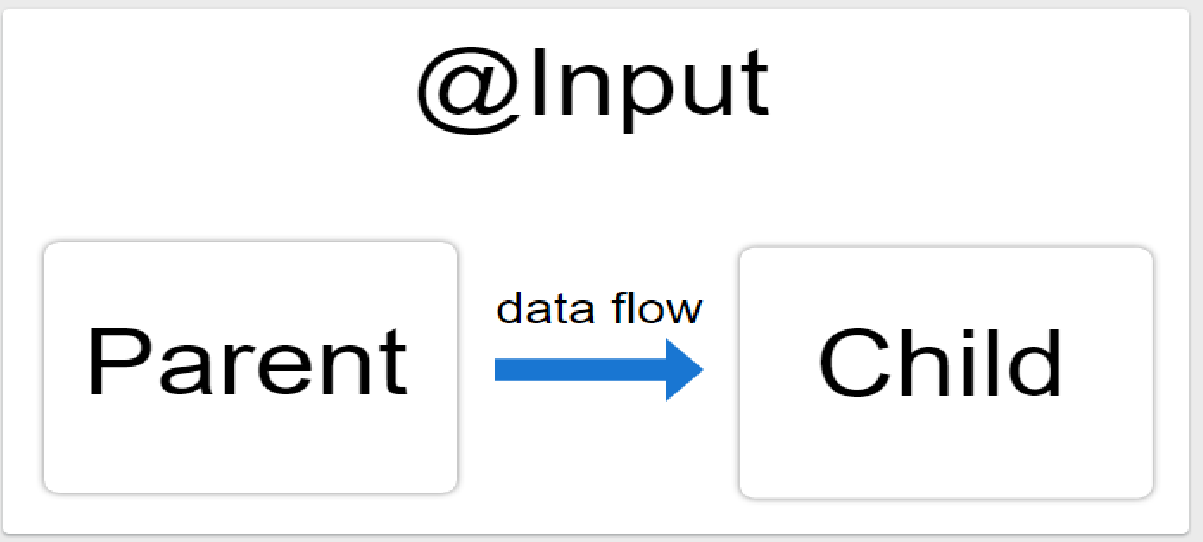
A common pattern in Angular is sharing data between a parent component and one or more child components. To implement this pattern use the @Input() and @Output() decorators.

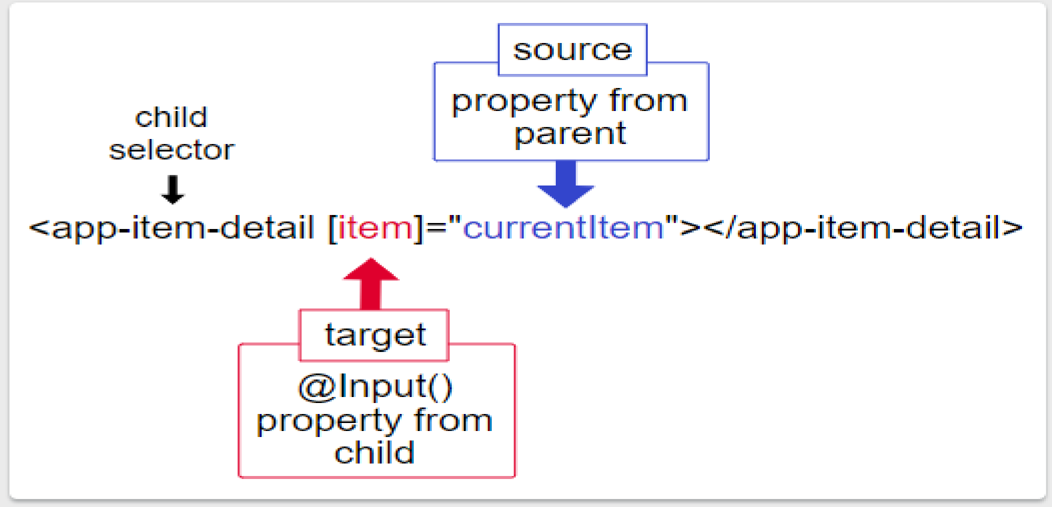
@Input() and @Output() give a child component a way to communicate with its parent component. @Input() lets a parent component update data in the child component. Conversely, @Output() lets the child send data to a parent component.

@Input Decorator:

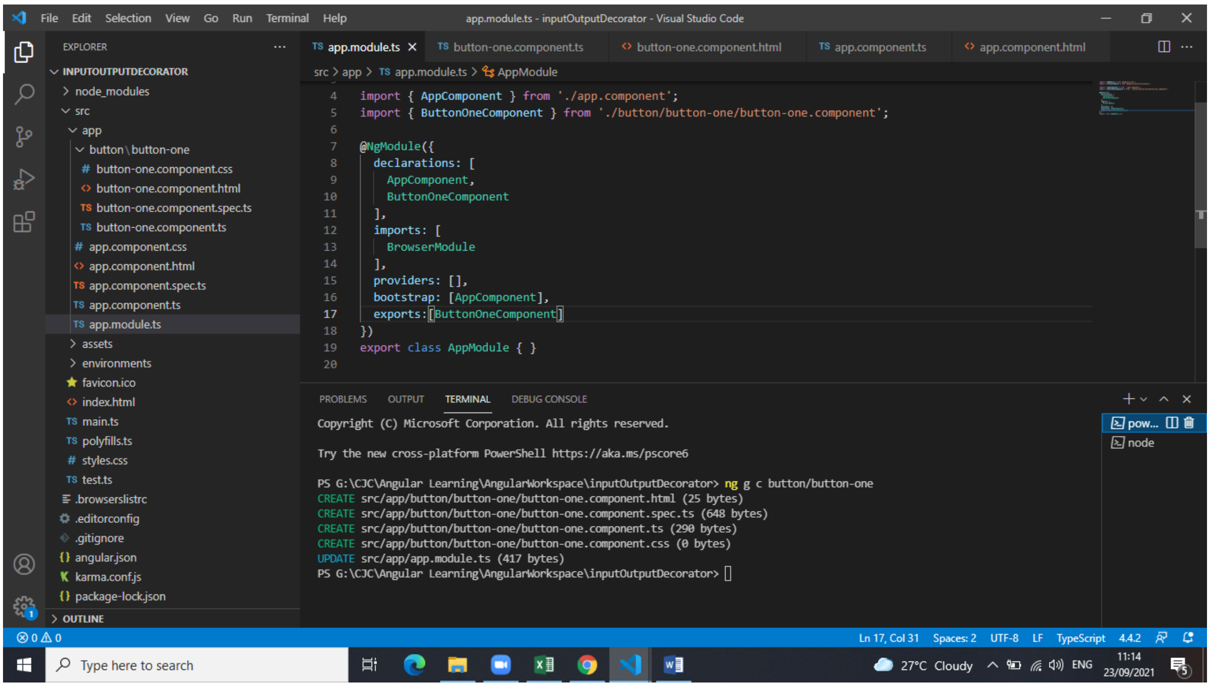
We have to declare @Input() in child component

Flow: parent ts to parent html→child ts to child html




source
property from parent
child selector
<app-item-detail [item]="currentItem"></app-item-detail>
target
@Input() property from child

To use the @Input() decorator in a child component class, first import Input and then decorate the property with @Input(), as in the following example.


