

# Data Binding

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UI-Angular



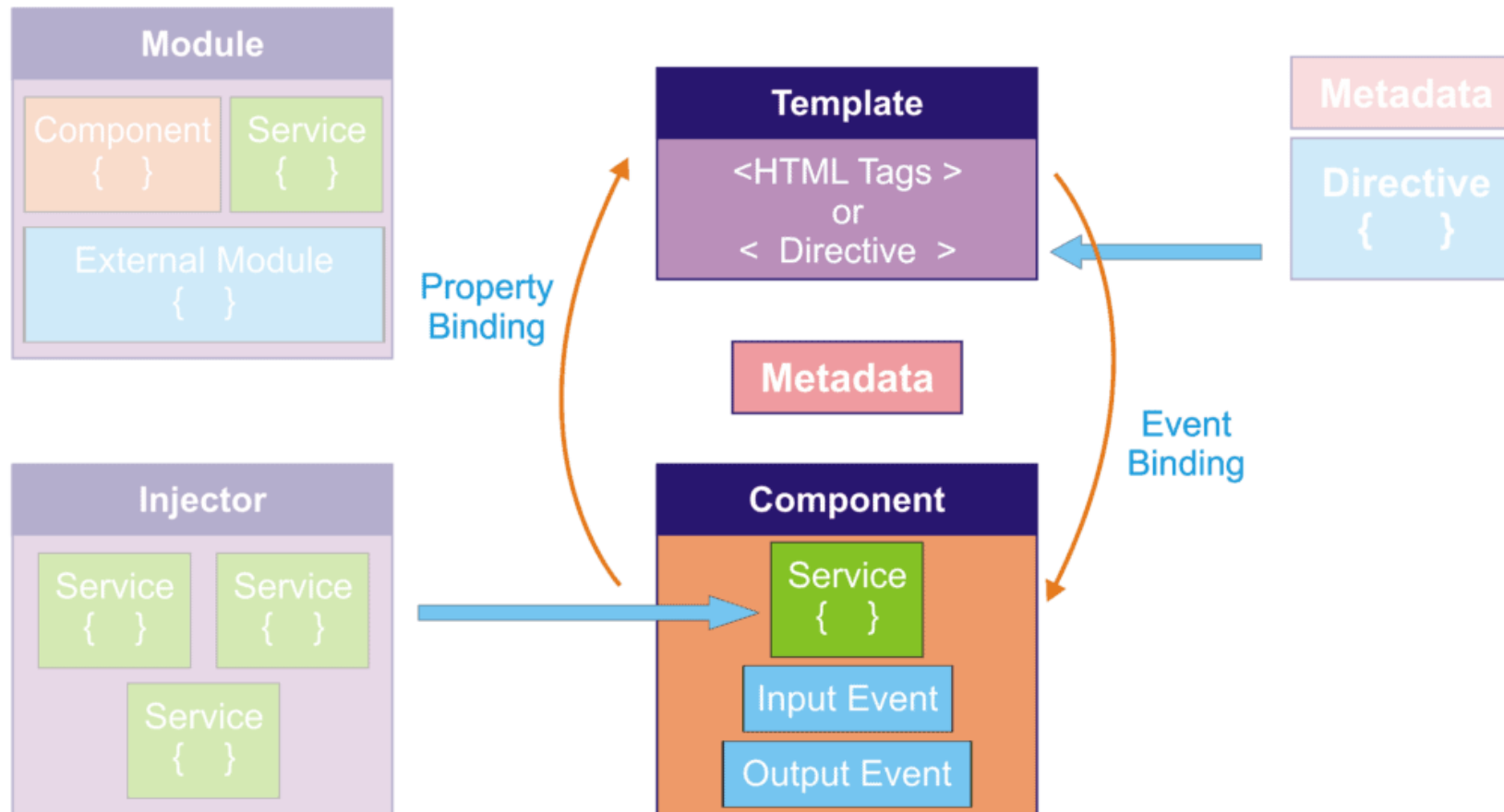
# מה נלמד היום?

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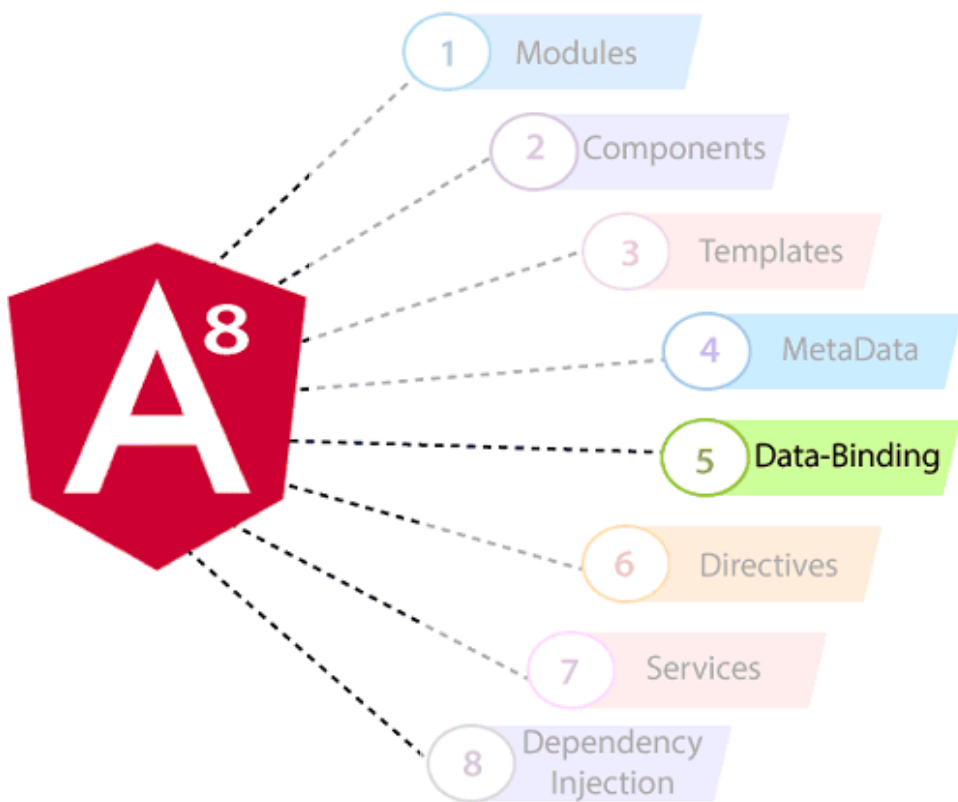
- Data Binding in Angular
- One-way Data Binding
  - Interpolation
  - Property Binding
  - Event Binding
- Two-way Data Binding & ngModel



# ארכיטקטורת יישום Angular



# ארכיטקטורת יישום Angular



- Data Binding מגדיר את הקשר בין הקומפוננטות ל-DOM\*. טכניקה לקישור בין המידע הקיים באפליקציה לבין התצוגה

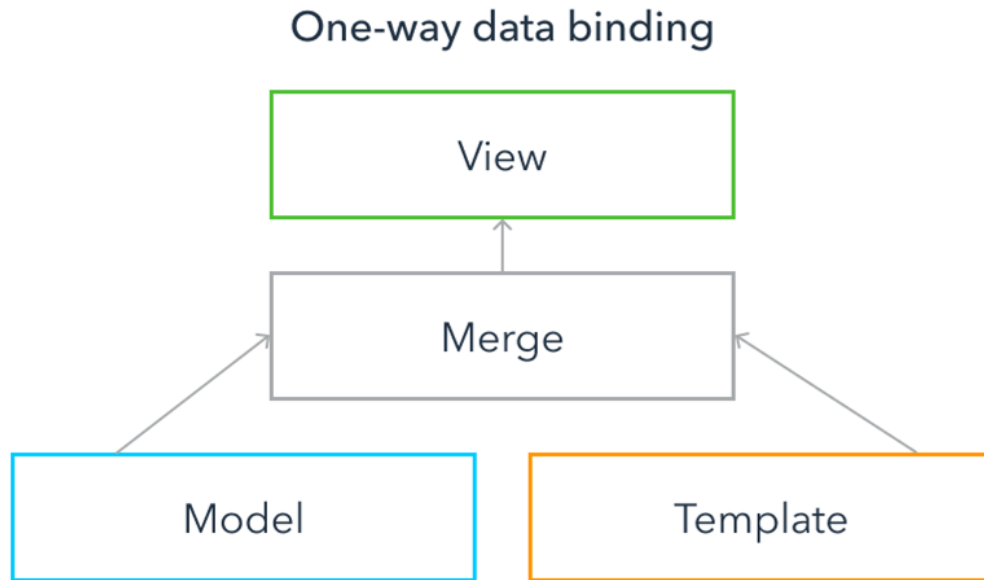
- במילים אחרות, הקשר בין קוד ה-ts של הקומפוננטה וה-template לבין מה שהמשתמש רואה.

- One-way Data Binding

- Two-way Data Binding

\*The Document Object Model (DOM) is a programming API for HTML and XML documents. It defines the logical structure of documents and the way a document is accessed and manipulated.

# One-way Data Binding



- תקשורת חד כיוונית פשוטה
- התצוגה (html) משתנה בעקבות שינויים ב-Model (קוד ts) או שה-Model משתנה בעקבות שינויים ב-html.

