighborhood.setTTAmount(amount);
16     }
17 });
18 }
19
20 NeighborhoodHandler.prototype.pushNeighborhood = function() {
21     var Neighborhood = this.Neighborhood;
22     this.neighborhoods.push.apply(
23         this.neighborhoods,
24         Array.prototype.slice.call(arguments).map(
25             function(name) { return new Neighborhood(name); }
26         )
27     );
28 };
29
30 NeighborhoodHandler.prototype.updateNeighborhood = function(neighborhood,
31     neighborhood.setTTAmount(amount);
32     this.socketHandler.updateNeighborhood(neighborhood.name, amount);
33 };
34
```

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tourists-tripping.js

▶ typings

tsconfig.json

neighborhood-handler.js /src/service/neighborhood-handler

```
1 (function () {
2     angular.module('tourists-tripping')
3         .service('neighborhoodHandler', NeighborhoodHandler);
4
5     function NeighborhoodHandler(socketHandler, Neighborhood) {
6         var neighborhoods = this.neighborhoods = [];
7         this.socketHandler = socketHandler;
8         this.Neighborhood = Neighborhood;
9
10        this.socketHandler.onUpdateNeighborhood(function(name, amount)
11            var neighborhood = neighborhoods.filter(
12                function(n) { return n.name === name; })
13            )[0];
14
15        if (neighborhood) {
16            neighborhood.setTTAmount(amount);
17        }
18    });
19
20
21    NeighborhoodHandler.prototype.pushNeighborhood = function() {
22        var Neighborhood = this.Neighborhood;
23        this.neighborhoods.push.apply(
24            this.neighborhoods,
25            Array.prototype.slice.call(arguments).map(
```

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▶ vendor

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▶ typings

tsconfig.json

● socket-handler.js /src/service/socket-handler

```
1 function () {
2     angular.module('tourists-tripping')
3         .service('socketHandler', SocketHandler);
4
5     function SocketHandler() {
6         this.socket = io.connect("http://localhost:9898");
7     }
8
9     SocketHandler.prototype.updateNeighborhood = function(name, TTAmount)
10    var event = {};
11    event[name] = TTAmount;
12    this.socket.emit('updateNeighborhoods', event);
13 }
14
15 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {
16     this.socket.on('updateNeighborhoods', function(data) {
17         Object.keys(data).forEach(function(name) {
18             listener(name, data[name]);
19         });
20     });
21 }
22 }();
```

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▶ vendor

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▶ typings

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• neighborhood.js /src/service/neighborhood-handler

```
1 angular.module('tourists-tripping')
2   .factory('Neighborhood', function () {
3     return Neighborhood;
4   });
5
6 function Neighborhood(name, TTAmount) {
7   this.name = name;
8   this.TTAmount = TTAmount || 0;
9 }
10
11 Neighborhood.prototype.setTTAmount = function (value) {
12   this.TTAmount = parseFloat(value);
13   return this;
14 };
15
```

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▶ vendor

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tourists-tripping.js

▶ typings

tsconfig.json

• neighborhood.js /src/service/neighborhood-handler

```
1 function () {
2     angular.module('tourists-tripping')
3         .factory('Neighborhood', function () {
4             return Neighborhood;
5         });
6
7     function Neighborhood(name, TTAmount) {
8         this.name = name;
9         this.TTAmount = TTAmount || 0;
10    }
11
12    Neighborhood.prototype.setTTAmount = function (value) {
13        this.TTAmount = parseFloat(value);
14        return this;
15    };
16 }());
```

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▶ vendor

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tourists-tripping.js

▶ typings

tsconfig.json

neighborhood.js /src/service/neighborhood-handler

```
1 (function () {
2     angular.module('tourists-tripping')
3         .value('Neighborhood', Neighborhood);
4
5     function Neighborhood(name, TTAmount) {
6         this.name = name;
7         this.TTAmount = TTAmount || 0;
8     }
9
10    Neighborhood.prototype.setTTAmount = function (value) {
11        this.TTAmount = parseFloat(value);
12        return this;
13    };
14 })(());
```

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▶ WORKING FILES

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tourists-tripping.js

▶ typings

tsconfig.json

people-count.js /src/component/people-count