app.module.ts - inputOutputDecorator - Visual Studio Code
src > app > app.module.ts > AppModule

```
import { AppComponent } from './app.component';
import { ButtonOneComponent } from './button/button-one/button-one.component';

@NgModule({
  declarations: [
    AppComponent,
    ButtonOneComponent
  ],
  imports: [
    BrowserModule
  ],
  providers: [],
  bootstrap: [AppComponent],
  exports:[ButtonOneComponent]
})
export class AppModule { }
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

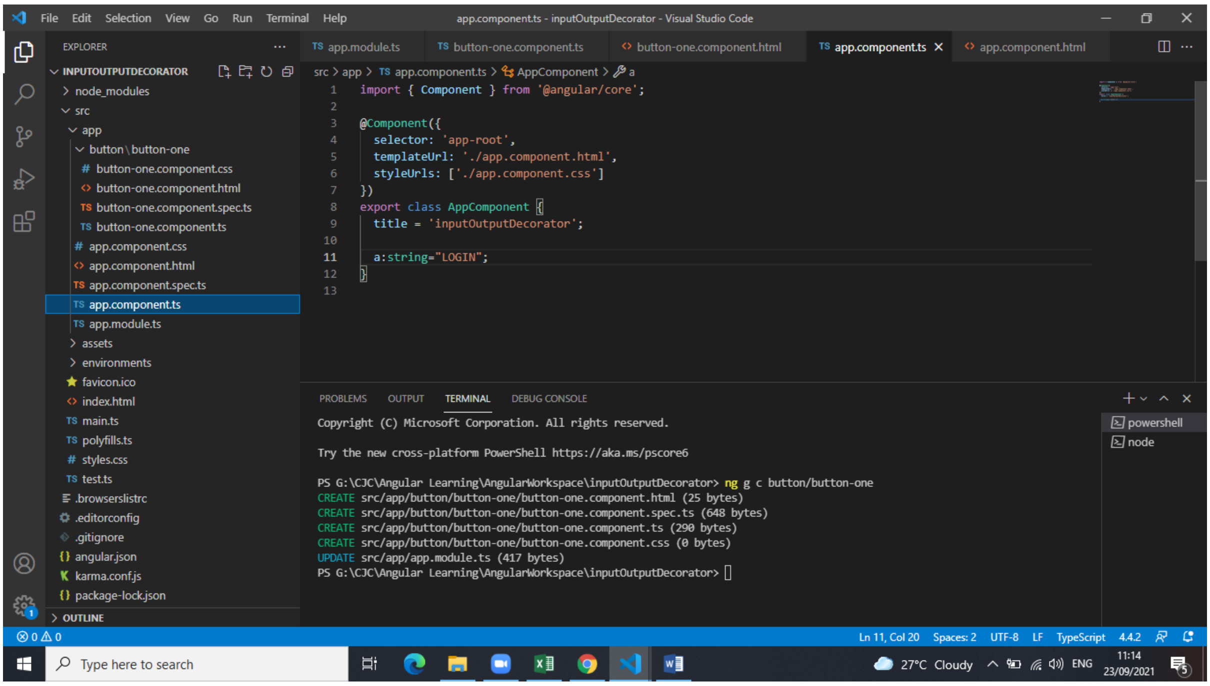
app.component.ts - inputOutputDecorator - Visual Studio Code
src > app > app.component.ts > AppComponent > a

```
import { Component } from '@angular/core';

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'inputOutputDecorator';

  a:string="LOGIN";
}
```

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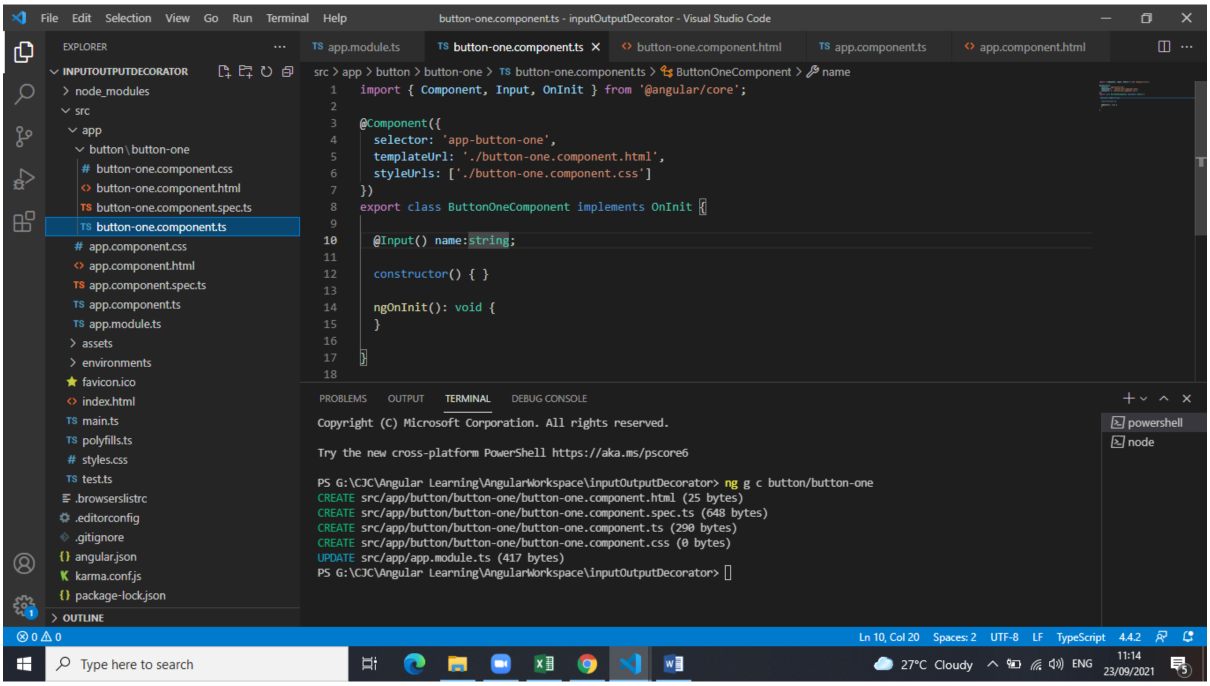
Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>


button-one.component.ts - inputOutputDecorator - Visual Studio Code
app.module.ts
button-one.component.ts
button-one.component.html
app.component.ts
app.component.html
src > app > button > button-one > button-one.component.ts > ButtonOneComponent > name
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
powershell
node
Ln 10, Col 20 Spaces: 2 UTF-8 LF TypeScript 4.4.2

```
import { Component, Input, OnInit } from '@angular/core';

@Component({
  selector: 'app-button-one',
  templateUrl: './button-one.component.html',
  styleUrls: ['./button-one.component.css']
})
export class ButtonOneComponent implements OnInit {