## Interpolation

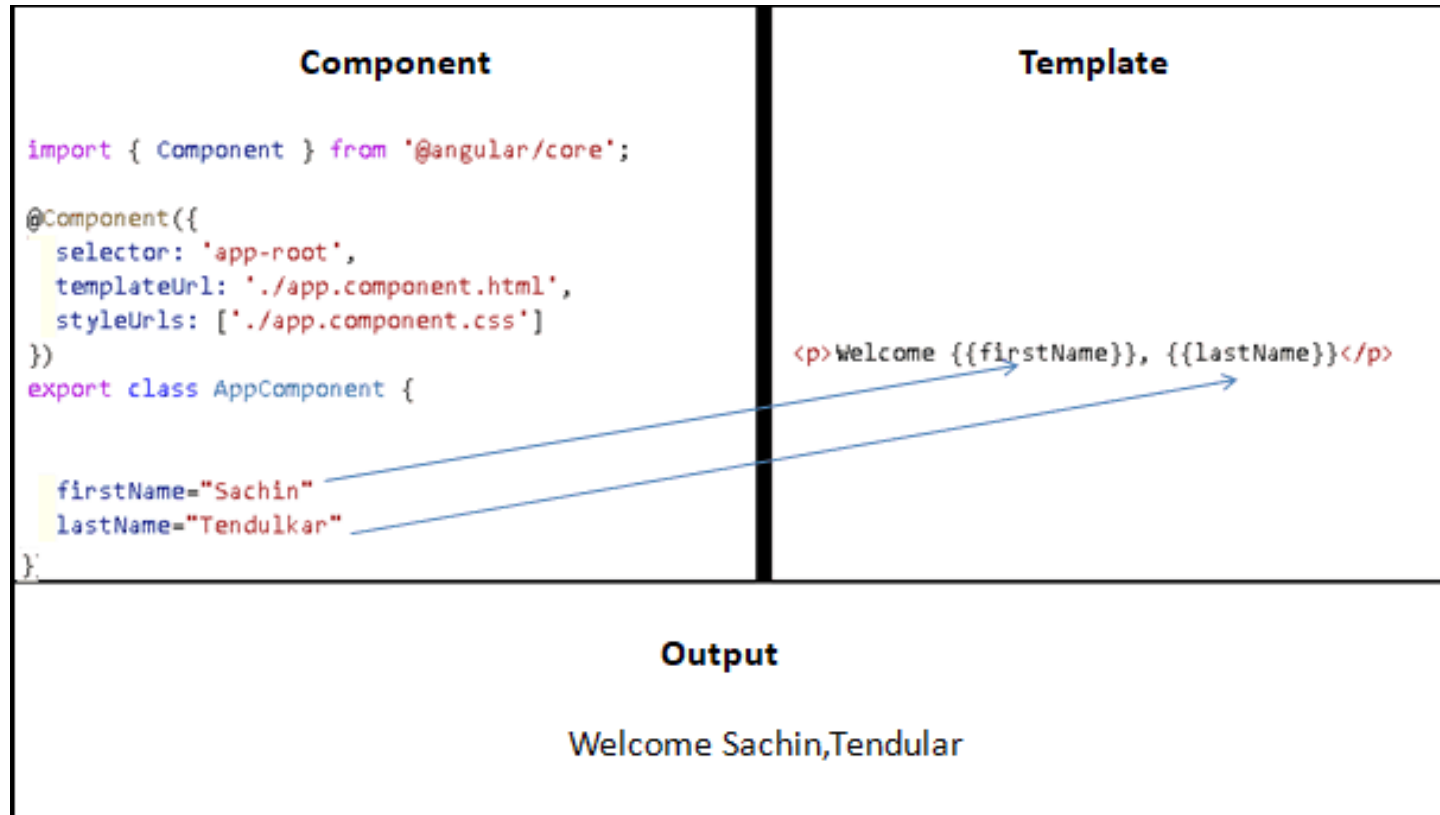
- טכניקת One-way data binding המשמשת להעברת נתונים מקוד ts ל-html.
- שימוש בסוגריים מסולסלים כפולים  
דוגמה:

*{{ data }}*

```
<li>Name: {{ user.name }}</li>  
<li>Email: {{ user.email }}</li>
```

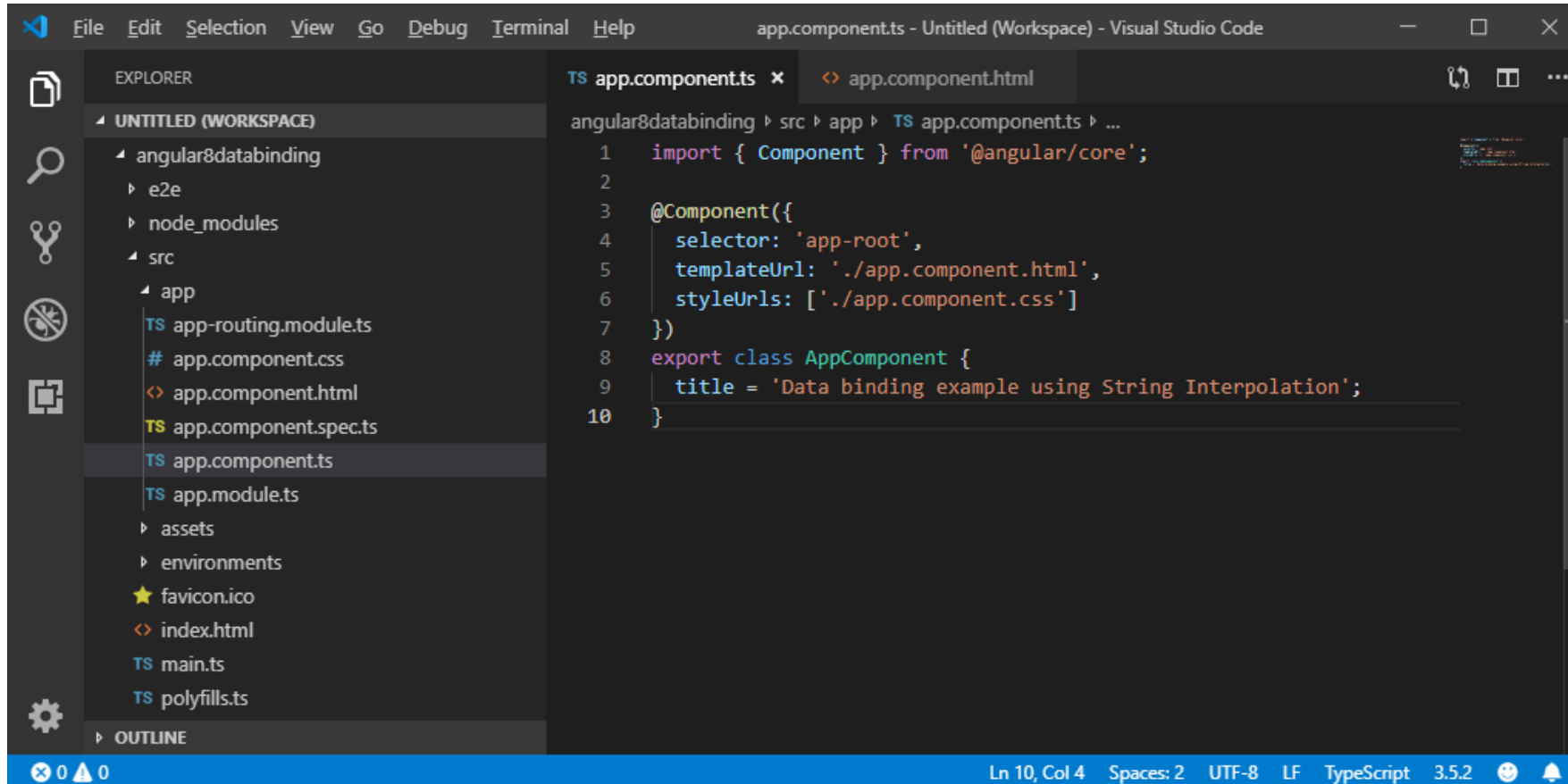
# One-way Data Binding

## Interpolation



# One-way Data Binding

## Interpolation



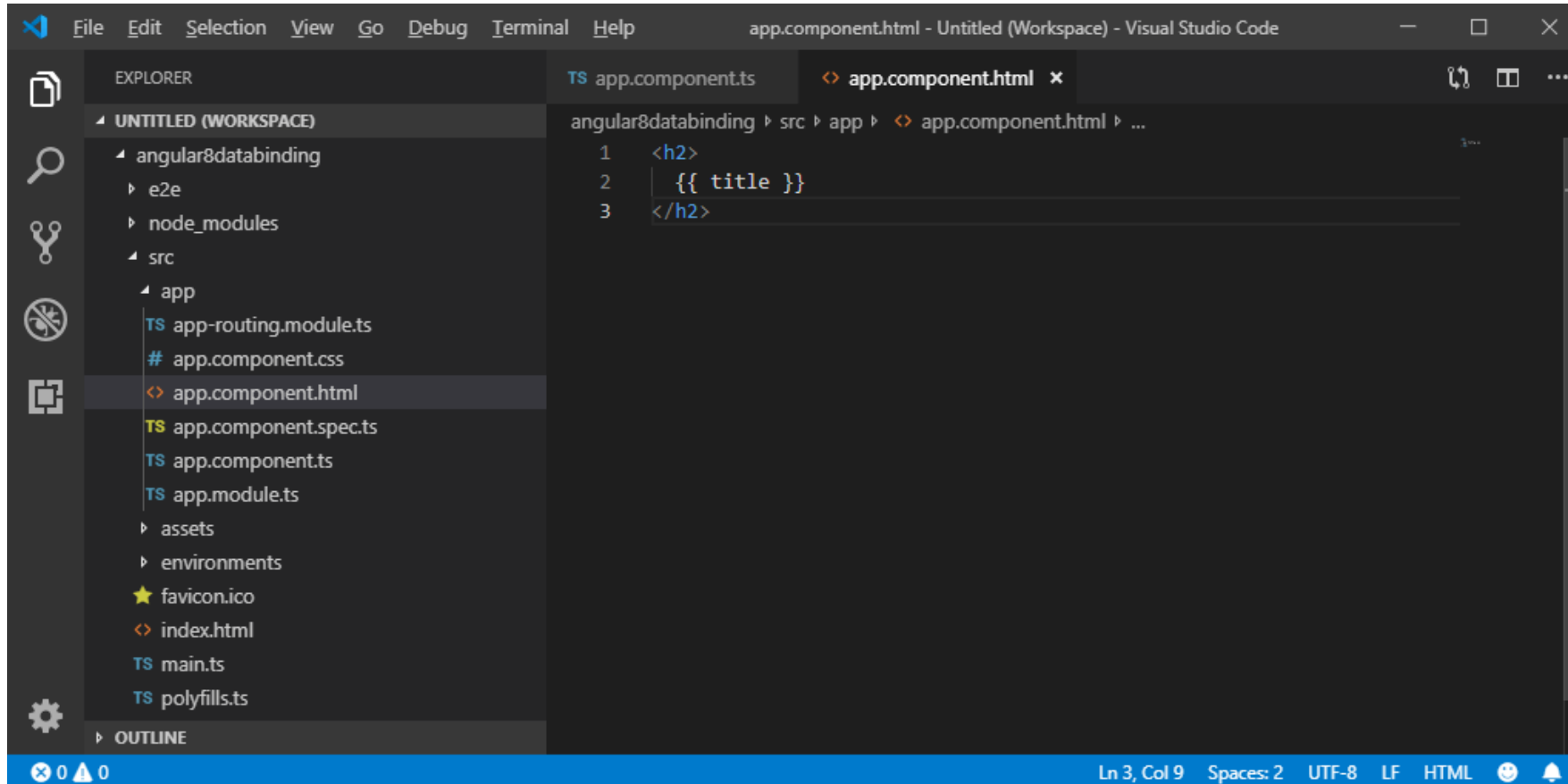
The screenshot shows the Visual Studio Code interface with a workspace named 'angular8databinding'. The Explorer sidebar on the left shows the project structure, including the 'src/app' directory where 'app.component.ts' is selected. The main editor displays the TypeScript code for 'app.component.ts', which defines an Angular component named 'AppComponent'. The component's template URL is set to 'app.component.html', and its title is 'Data binding example using String Interpolation'. The status bar at the bottom indicates the current position is Line 10, Column 4, with 2 spaces, UTF-8 encoding, LF line endings, and TypeScript 3.5.2.

```
angular8databinding ▸ src ▸ app ▸ TS app.component.ts ▸ ...
1  import { Component } from '@angular/core';
2
3  @Component({
4    selector: 'app-root',
5    templateUrl: './app.component.html',
6    styleUrls: ['./app.component.css']
7  })
8  export class AppComponent {
9    title = 'Data binding example using String Interpolation';
10 }
```