```
1 PeopleCount.annotations = [
2   new angular.ComponentAnnotation({
3     selector: 'people-count',
4     properties: ['title: tt-title', 'amount: tt-amount'],
5     appInjector: [angular.FormBuilder],
6     lifecycle: [angular.onChange],
7     events: ['ttAmountChange']
8   }),
9   new angular.ViewAnnotation({
10    templateUrl: 'component/people-count/people-count',
11    directives: [angular.formDirectives]
12  })
13];
14 PeopleCount.parameters = [
15   [angular FormBuilder]
16 ];
17 function PeopleCount(builder) {
18   this.ttAmountChange = new angular.EventEmitter();
19
20   this.amountControl = new angular.Control();
21
22   this.peopleCountForm = builder.group({
23     amount: this.amountControl
24   });
25 }
```

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tourists-tripping.js

▶ typings

tsconfig.json

● people-count.js /src/component/people-count

```
1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E'
5     }
6   })
7
8 PeopleCount.annotations = [
9   new angular.ComponentAnnotation({
10     selector: 'people-count',
11     properties: ['title: tt-title', 'amount: tt-amount'],
12     appInjector: [angular.FormBuilder],
13     lifecycle: [angular.onChange],
14     events: ['ttAmountChange']
15   }),
16   new angular.ViewAnnotation({
17     templateUrl: 'component/people-count/people-count',
18     directives: [angular.formDirectives]
19   })
20 ];
21 PeopleCount.parameters = [
22   [angular.FormBuilder]
23 ];
24 function PeopleCount(builder) {
25   this.ttAmountChange = new angular.EventEmitter();
```

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tourists-tripping.js

▶ typings

tsconfig.json

● people-count.js /src/component/people-count

```
1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'component/people-count/people-count'
6     }
7   })
8
9 PeopleCount.annotations = [
10   new angular.ComponentAnnotation({
11     selector: 'people-count',
12     properties: ['title: tt-title', 'amount: tt-amount'],
13     appInjector: [angular.FormBuilder],
14     lifecycle: [angular.onChange],
15     events: ['ttAmountChange']
16   }),
17   new angular.ViewAnnotation({
18     templateUrl: 'component/people-count/people-count',
19     directives: [angular.formDirectives]
20   })
21 ];
22 PeopleCount.parameters = [
23   [angular.FormBuilder]
24 ];
25 function PeopleCount(builder) {
```

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neighborhood.js

neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

● people-count.js /src/component/people-count

```
1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'component/people-count/people-count',
6       scope: {
7         title: '=ttTitle',
8         amount: '=ttAmount'
9       }
10      }
11    })
12
13 PeopleCount.annotations = [
14   new angular.ComponentAnnotation({
15     selector: 'people-count',
16     properties: ['title: tt-title', 'amount: tt-amount'],
17     appInjector: [angular.FormBuilder],
18     lifecycle: [angular.onChange],
19     events: ['ttAmountChange']
20   }),
21   new angular.ViewAnnotation({
22     templateUrl: 'component/people-count/people-count',
23     directives: [angular.formDirectives]
24   })
25 ];
```

EXPLORE

▶ WORKING FILES 1 UNSAVED

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● people-count.js /src/component/people-count

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1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'component/people-count/people-count',
6       scope: {
7         title: '=ttTitle',
8         amount: '=ttAmount',
9         ttAmountChange: '&'
10      }
11    }
12  })
13
14 PeopleCount.annotations = [
15   new angular.ComponentAnnotation({
16     selector: 'people-count',
17     properties: ['title: tt-title', 'amount: tt-amount'],
18     appInjector: [angular.FormBuilder],
19     lifecycle: [angular.onChange],
20     events: ['ttAmountChange']
21   }),
22   new angular.ViewAnnotation({
23     templateUrl: 'component/people-count/people-count',
24     directives: [angular.formDirectives]
25   })
]
```