  @Input() name:string;

  constructor() { }

  ngOnInit(): void {
  }

}
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

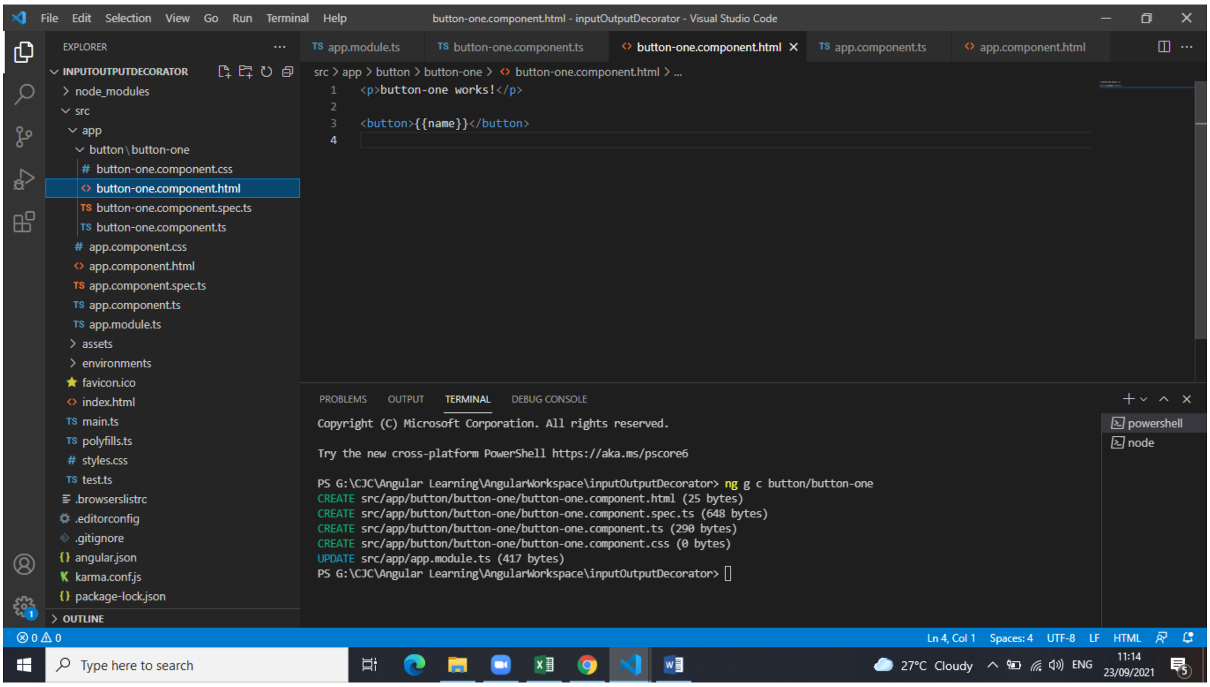
button-one.component.html - inputOutputDecorator - Visual Studio Code
app.module.ts
button-one.component.ts
button-one.component.html
app.component.ts
app.component.html
src > app > button > button-one > button-one.component.html > ...
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
powershell
node
Ln 4, Col 1 Spaces: 4 UTF-8 LF HTML

```
<p>button-one works!</p>

<button>{{name}}</button>
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

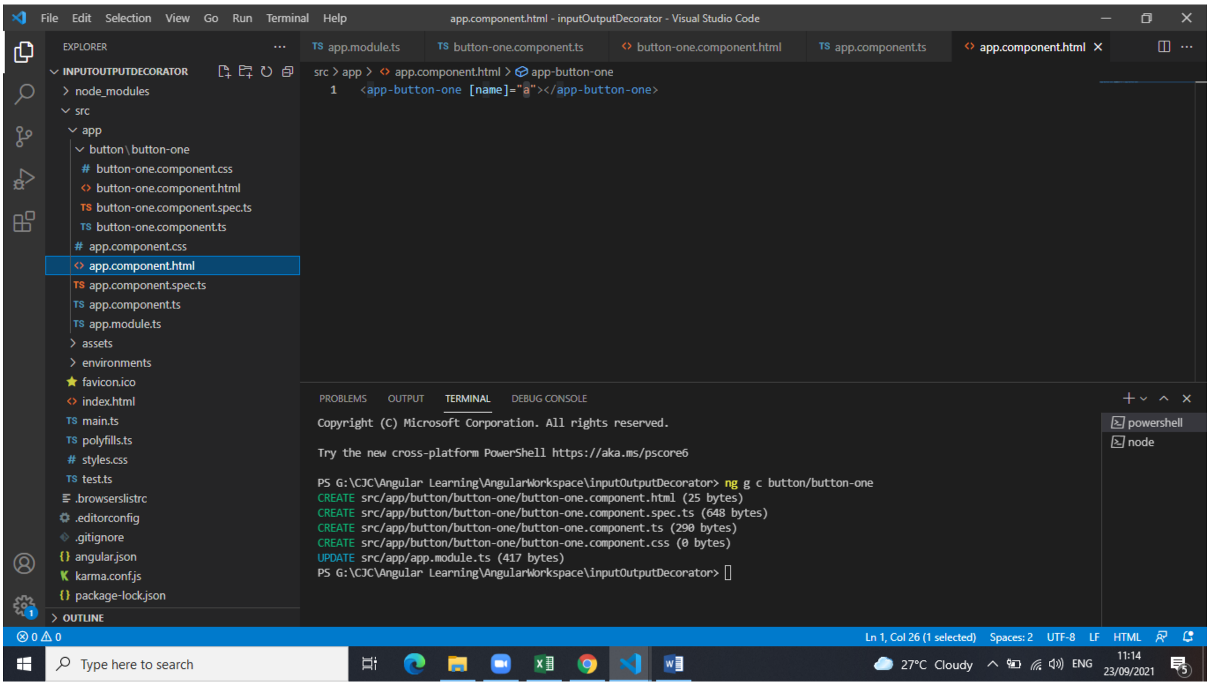

```html
<app-button-one [name]="a"></app-button-one>
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```
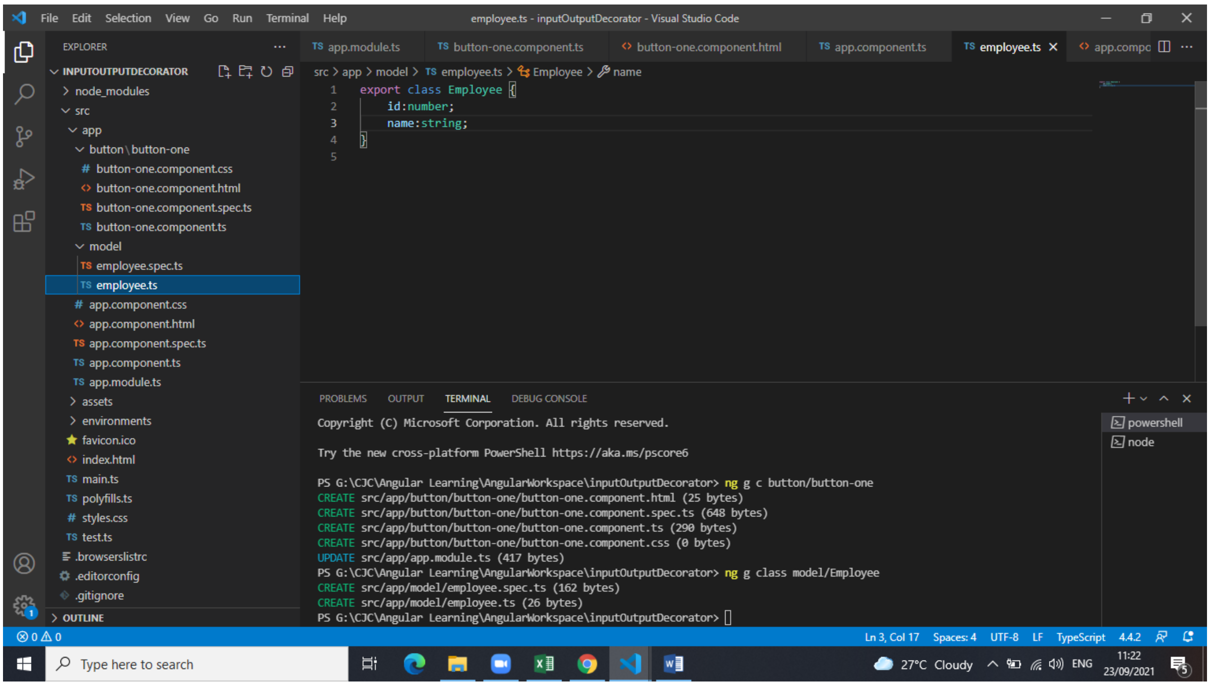

