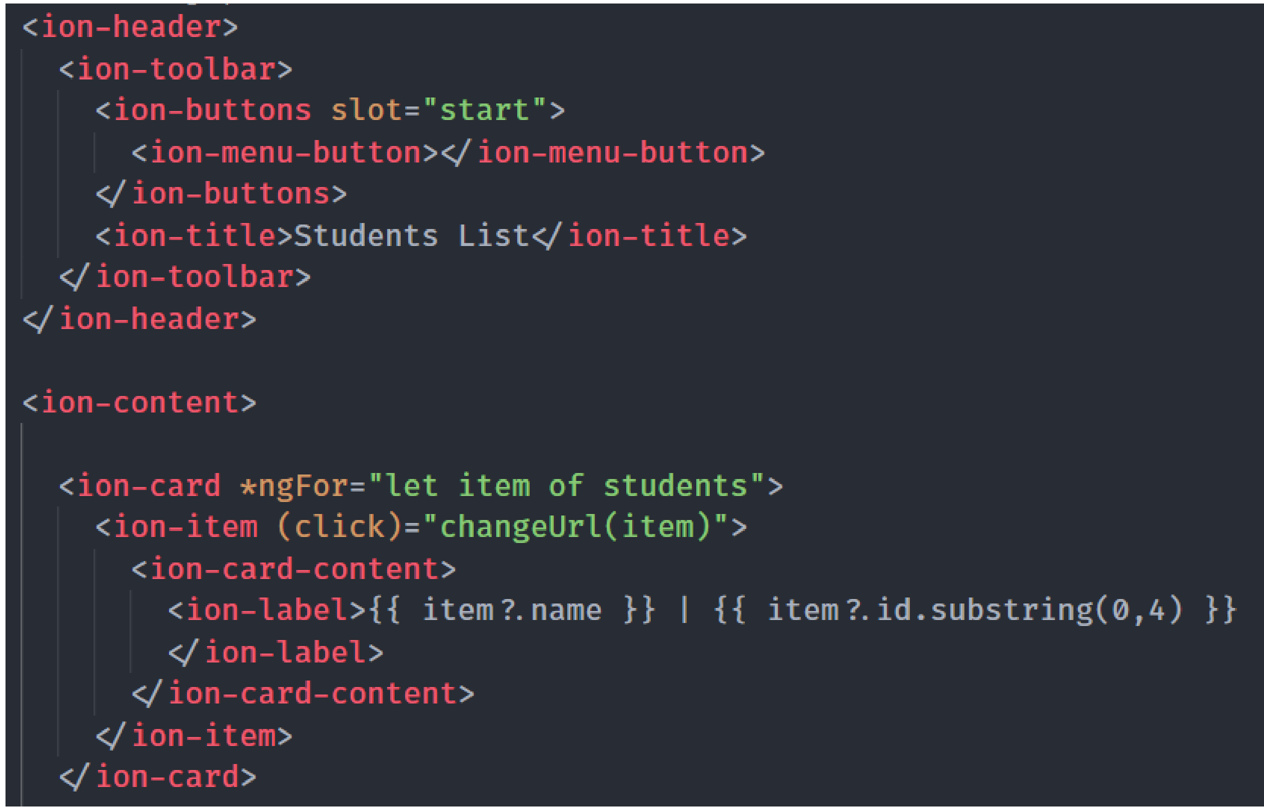
Mobile Application Development

LECTURE 10

Passing Data Between Components

- First of all, we need to understand what Parent, Child, and Sibling components are.
- Lets, first create a component from our existing code. Here’s studentspage.page.html.
- Since we might use <ion-item> somewhere else, we’ll create a component of it