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▶ WORKING FILES 1 UNSAVED

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● people-count.js /src/component/people-count

```
1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'component/people-count/people-count',
6       scope: {
7         title: '=ttTitle',
8         amount: '=ttAmount',
9         ttAmountChange: '&'
10      },
11      link: function (scope) {
12        |
13      }
14    })
15  })
16
17 PeopleCount.annotations = [
18   new angular.ComponentAnnotation({
19     selector: 'people-count',
20     properties: ['title: tt-title', 'amount: tt-amount'],
21     appInjector: [angular.FormBuilder],
22     lifecycle: [angular.onChange],
23     events: ['ttAmountChange']
24   }),
25   new angular.ViewAnnotation({
```

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● people-count.js /src/component/people-count

```
7           title: '=ttTitle',
8           amount: '=ttAmount',
9           ttAmountChange: '&'
10      },
11      link: function (scope) {
12      }
13    }
14  })
15})
16
17 PeopleCount.annotations = [
18   new angular.ComponentAnnotation({
19     selector: 'people-count',
20     properties: ['title: tt-title', 'amount: tt-amount'],
21     appInjector: [angular.FormBuilder],
22     lifecycle: [angular.onChange],
23     events: ['ttAmountChange']
24   }),
25   new angular.ViewAnnotation({
26     templateUrl: 'component/people-count/people-count',
27     directives: [angular.formDirectives]
28   })
29 ];
30 PeopleCount.parameters = [
31   [angular FormBuilder]
```

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▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

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tsconfig.json

● people-count.js /src/component/people-count

```
2     .directive('peopleCount', function () {
3         return {
4             restrict: 'E',
5             templateUrl: 'component/people-count/people-count',
6             scope: {
7                 title: '=ttTitle',
8                 amount: '=ttAmount',
9                 ttAmountChange: '&'
10            },
11            link: function (scope) {
12
13        }
14    }
15 })
16
17 function PeopleCount(builder) {
18     this.ttAmountChange = new angular.EventEmitter();
19
20     this.amountControl = new angular.Control();
21
22     this.peopleCountForm = builder.group({
23         amount: this.amountControl
24     });
25 }
26
```

EXPLORE

► WORKING FILES 1 UNSAVED

▲ TOURISTS-ON-A-TRIP

- src
 - component
 - people-count
 - people-count.html
 - people-count.js
 - service
 - neighborhood-handler
 - neighborhood.js
 - neighborhood-handler.js
 - socket-handler
 - socket-handler.js
 - vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
 - typings
 - tsconfig.json

● people-count.js /src/component/people-count

```
4      restrict: 'E',
5      templateUrl: 'component/people-count/people-count',
6      scope: {
7          title: '=ttTitle',
8          amount: '=ttAmount',
9          ttAmountChange: '&'
10     },
11     link: function (scope) {
12         scope.amountControl = 0;
13
14         scope.$watch('amount', function (value) {
15             scope.amountControl = value;
16         });
17     }
18 }
19 })
20
21 function PeopleCount(builder) {
22     this.ttAmountChange = new angular.EventEmitter();
23
24     this.amountControl = new angular.Control();
25
26     this.peopleCountForm = builder.group({
27         amount: this.amountControl
28     });
}
```

EXPLORE

▶ WORKING FILES

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◀ src

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people-count.js /src/component/people-count

```
1 angular.module('tourists-tripping')
2   .directive('peopleCount', function () {
3     return {
4       restrict: 'E',
5       templateUrl: 'component/people-count/people-count',
6       scope: {
7         title: '=ttTitle',
8         amount: '=ttAmount',
9         ttAmountChange: '&'
10      },
11      link: function (scope) {
12        scope.amountControl = 0;
13
14        scope.$watch('amount', function (value) {
15          scope.amountControl = value;
16        });
17
18        scope.reportAmount = function() {
19          var event = {
20            amount: this.amountControl
21          };
22          this.ttAmountChange({$event: event});
23        };
24      }
25    }
```