Sending Object with help of @Input()



```typescript
export class Employee {
    id:number;
    name:string;
}

```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g class model/Employee
CREATE src/app/model/employee.spec.ts (162 bytes)
CREATE src/app/model/employee.ts (26 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

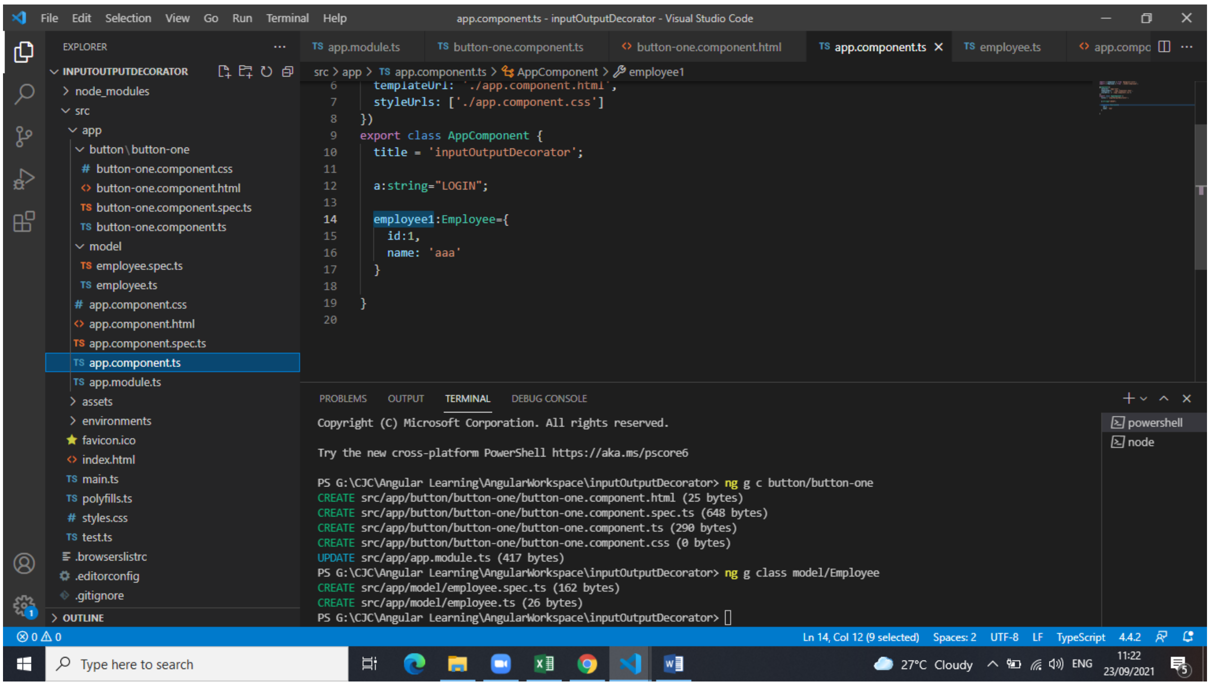

```
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'inputOutputDecorator';

  a:string="LOGIN";

  employee1:Employee={
    id:1,
    name: 'aaa'
  }

}
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g class model/Employee
CREATE src/app/model/employee.spec.ts (162 bytes)
CREATE src/app/model/employee.ts (26 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

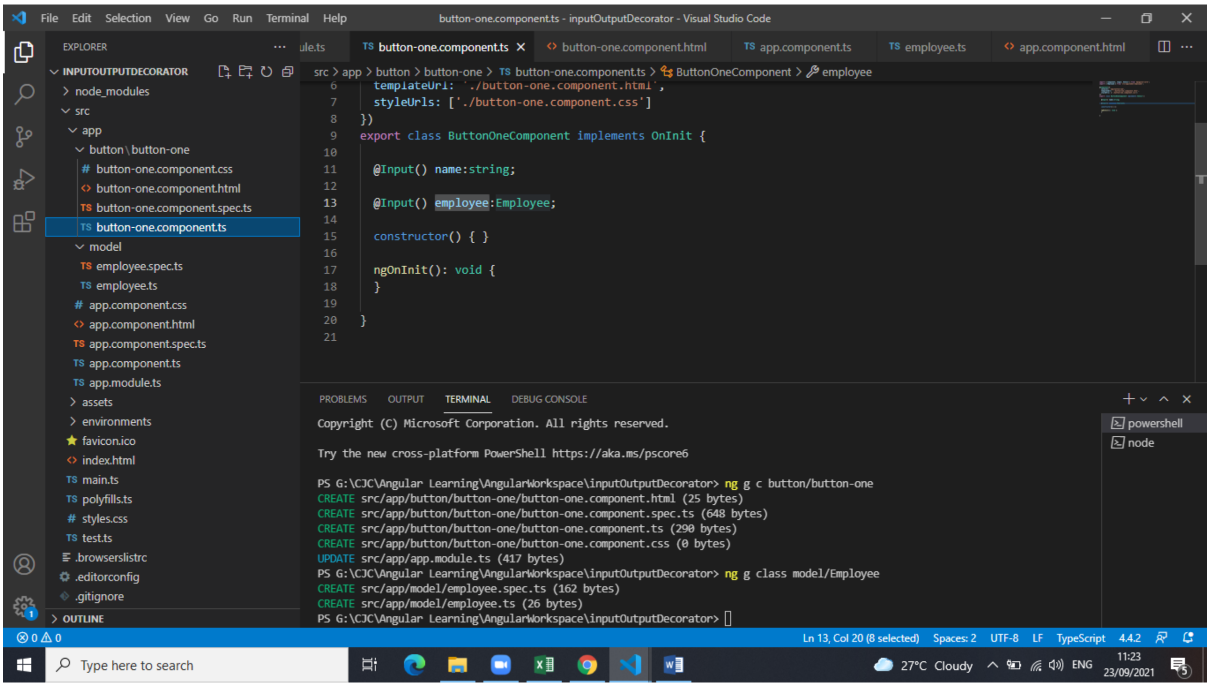

```
  templateUrl: './button-one.component.html',
  styleUrls: ['./button-one.component.css']
})
export class ButtonOneComponent implements OnInit {

  @Input() name:string;

  @Input() employee:Employee;

  constructor() { }

  ngOnInit(): void {
  }

}
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g class model/Employee
CREATE src/app/model/employee.spec.ts (162 bytes)
CREATE src/app/model/employee.ts (26 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