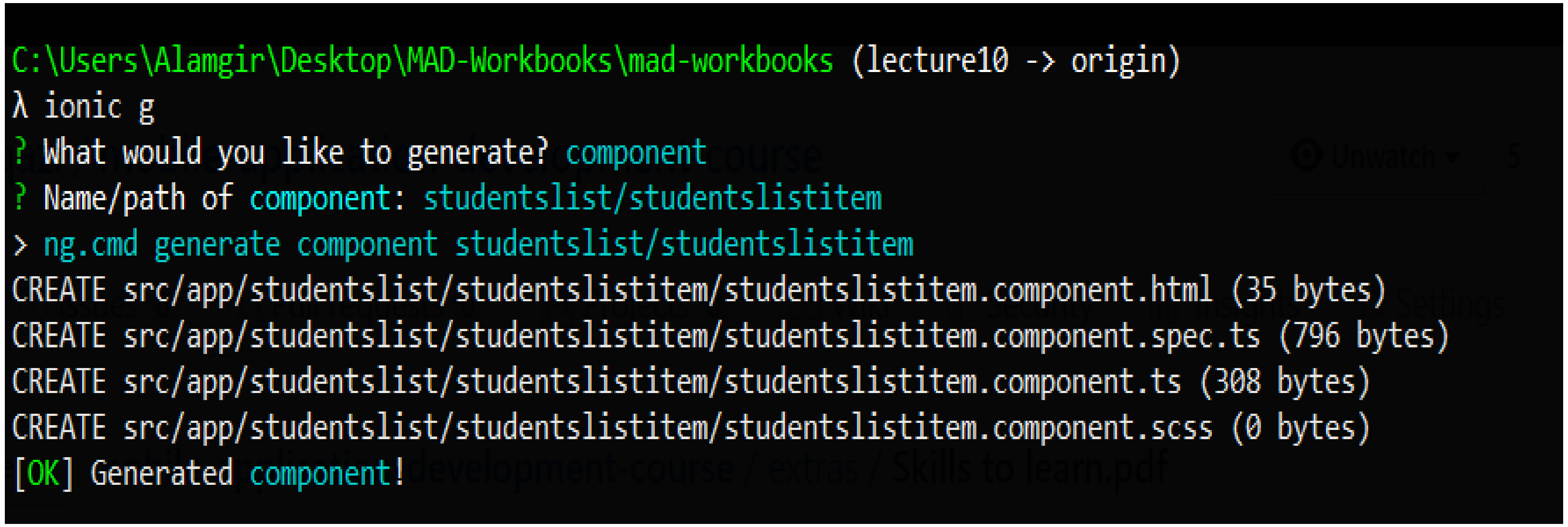
```html
<ion-header>
  <ion-toolbar>
    <ion-buttons slot="start">
      <ion-menu-button></ion-menu-button>
    </ion-buttons>
    <ion-title>Students List</ion-title>
  </ion-toolbar>
</ion-header>

<ion-content>

  <ion-card *ngFor="let item of students">
    <ion-item (click)="changeUrl(item)">
      <ion-card-content>
        <ion-label>{{ item?.name }} | {{ item?.id.substring(0,4) }}
        </ion-label>
      </ion-card-content>
    </ion-item>
  </ion-card>
```