# One-way Data Binding

## Interpolation



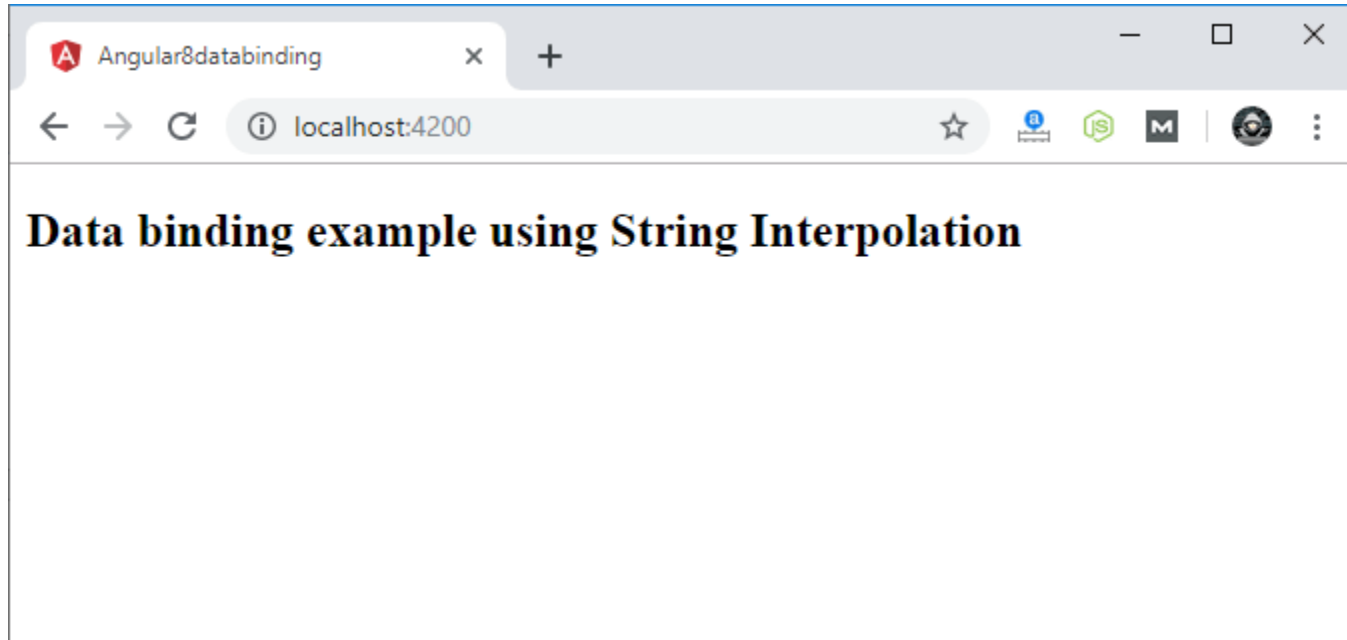
The screenshot shows the Visual Studio Code editor interface. The Explorer sidebar on the left displays the project structure for 'angular8databinding', including folders like 'e2e', 'node\_modules', and 'src', and files like 'app.component.html', 'app.component.spec.ts', 'app.component.ts', 'app.module.ts', 'assets', 'environments', 'favicon.ico', 'index.html', 'main.ts', and 'polyfills.ts'. The 'app.component.html' file is selected and open in the editor. The editor shows the following HTML code:

```
1 <h2>
2   {{ title }}
3 </h2>
```

The status bar at the bottom indicates the current position is Line 3, Column 9, with 2 spaces, UTF-8 encoding, LF line endings, and the HTML language mode.

# One-way Data Binding

## Interpolation



## Property Binding

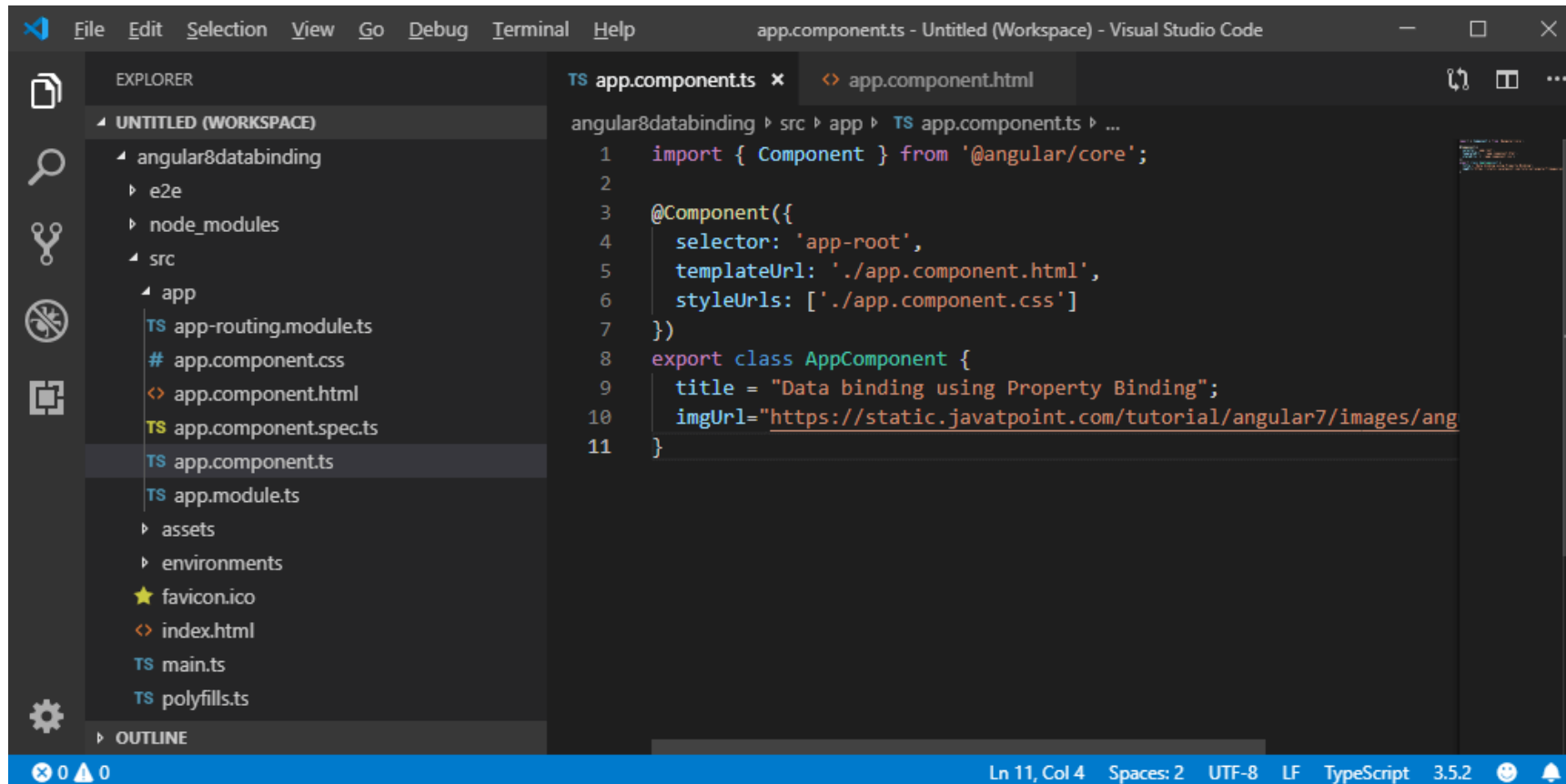
- טכניקת One-way data binding המשמשת להעברת נתונים מקוד ts ל-html.
- קישור מאפיין של אלמנט DOM לשדה שהוא מאפיין מוגדר בקוד ה-ts של הקומפוננטה.  
דוגמה:

*[binding-target]="binding-source"*

```
<input type="email" [value]="user.email">
```