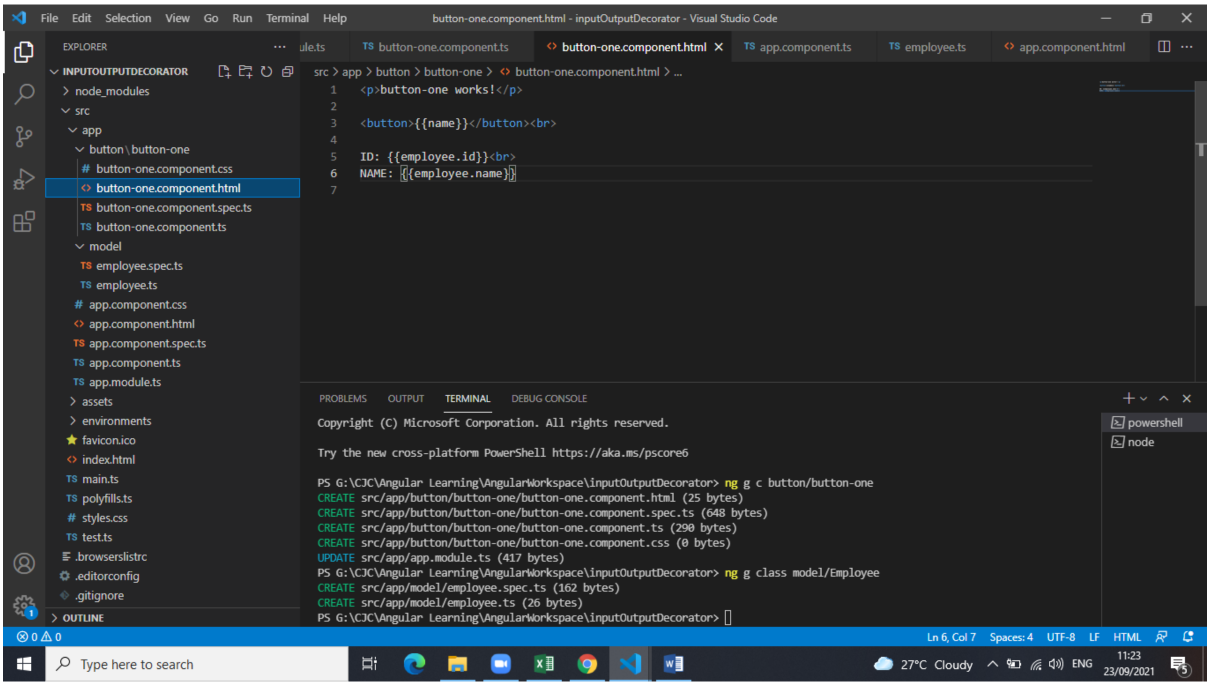
button-one.component.html - inputOutputDecorator - Visual Studio Code
EXPLORER
INPUTOUTPUTDECORATOR
src > app > button > button-one > button-one.component.html > ...
Ln 6, Col 7 Spaces: 4 UTF-8 LF HTML

```html
<p>button-one works!</p>

<button>{{name}}</button><br>

ID: {{employee.id}}<br>
NAME: {{employee.name}}
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g class model/Employee
CREATE src/app/model/employee.spec.ts (162 bytes)
CREATE src/app/model/employee.ts (26 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```

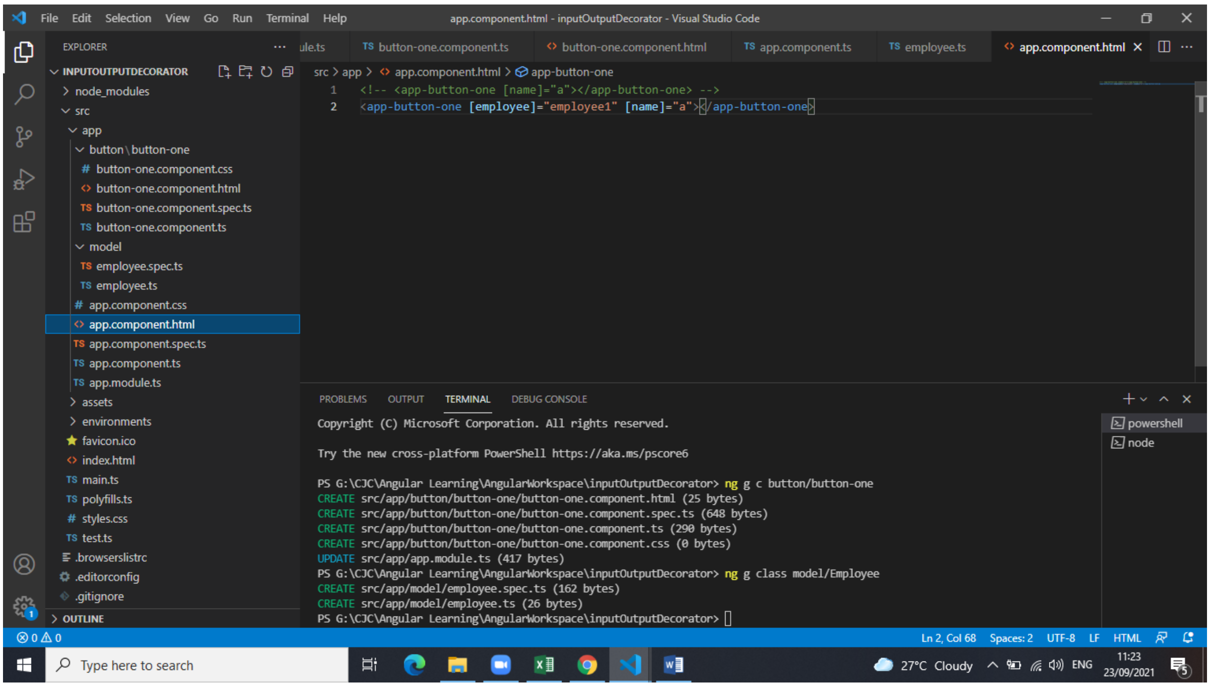
app.component.html - inputOutputDecorator - Visual Studio Code
EXPLORER
INPUTOUTPUTDECORATOR
src > app > app.component.html > app-button-one
Ln 2, Col 68 Spaces: 2 UTF-8 LF HTML

```html
<!-- <app-button-one [name]="a"></app-button-one> -->
<app-button-one [employee]="employee1" [name]="a"></app-button-one>
```