The screenshot shows a software interface with a dark theme. On the left is a sidebar titled "EXPLORE" containing a file tree. The tree includes sections for "WORKING FILES" (1 UNSAVED), "TOURISTS-ON-A-TRIP", "src" (which contains "component" and "people-count" subfolders, with "people-count.html" selected), "service" (containing "neighborhood-handler" and "neighborhood.js"), "socket-handler" (containing "socket-handler.js"), "vendor" (containing "index.html", "tourists-tripping.html", and "tourists-tripping.js"), and "typings" (containing "tsconfig.json").

The main area displays the content of "people-count.html". The code is as follows:

```
● people-count.html /src/component/people-count
1 <div class="panel panel-default">
2   <div class="panel-heading">
3     {{ title }}
4   </div>
5   <div class="panel-body">
6     <p>How many Tourists on a trip do you see?</p>
7     <form>
8       <input type="range" ng-model="amountControl" />
9       Value: {{ amountControl }}
10      </form>
11    </div>
12    <div class="panel-footer">
13      <button type="button" class="btn btn-success"
14        (click)="reportAmount()>Report</button>
15    </div>
16  </div>
17 </div>
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

◀ src

◀ component

◀ people-count

people-count.html

people-count.js

◀ service

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neighborhood.js

neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

people-count.html /src/component/people-count

```
1 <div class="panel panel-default">
2   <div class="panel-heading">
3     {{ title }}
4   </div>
5   <div class="panel-body">
6     <p>How many Tourists on a trip do you see?</p>
7     <form>
8       <input type="range" ng-model="amountControl" />
9       Value: {{ amountControl }}
10      </form>
11    </div>
12    <div class="panel-footer">
13      <button type="button" class="btn btn-success"
14        ng-click="reportAmount()>Report</button>
15    </div>
16  </div>
17 </div>
```

EXPLORE

▶ WORKING FILES 1 UNSAVED

◀ TOURISTS-ON-A-TRIP

◀ src

◀ component

◀ people-count

people-count.html

people-count.js

◀ service

◀ neighborhood-handler

neighborhood.js

neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

• tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" ng-repeat="neighborhood in neighborhoods">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       [tt-title]="neighborhood.name"
10      [tt-amount]="neighborhood.TTAmount"
11      (tt-amount-change)="updateNeighborhood(neighborhood, $event)"
12     ></people-count>
13   </div>
14 </div>
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

◀ src

◀ component

◀ people-count

people-count.html

people-count.js

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neighborhood-handler.js

◀ socket-handler

socket-handler.js

▶ vendor

index.html

tourists-tripping.html

tourists-tripping.js

▶ typings

tsconfig.json

tourists-tripping.html /src

```
1 <h1>
2   Tourists on a Trip
3 </h1>
4
5 <div class="row" ng-repeat="neighborhood in neighborhoods">
6   <div class="col-md-12">
7     ModelValue: {{ neighborhood.TTAmount }}
8     <people-count
9       tt-title="neighborhood.name"
10      tt-amount="neighborhood.TTAmount"
11      tt-amount-change="updateNeighborhood(neighborhood, $event.a
12    ></people-count>
13  </div>
14 </div>
```

EXPLORE

WORKING FILES

TOURISTS-ON-A-TRIP

- component
 - people-count
 - people-count.html
 - people-count.js
 - service
 - neighborhood-handler
 - neighborhood.js
 - neighborhood-handler.js
 - socket-handler
 - socket-handler.js
- vendor
 - index.html
 - tourists-tripping.html
 - tourists-tripping.js
- typings
- tsconfig.json
- tsd.json

index.html /src