# One-way Data Binding

## Property Binding



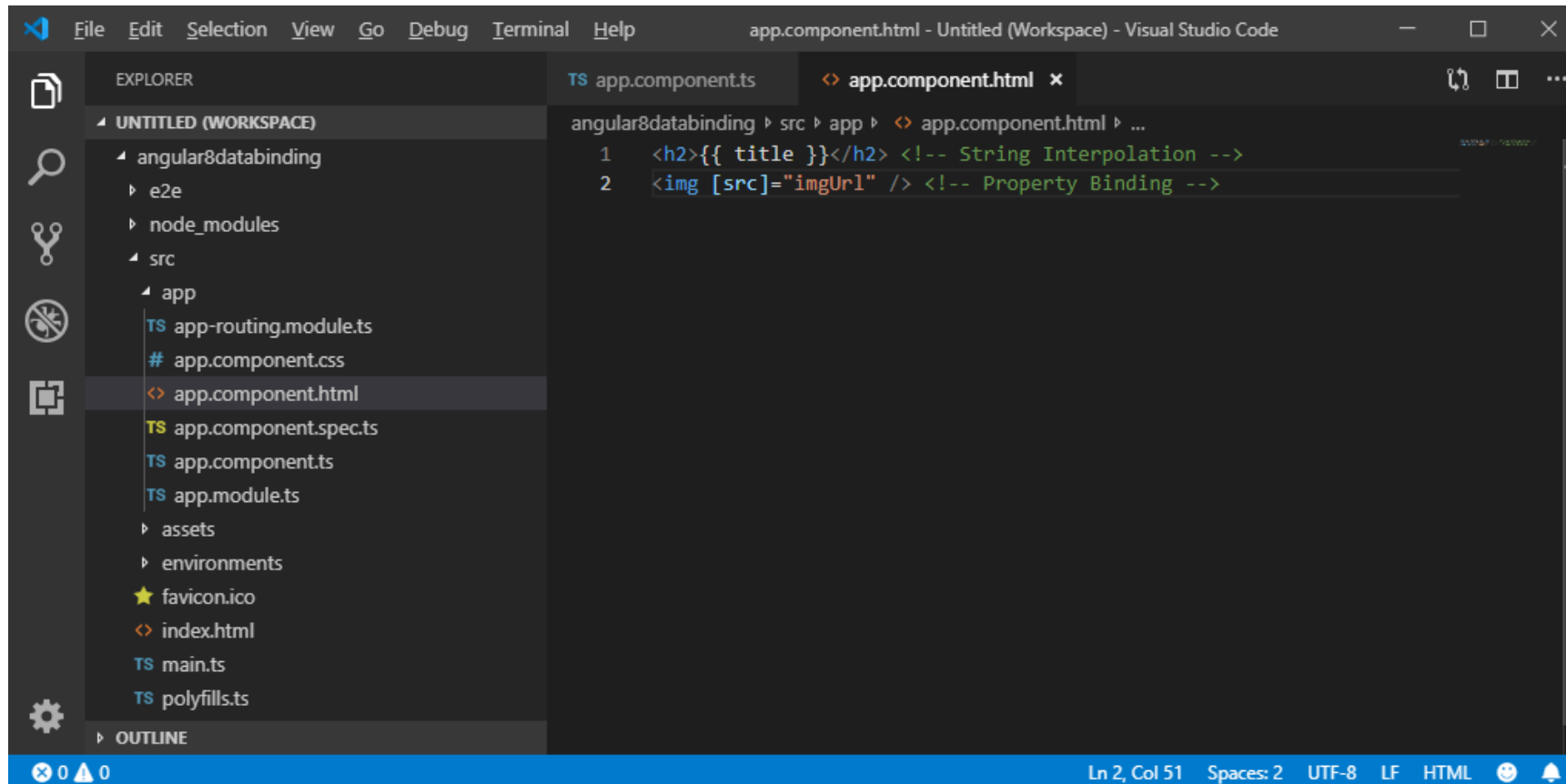
The screenshot shows the Visual Studio Code interface with a workspace named 'angular8databinding'. The Explorer sidebar on the left displays the project structure, including files like 'app.component.html' and 'app.component.ts'. The main editor area shows the 'app.component.ts' file with the following TypeScript code:

```
1 import { Component } from '@angular/core';
2
3 @Component({
4   selector: 'app-root',
5   templateUrl: './app.component.html',
6   styleUrls: ['./app.component.css']
7 })
8 export class AppComponent {
9   title = "Data binding using Property Binding";
10  imgUrl="https://static.javatpoint.com/tutorial/angular7/images/ang
11 }
```

The status bar at the bottom indicates the current position is Line 11, Column 4, with 2 spaces, UTF-8 encoding, LF line endings, and the file is a TypeScript file.

# One-way Data Binding

## Property Binding



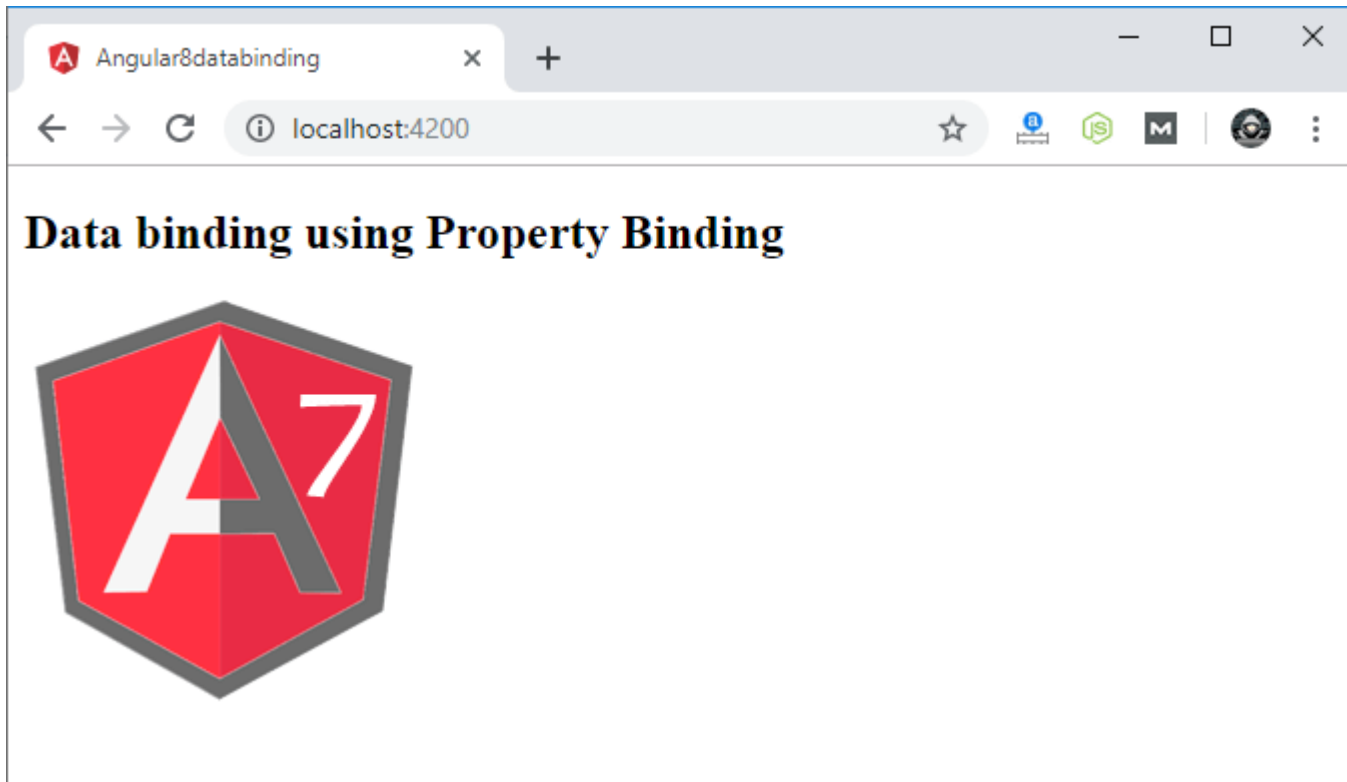
The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left displays a project structure for 'angular8databinding'. The file 'app.component.html' is selected and open in the editor. The editor shows two lines of HTML code: a string interpolation example and a property binding example.

```
angular8databinding ▸ src ▸ app ▸ < > app.component.html ▸ ...  
1 <h2>{{ title }}</h2> <!-- String Interpolation -->  
2 <img [src]="imgUrl" /> <!-- Property Binding -->
```

The status bar at the bottom indicates the current position is Line 2, Column 51, with 2 spaces, using UTF-8 encoding and LF line endings. The file type is HTML.

# One-way Data Binding

## Property Binding



## Property Binding Vs Interpolation

לפניכם שני קטעי קוד:

1 `<h1> {{ title }} </h1>`

2 `<h1 [innerText]="title"></h1>`

כתובים בטכניקות שונות אך שניהם מביאים לאותה התוצאה

## Event Binding

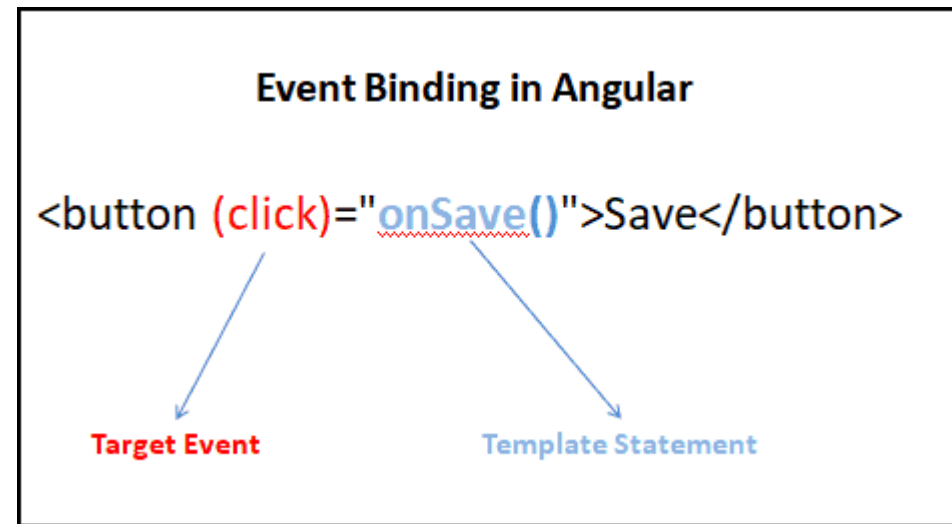
- טכניקת One-way data binding לטיפול באירועים שהגיעו מה-DOM.
  - מתבצעת קריאה למתודה השייכת לקומפוננטה ואחראית לטיפול באירוע.
- דוגמה:

*`<element (event)="TemplateStatement"`*

```
<button (click)="showMessage()"></button>
```

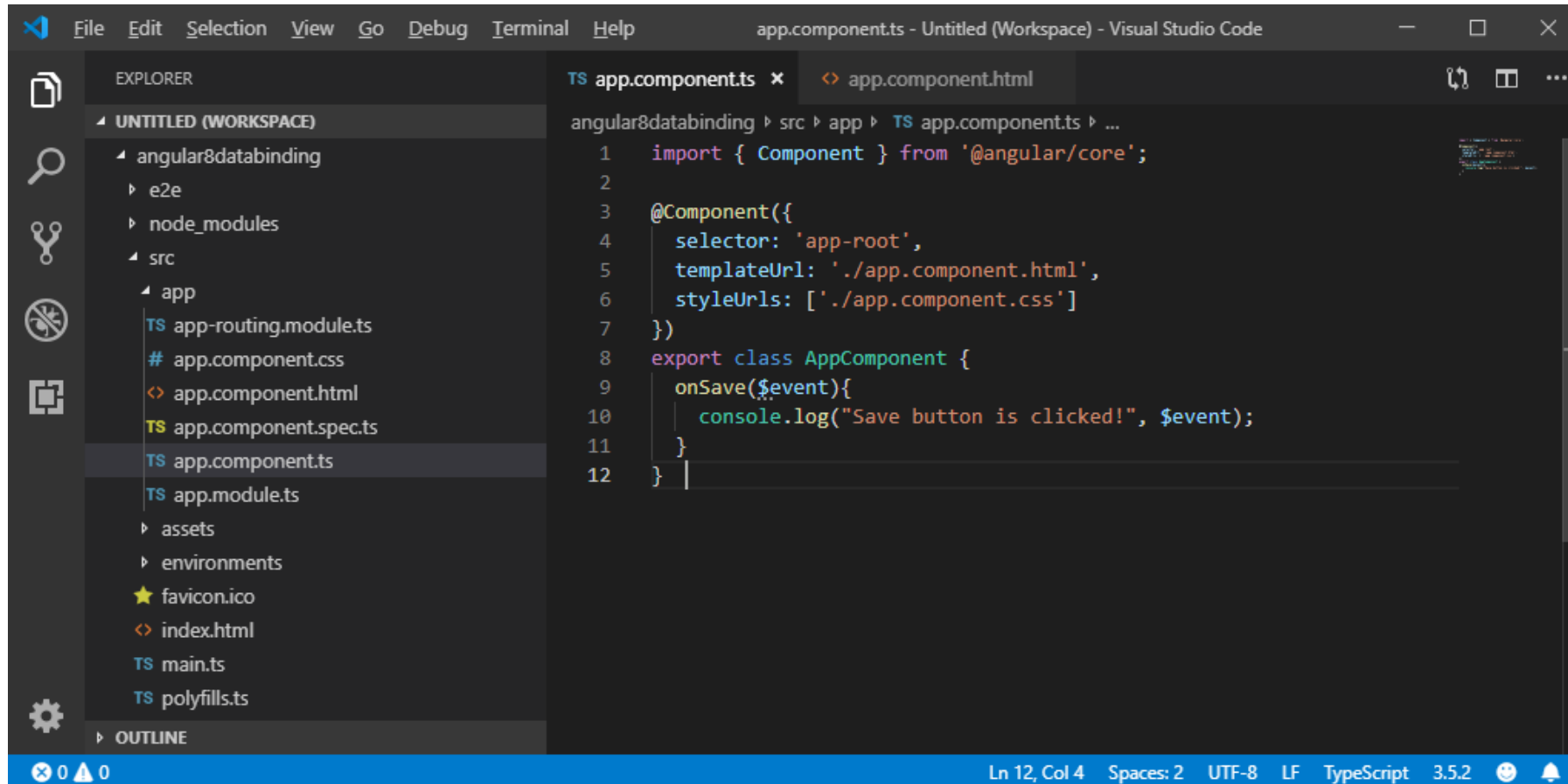


## Event Binding



# One-way Data Binding

## Event Binding



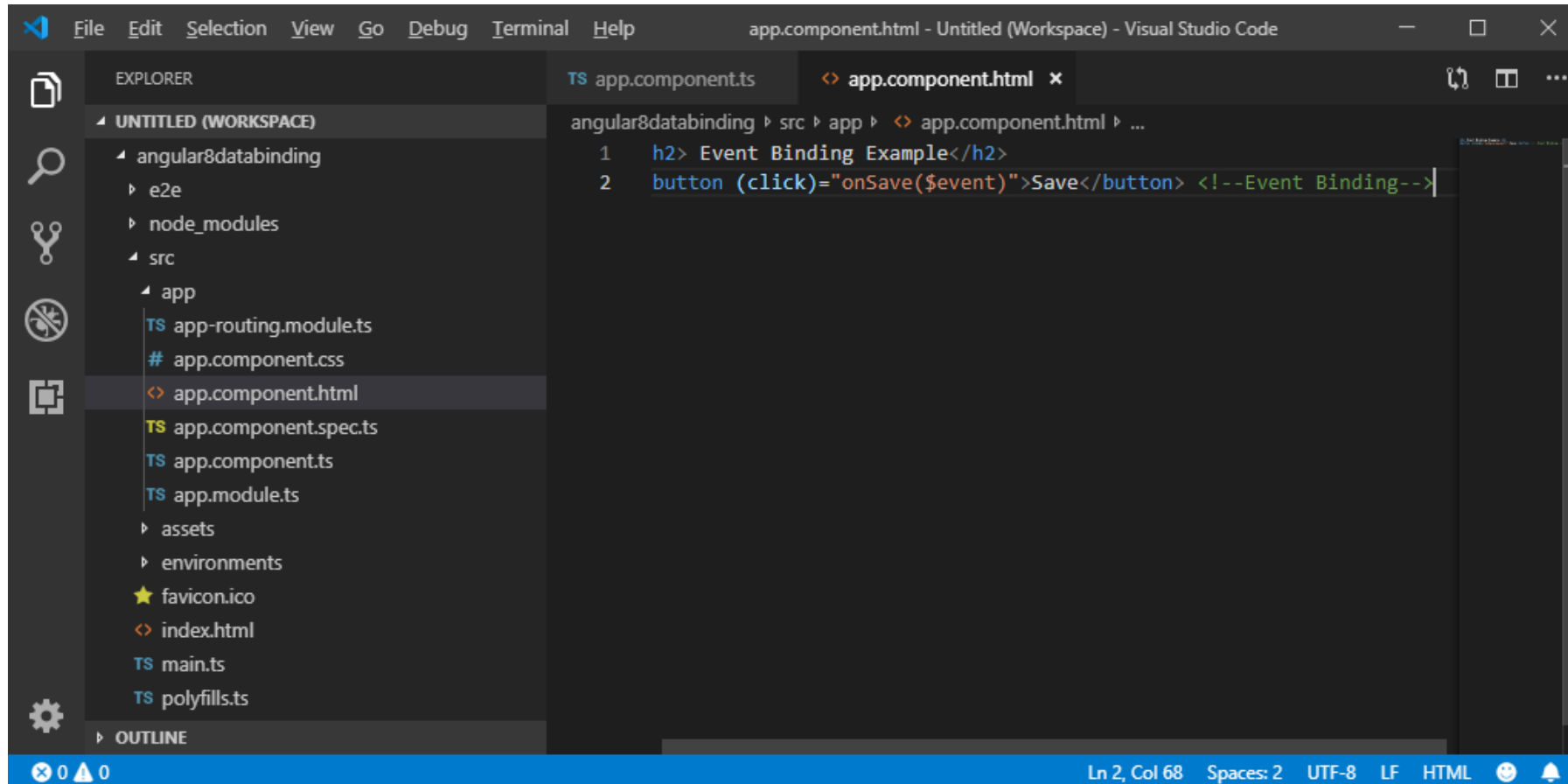
The screenshot shows the Visual Studio Code editor with a workspace named 'app.component.ts - Untitled (Workspace)'. The Explorer sidebar on the left shows a project structure for 'angular8databinding' with a 'src' directory containing an 'app' subdirectory. The 'app.component.ts' file is selected in the Explorer and is also open in the main editor. The code in the editor is as follows:

```
angular8databinding › src › app › TS app.component.ts › ...
1  import { Component } from '@angular/core';
2
3  @Component({
4    selector: 'app-root',
5    templateUrl: './app.component.html',
6    styleUrls: ['./app.component.css']
7  })
8  export class AppComponent {
9    onSave($event){
10      console.log("Save button is clicked!", $event);
11    }
12  }
```

The status bar at the bottom indicates the current position is Line 12, Column 4, with 2 spaces, UTF-8 encoding, LF line endings, and TypeScript 3.5.2.