```
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g c button/button-one
CREATE src/app/button/button-one/button-one.component.html (25 bytes)
CREATE src/app/button/button-one/button-one.component.spec.ts (648 bytes)
CREATE src/app/button/button-one/button-one.component.ts (290 bytes)
CREATE src/app/button/button-one/button-one.component.css (0 bytes)
UPDATE src/app/app.module.ts (417 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator> ng g class model/Employee
CREATE src/app/model/employee.spec.ts (162 bytes)
CREATE src/app/model/employee.ts (26 bytes)
PS G:\CJC\Angular Learning\AngularWorkspace\inputOutputDecorator>
```
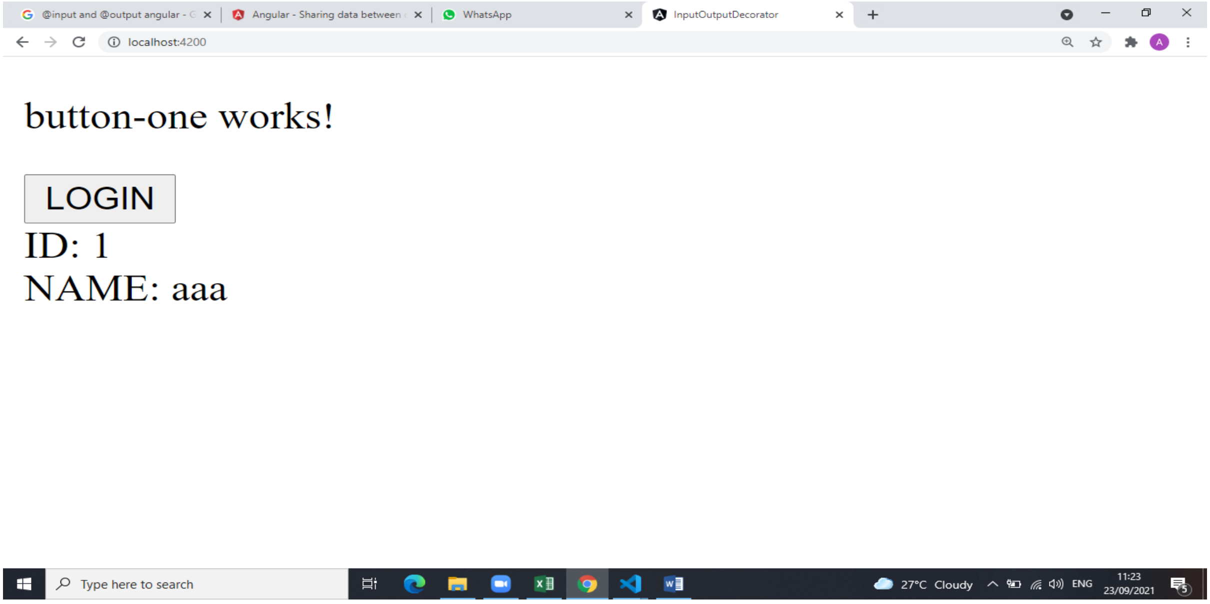



button-one works!

LOGIN

ID: 1

NAME: aaa

Sending data to a parent component:

@Output() decorator:

@Output() marks a property in a child component as a doorway through which data can travel from the child to the parent.

The child component uses the @Output() property to raise an event to notify the parent of the change. To raise an event, an @Output() must have the type of EventEmitter, which is a class in @angular/core that you use to emit custom events.

The following example shows how to set up an @Output() in a child component that pushes data from an HTML <input> to an array in the parent component.

To use @Output(), you must configure the parent and child.

1. Import Output and EventEmitter in the child component class:

   ```
   import { Output, EventEmitter } from '@angular/core';
   ```

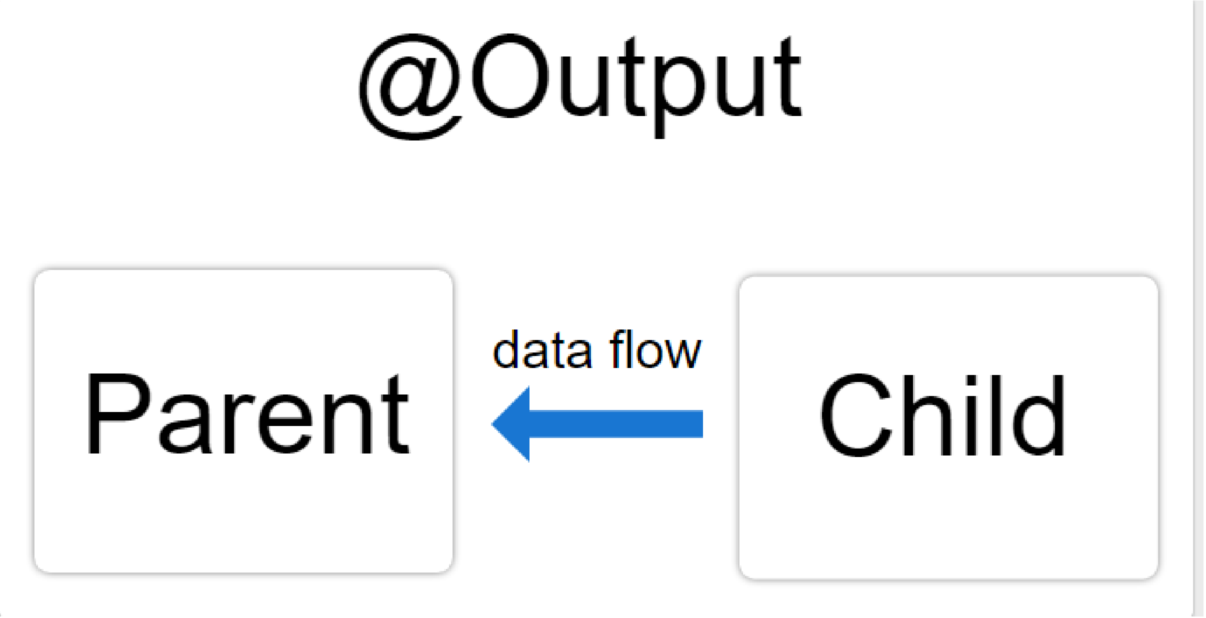
2. In the component class, decorate a property with @Output(). The following example newItemEvent @Output() has a type of EventEmitter, which means it's an event. src/app/item-output/item-output.component.ts

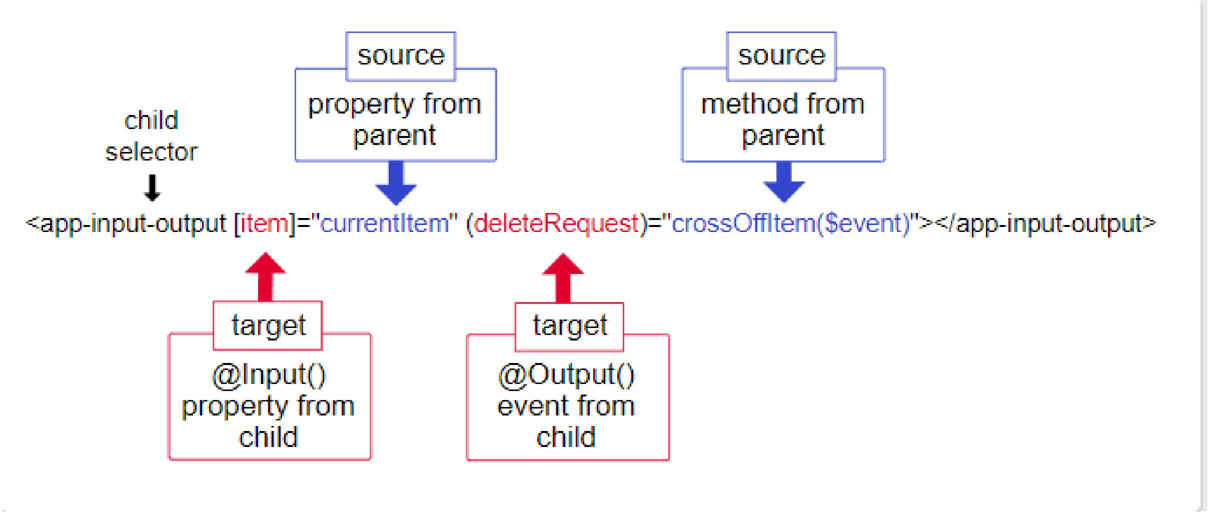
   ```
   @Output() newItemEvent = new EventEmitter<string>();
   ```

   The different parts of the preceding declaration are as follows:

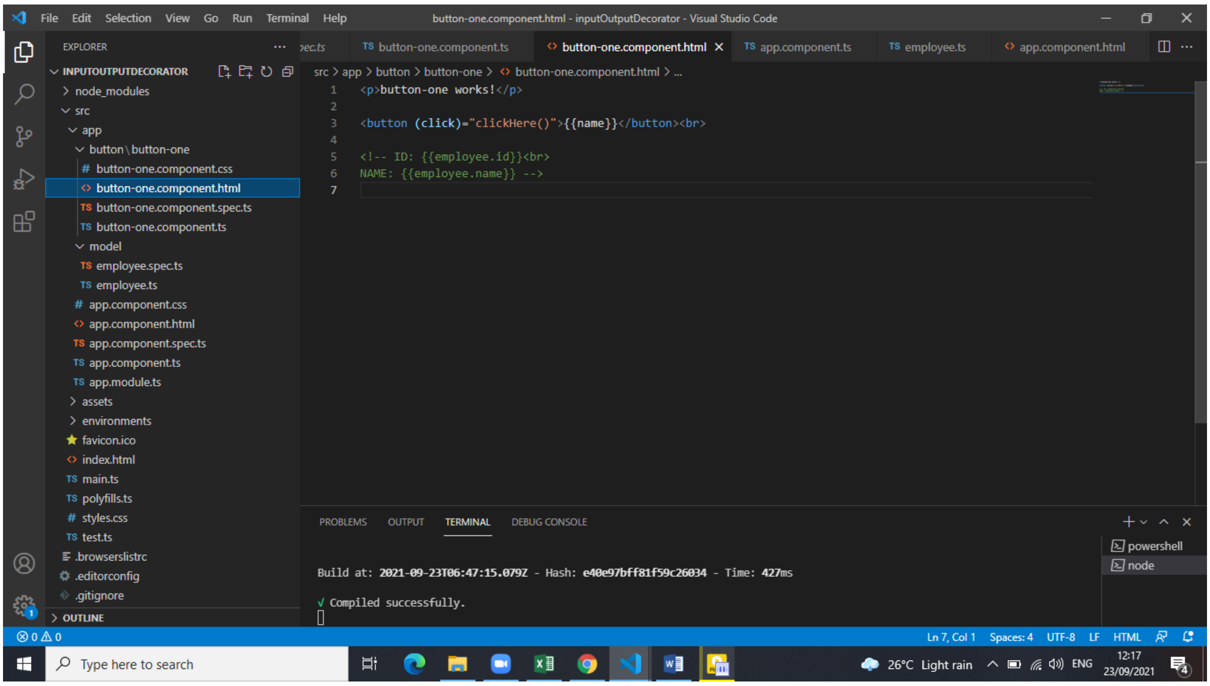
   - @Output()—a decorator function marking the property as a way for data to go from the child to the parent
   - newItemEvent—the name of the @Output()
   - EventEmitter<string>—the @Output()'s type

- new EventEmitter<string>()—tells Angular to create a new event emitter and that the data it emits is of type string.



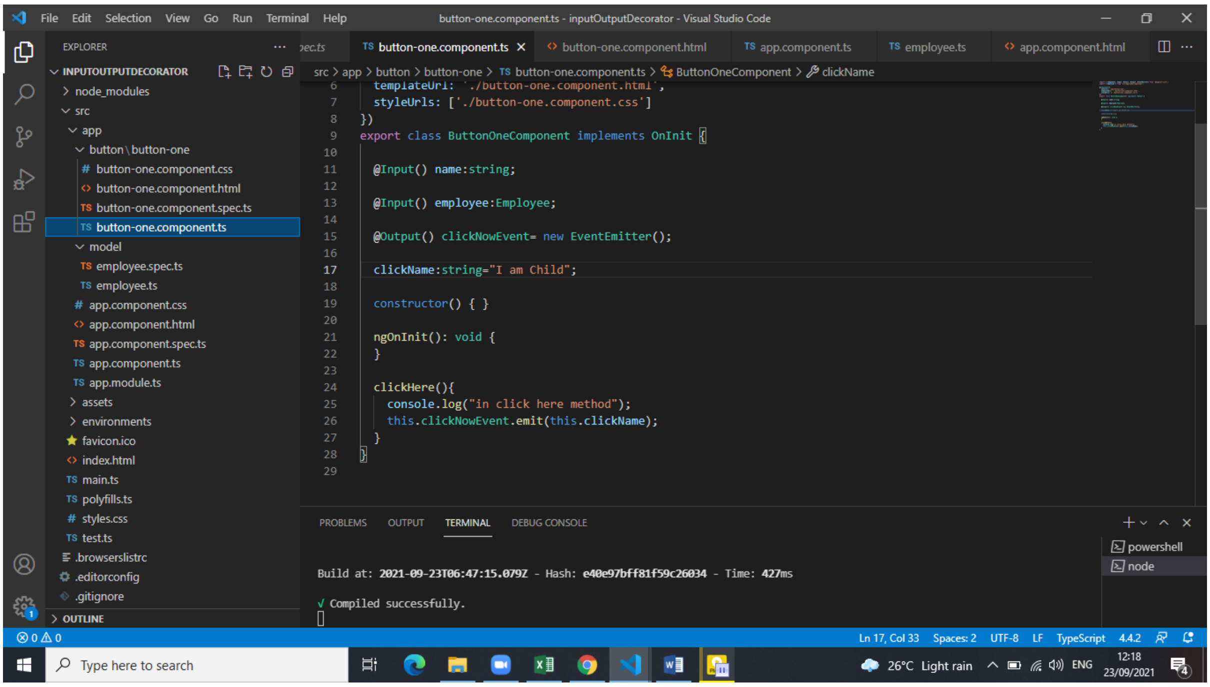