```
1 <!doctype html>
2 <html>
3   <head>
4     <title>Tourists on a Trip</title>
5     <link href="/vendor/bootstrap.min.css" rel="stylesheet"></link>
6     <link href="/vendor/material-fullpalette.css" rel="stylesheet">
7     <script src="/vendor/traceur-runtime.js"></script>
8     <script src="/vendor/system@0.16.11.js"></script>
9     <script src="/vendor/angular-1.4.0.js"></script>
10    <script src="http://localhost:9898/socket.io/socket.io.js"><sc
11
12    <script src="/tourists-tripping.js"></script>
13    <script src="/component/people-count/people-count.js"></script>
14    <script src="/service/socket-handler/socket-handler.js"><sc
15    <script src="/service/neighborhood-handler/neighborhood.js"><sc
16    <script src="/service/neighborhood-handler/neighborhood-handl
17  </head>
18  <body>
19    <tourists-tripping-app></tourists-tripping-app>
20  </body>
21 </html>
```

Tourists on a Trip

ModelError: 67

Central Amsterdam

How many Tourists on a trip do you see?

Value: 3

REPORT

ModelError: 0

Red Light District

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelError: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

Tourists on a Trip

ModelError: 67

Central Amsterdam

How many Tourists on a trip do you see?

Value: 67

REPORT

ModelError: 0

Red Light District

How many Tourists on a trip do you see?

Value: 0

REPORT

ModelError: 0

Leidseplein

How many Tourists on a trip do you see?

Value: 0

REPORT

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

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└ tourists-tripping.html

└ tourists-tripping.js

└ typings

└ tsconfig.json

└ tsd.json

socket-handler.js /src/service/socket-handler

```
1  function () {
2    angular.module('tourists-tripping')
3      .service('socketHandler', SocketHandler);
4
5    function SocketHandler() {
6      this.socket = io.connect("http://localhost:9898");
7    }
8
9    SocketHandler.prototype.updateNeighborhood = function(name, TTAmount) {
10      var event = {};
11      event[name] = TTAmount;
12      this.socket.emit('updateNeighborhoods', event);
13    };
14
15   SocketHandler.prototype.onUpdateNeighborhood = function(listener) {
16     this.socket.on('updateNeighborhoods', function(data) {
17       Object.keys(data).forEach(function(name) {
18         listener(name, data[name]);
19       });
20     });
21   };
22 }();
```

EXPLORE

▶ WORKING FILES

◀ TOURISTS-ON-A-TRIP

└ component

└ people-count

people-count.html

people-count.js

└ service

└ neighborhood-handler

neighborhood.js

neighborhood-handler.js

└ socket-handler

socket-handler.js

└ vendor

index.html

tourists-tripping.html

tourists-tripping.js

└ typings

tsconfig.json

tsd.json

socket-handler.js /src/service/socket-handler

```
2 angular.module('tourists-tripping')
3   .service('socketHandler', SocketHandler);
4
5 function SocketHandler($rootScope) {
6   this.$rootScope = $rootScope;
7   this.socket = io.connect("http://localhost:9898");
8 }
9
10 SocketHandler.prototype.updateNeighborhood = function(name, TTAmount)
11   var event = {};
12   event[name] = TTAmount;
13   this.socket.emit('updateNeighborhoods', event);
14 }
15
16 SocketHandler.prototype.onUpdateNeighborhood = function(listener) {
17   var $rootScope = this.$rootScope;
18   this.socket.on('updateNeighborhoods', function(data) {
19     $rootScope.$apply(function () {
20       Object.keys(data).forEach(function(name) {
21         listener(name, data[name]);
22       });
23     });
24   });
25 }
26 }();
```

Done Coding!

What Did We Learn?

Modules

ES6 & Typescript

Components & Isolation

Declarative

Controller As

Resources

<http://victorsavkin.com/>

<http://blog.ionic.io/angular-2-series-introduction/>

<http://blog.thoughtram.io/>

<http://angular-tips.com/blog/2015/06/why-will-angular-2-rock/>

<https://github.com/angular/angular>

& Much More...

Demo & Presentation Repository

<https://github.com/rodyhaddad/tourists-on-a-trip>



Please evaluate
this talk via the
mobile app!



INTERNATIONAL
SOFTWARE DEVELOPMENT
CONFERENCE

Questions?

@rodyhaddad