# One-way Data Binding

## Event Binding



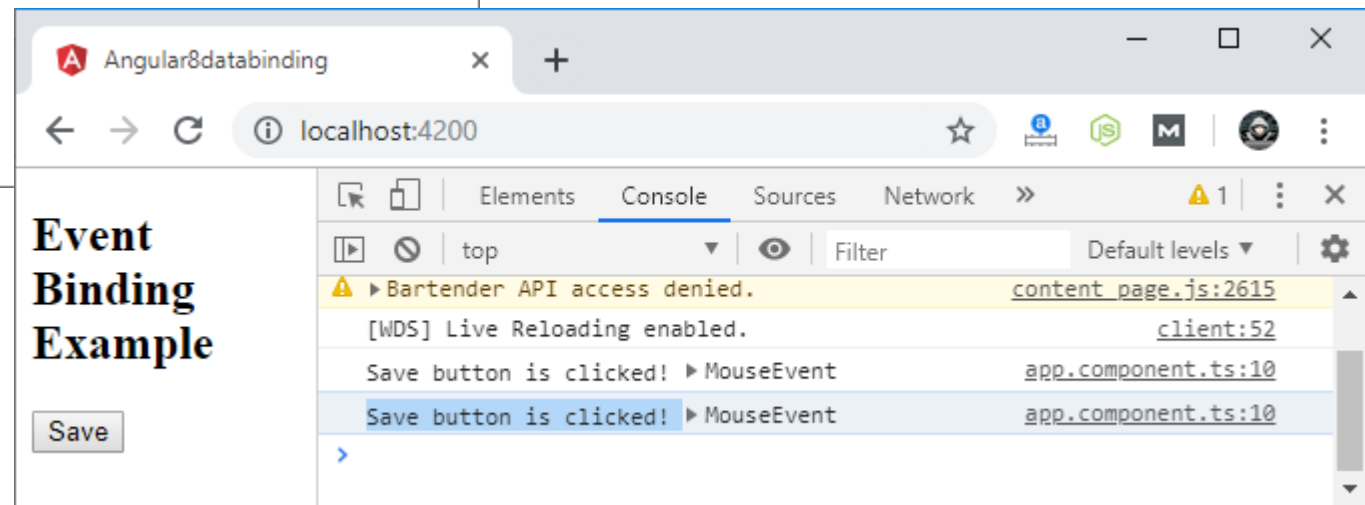
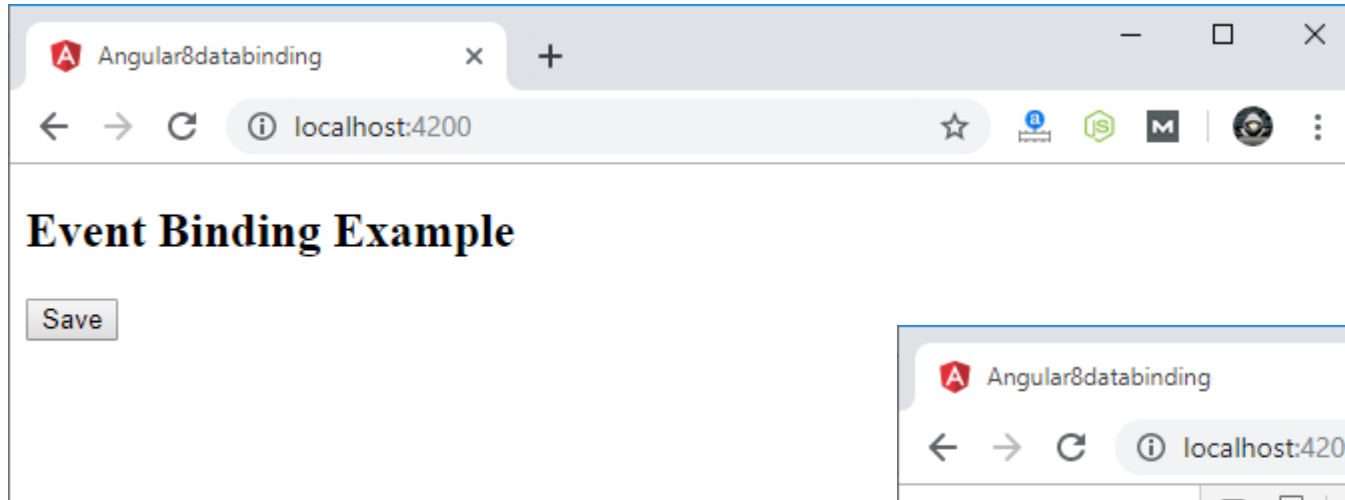
The screenshot shows the Visual Studio Code editor interface. The Explorer sidebar on the left displays the project structure for 'angular8databinding', with the 'app.component.html' file selected. The main editor area shows the content of 'app.component.html' with two lines of code:

```
1  <h2> Event Binding Example</h2>
2  <button (click)="onSave($event)">Save</button> <!--Event Binding-->
```

The status bar at the bottom indicates the current position is 'Ln 2, Col 68' and the file is encoded in 'UTF-8'.

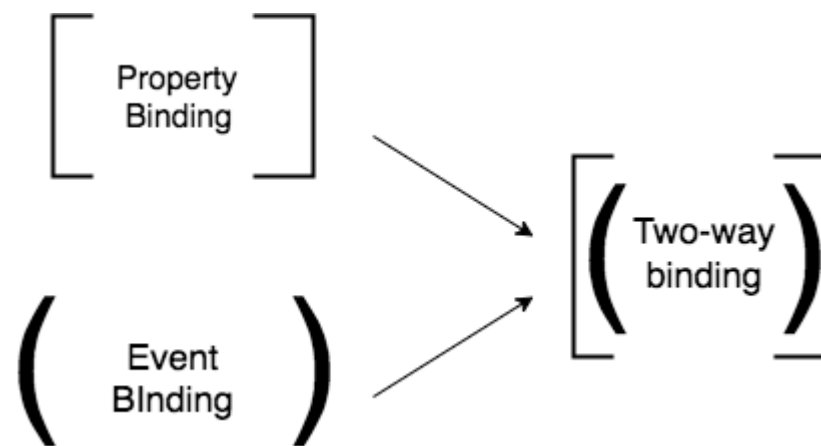
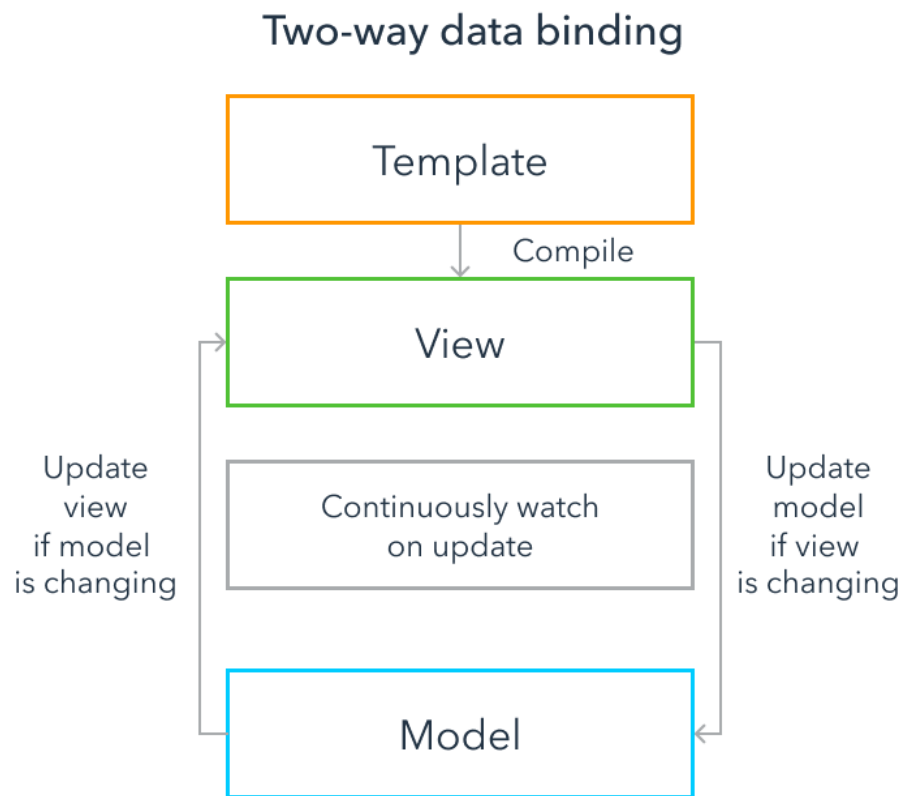
# One-way Data Binding

## Event Binding



# Two-way Data Binding

■ תקשורת זו כיוונית שבה התצוגה (html) משתנה בעקבות שינויים ב-Model (קוד ts) וגם ה-Model משתנה בעקבות שינויים המתרחשים בתצוגה (html)



# Two-way Data Binding

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■ המטרות:

- לבצע השמה לשדה של אלמנט DOM
- להאזין לאירוע כאשר האלמנט משתנה בצורה כלשהי

■ דוגמה:

*<someElement [(someProperty)]="value"> </someElement>*

```
<input [(ngModel)]="course.name" placeholder="name"/>
```

# ngModel

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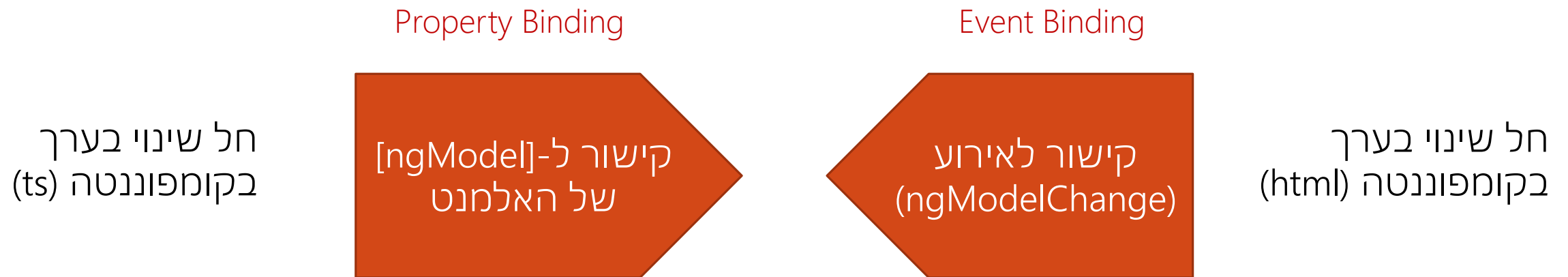
- הוראת Directive שמשתמשים בה בטכניקת Two-way Data Binding
- ngModel אינה חלק מליבת אנגולר (angular core) ולכן יש לייבא אותה מספריית FormsModule


```
import { FormsModule } from '@angular/forms';
```