```
<app-input-output [item]="currentItem" (deleteRequest)="crossOffItem($event)"></app-input-output>
```



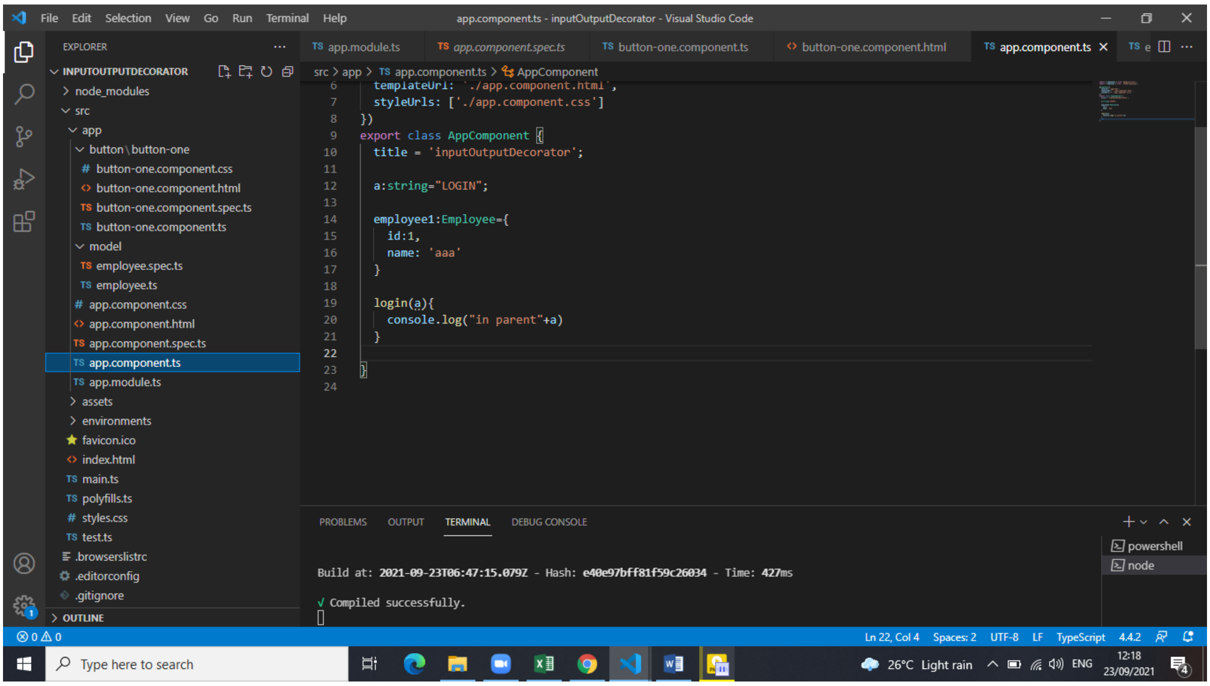
```html
<p>button-one works!</p>