- הוראה במבנה [(ngModel)] שנקרא banana in a box

# ngModel

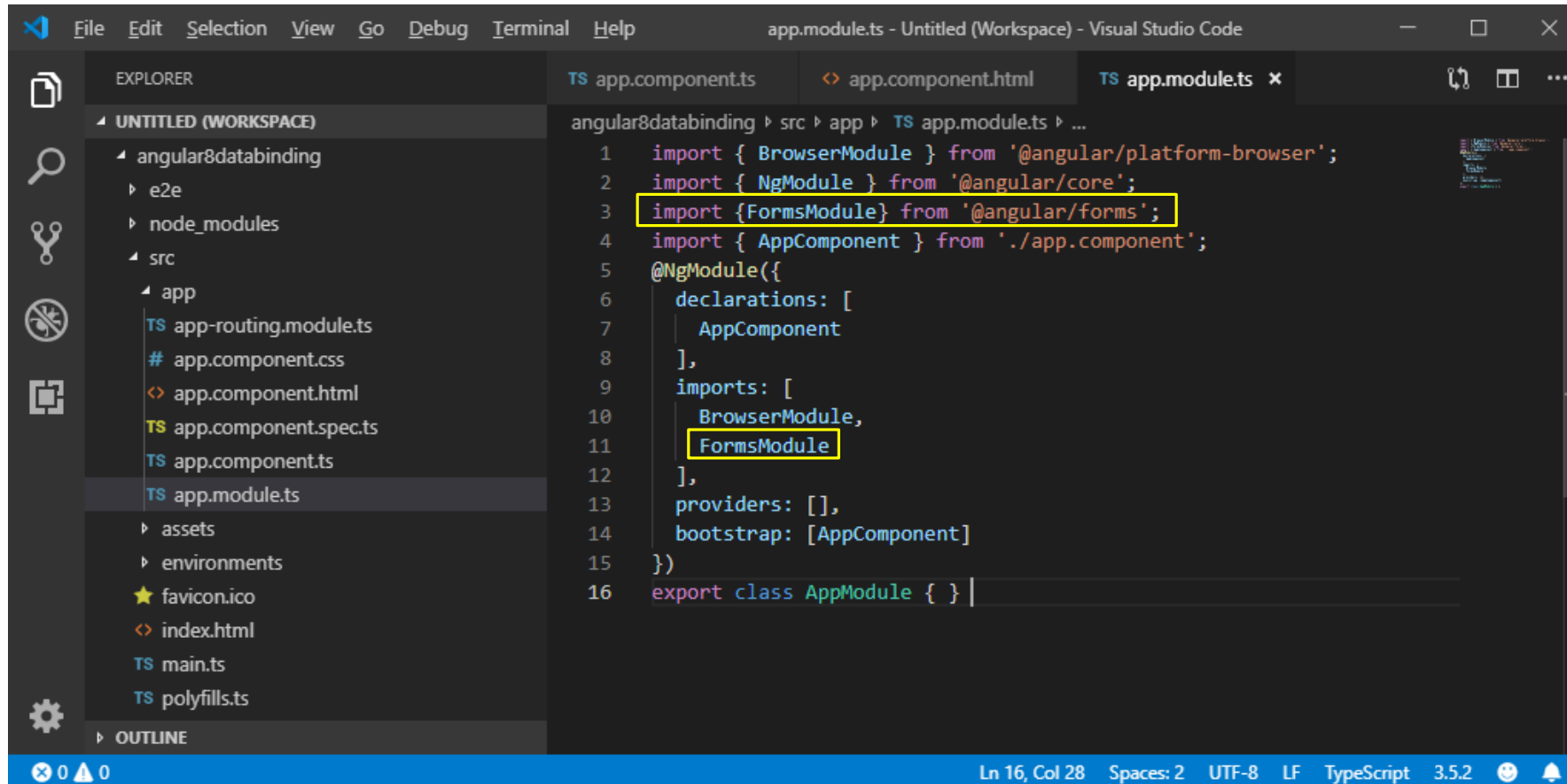
- מבצעת קשירת מידע באלמנטים של forms בלבד כמו input, select וכדומה



 `<input [ngModel]="variable" (ngModelChange)="variable=$event"/>`  
`<input [(ngModel)]="variable"/>`



# Two-way Data Binding

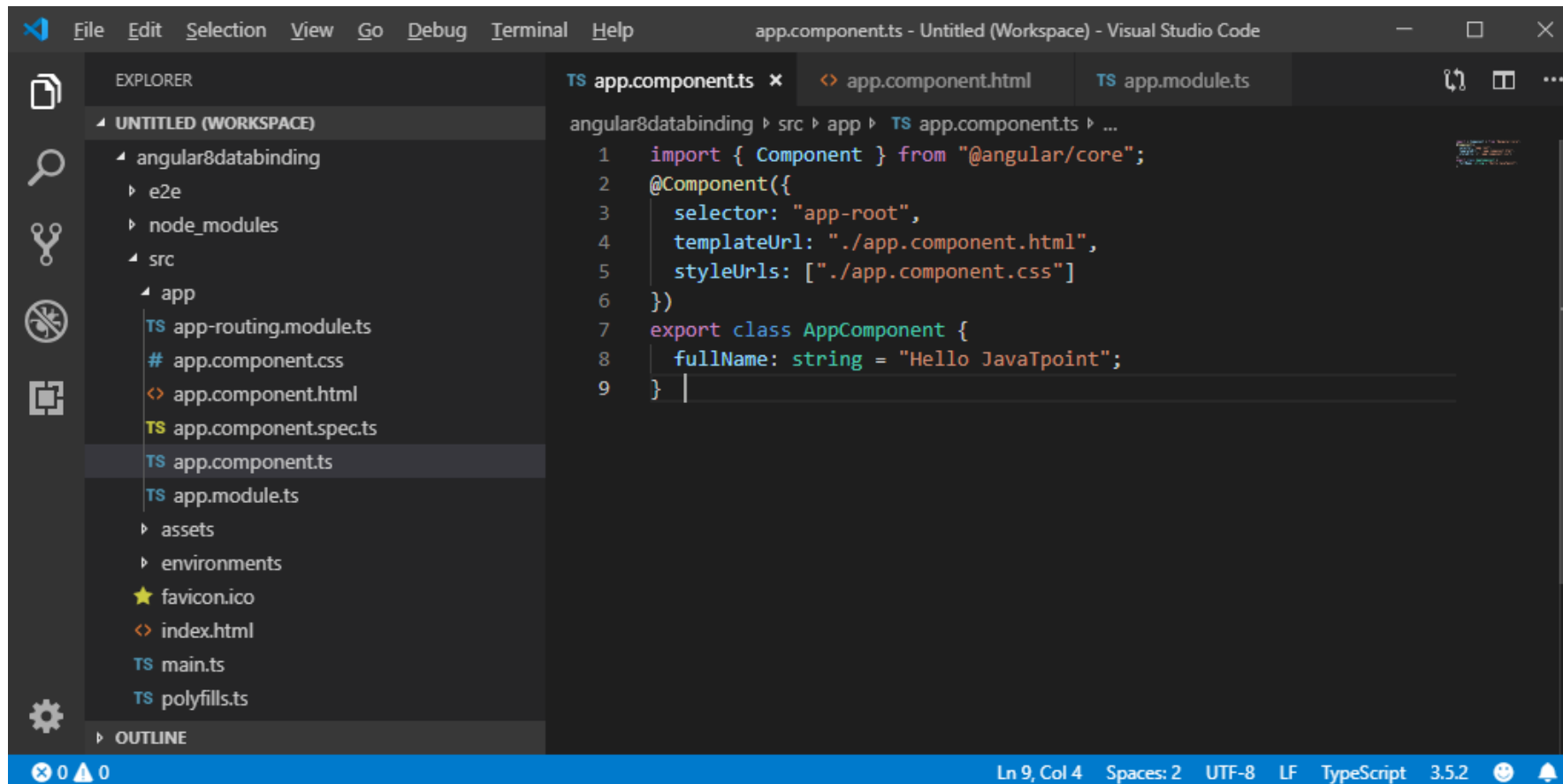


The screenshot shows the Visual Studio Code interface with a workspace named 'UNTITLED (WORKSPACE)'. The Explorer sidebar on the left displays the project structure, including a folder named 'angular8databinding' which contains a 'src' directory. Inside 'src', there is an 'app' folder containing several files: 'app-routing.module.ts', 'app.component.css', 'app.component.html', 'app.component.spec.ts', 'app.component.ts', and 'app.module.ts'. The 'app.module.ts' file is selected and open in the main editor. The code in 'app.module.ts' is as follows:

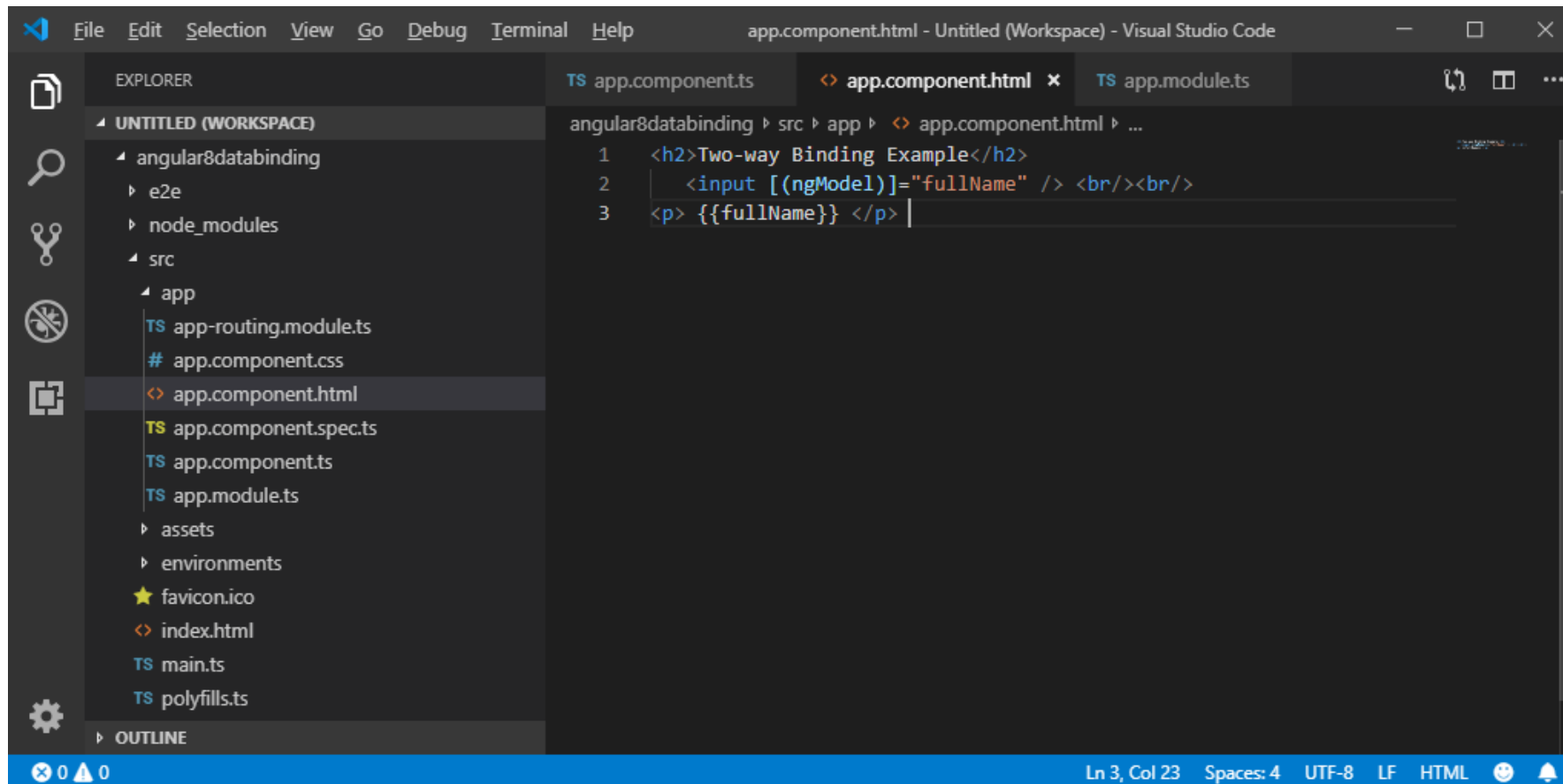
```
angular8databinding › src › app › TS app.module.ts › ...
1  import { BrowserModule } from '@angular/platform-browser';
2  import { NgModule } from '@angular/core';
3  import { FormsModule } from '@angular/forms';
4  import { AppComponent } from './app.component';
5  @NgModule({
6    declarations: [
7      AppComponent
8    ],
9    imports: [
10     BrowserModule,
11     FormsModule
12   ],
13   providers: [],
14   bootstrap: [AppComponent]
15 })
16 export class AppModule { }
```

In this code, the import statement for 'FormsModule' on line 3 and the 'FormsModule' entry in the 'imports' array on line 11 are highlighted with yellow boxes. The status bar at the bottom indicates the current position is Line 16, Column 28, with 2 spaces, UTF-8 encoding, LF line endings, and TypeScript 3.5.2.

# Two-way Data Binding



# Two-way Data Binding



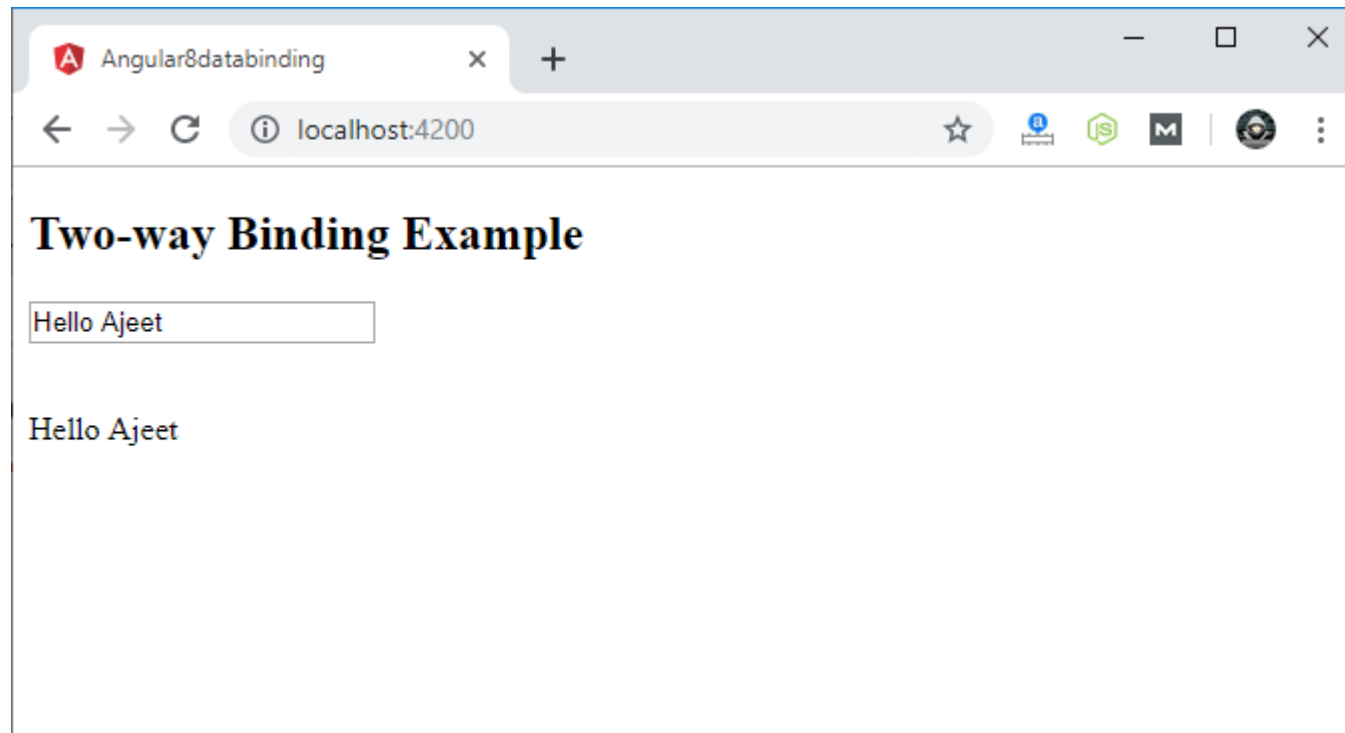
The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left displays a project structure for 'UNTITLED (WORKSPACE)'. The project includes a folder 'angular8databinding' which contains subfolders 'e2e' and 'src'. The 'src' folder contains a subfolder 'app' with files 'app-routing.module.ts', 'app.component.css', 'app.component.html' (selected), 'app.component.spec.ts', 'app.component.ts', and 'app.module.ts'. Other files in the project include 'assets', 'environments', 'favicon.ico', 'index.html', 'main.ts', and 'polyfills.ts'. The main editor area shows the content of 'app.component.html' with the following code:

```
1 <h2>Two-way Binding Example</h2>
2   <input [(ngModel)]="fullName" /> <br/><br/>
3 <p> {{fullName}} </p> |
```

The status bar at the bottom indicates the current position is 'Ln 3, Col 23', with 'Spaces: 4', 'UTF-8', 'LF', and 'HTML' encoding and line ending settings.

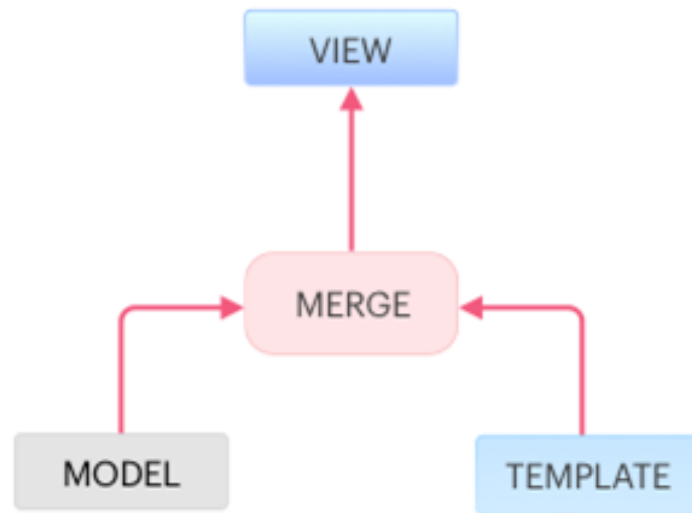
# Two-way Data Binding

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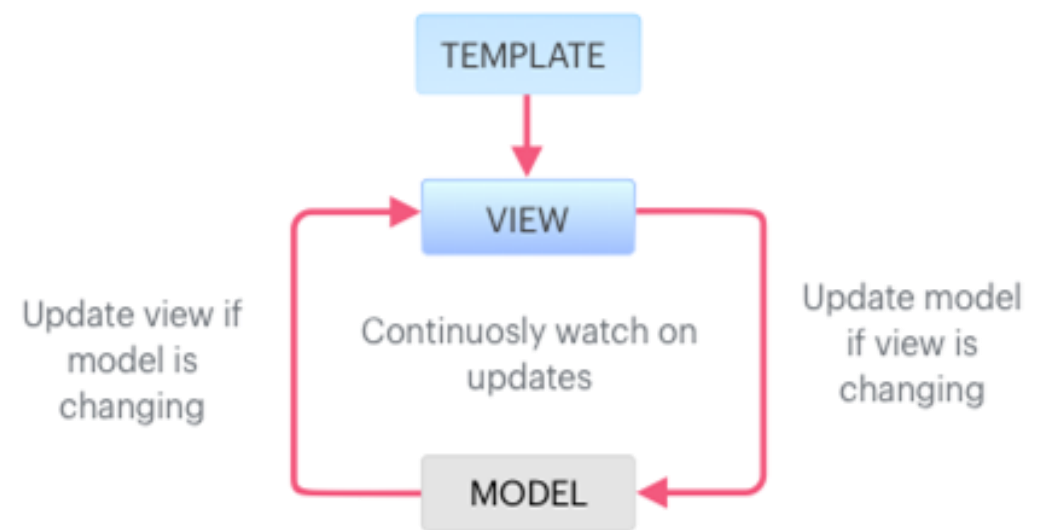


# One-way vs. Two-way Data Binding

## Data Binding



One-Way Data Binding



Two-Way Data Binding

# Data Binding 'λΙΟ

## Data Binding