<button (click)="clickHere()">{{name}}</button><br>

<!-- ID: {{employee.id}}<br>
NAME: {{employee.name}} -->

```

```
Build at: 2021-09-23T06:47:15.079Z - Hash: e40e97bff81f59c26034 - Time: 427ms

√ Compiled successfully.
```



```typescript
  templateUrl: './button-one.component.html',
  styleUrls: ['./button-one.component.css']
})
export class ButtonOneComponent implements OnInit {

  @Input() name:string;

  @Input() employee:Employee;

  @Output() clickNowEvent= new EventEmitter();

  clickName:string="I am Child";

  constructor() { }

  ngOnInit(): void {
  }

  clickHere(){
    console.log("in click here method");
    this.clickNowEvent.emit(this.clickName);
  }
}

```

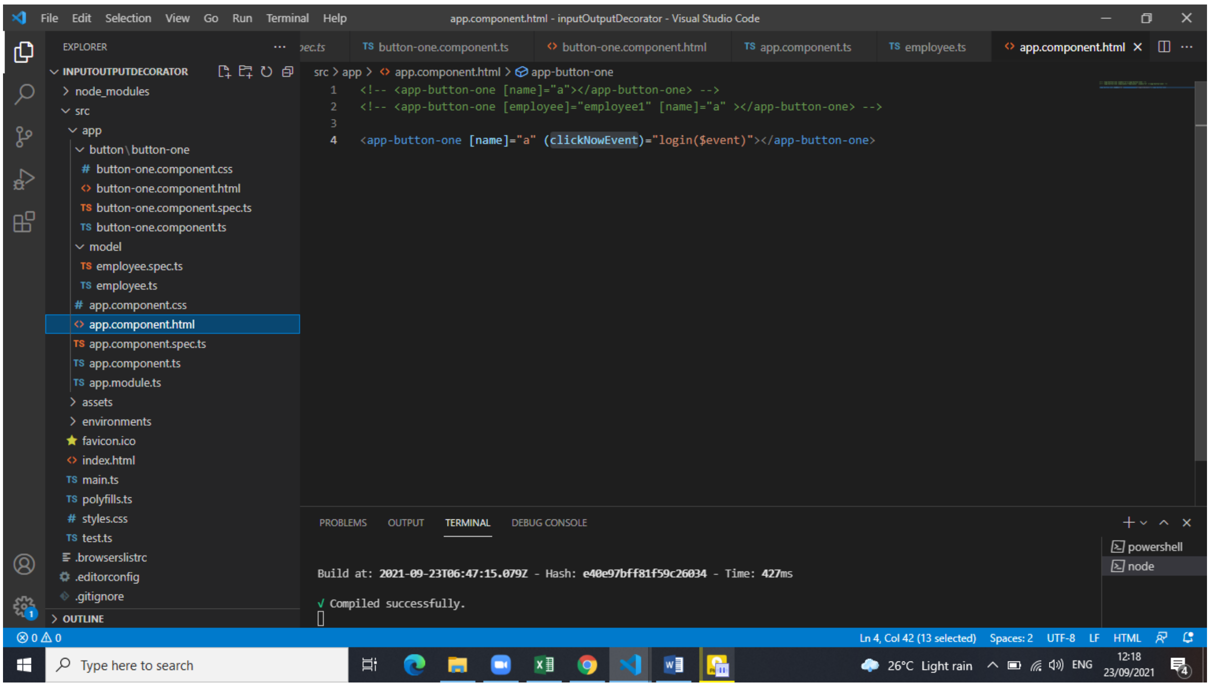
```
Build at: 2021-09-23T06:47:15.079Z - Hash: e40e97bff81f59c26034 - Time: 427ms

√ Compiled successfully.
```



app.component.ts - inputOutputDecorator - Visual Studio Code
src > app > app.component.ts > AppComponent

```
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'inputOutputDecorator';

  a:string="LOGIN";

  employee1:Employee={
    id:1,
    name: 'aaa'
  }

  login(a){
    console.log("in parent"+a)
  }

}
```

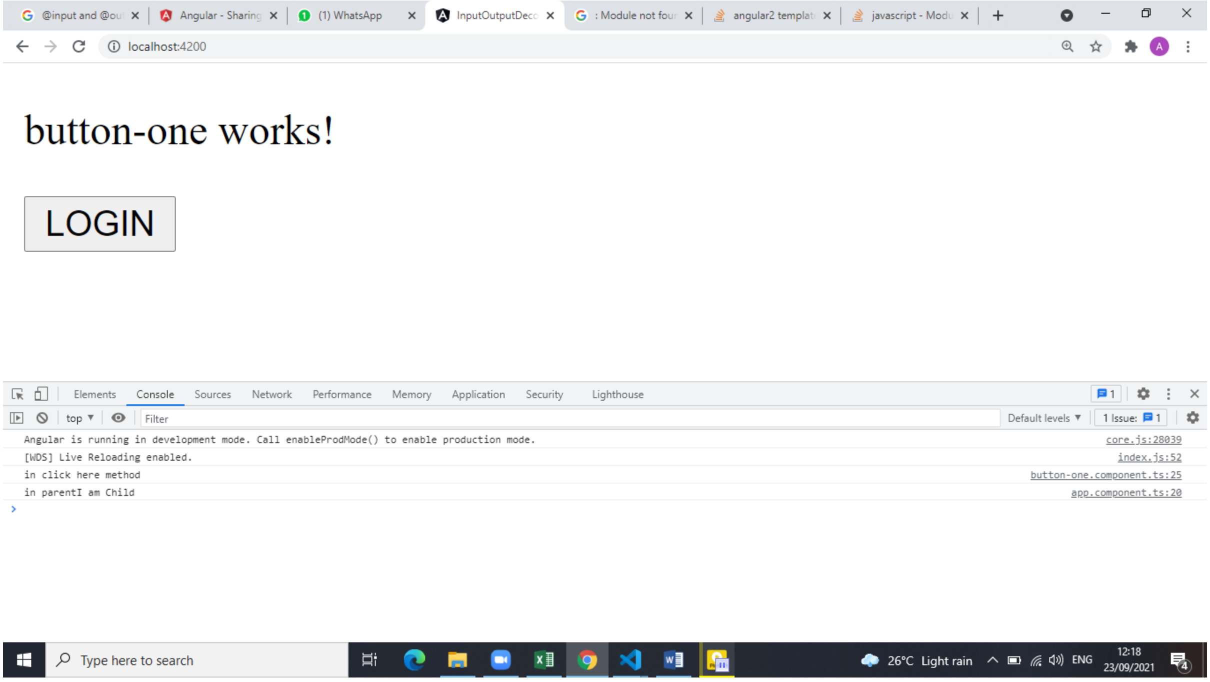
```
Build at: 2021-09-23T06:47:15.079Z - Hash: e40e97bff81f59c26034 - Time: 427ms

√ Compiled successfully.
```



app.component.html - inputOutputDecorator - Visual Studio Code
src > app > app.component.html > app-button-one

```
<!-- <app-button-one [name]="a"></app-button-one> -->
<!-- <app-button-one [employee]="employee1" [name]="a" ></app-button-one> -->

<app-button-one [name]="a" (clickNowEvent)="login($event)"></app-button-one>
```

```
Build at: 2021-09-23T06:47:15.079Z - Hash: e40e97bff81f59c26034 - Time: 427ms

√ Compiled successfully.
```



button-one works!

```
Angular is running in development mode. Call enableProdMode() to enable production mode.    core.js:28039
[WDS] Live Reloading enabled.                                                                 index.js:52
in click here method                                                         button-one.component.ts:25
in parentI am Child                                                                 app.component.ts:20
```