Passing Data Between Components

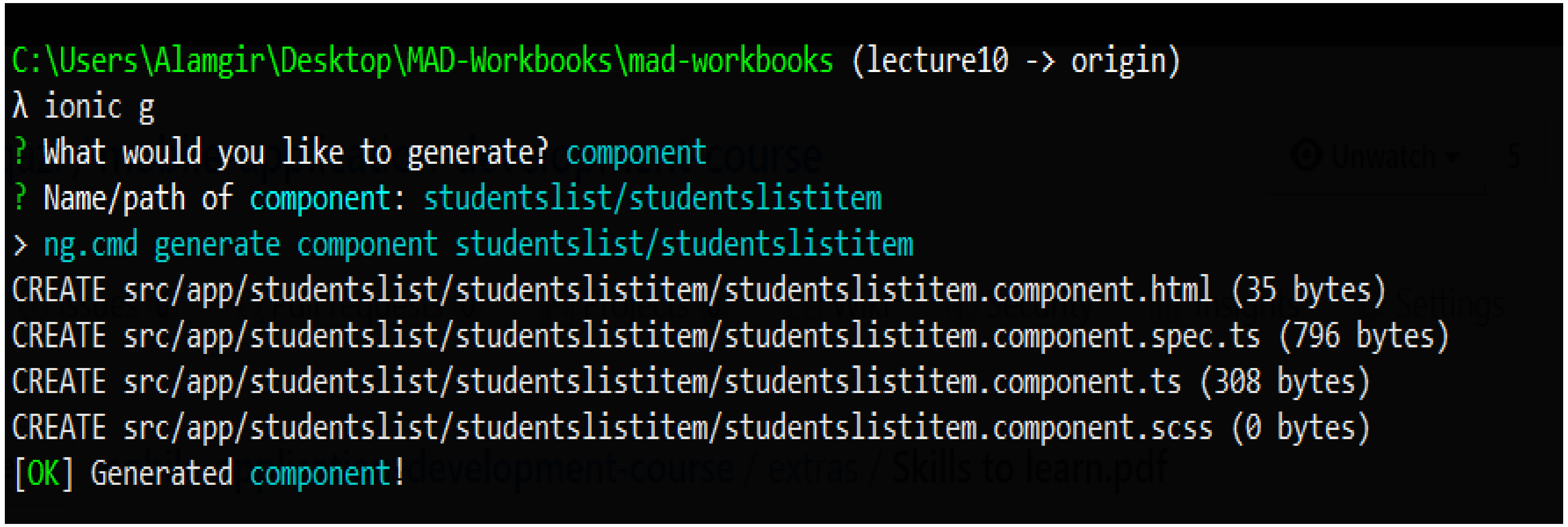
- Lets generate a component. I typed the name as studentslist/studentslistitem because I don't want it in App but in studentslist folder.



```
C:\Users\Alamgir\Desktop\MAD-Workbooks\mad-workbooks (lecture10 -> origin)
λ ionic g
? What would you like to generate? component
? Name/path of component: studentslist/studentslistitem
> ng.cmd generate component studentslist/studentslistitem
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.html (35 bytes)
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.spec.ts (796 bytes)
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.ts (308 bytes)
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.scss (0 bytes)
[OK] Generated component!
```

Passing Data Between Components

- Lets generate a component. I typed the name as studentslist/studentslistitem because I don't want it in App folder but in studentslist folder.



```
C:\Users\Alamgir\Desktop\MAD-Workbooks\mad-workbooks (lecture10 -> origin)
λ ionic g
? What would you like to generate? component
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CREATE src/app/studentslist/studentslistitem/studentslistitem.component.spec.ts (796 bytes)
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.ts (308 bytes)
CREATE src/app/studentslist/studentslistitem/studentslistitem.component.scss (0 bytes)
[OK] Generated component!
```
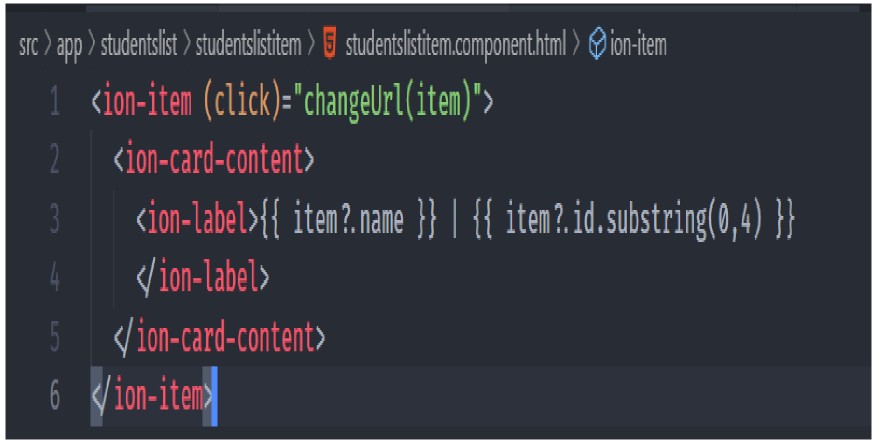
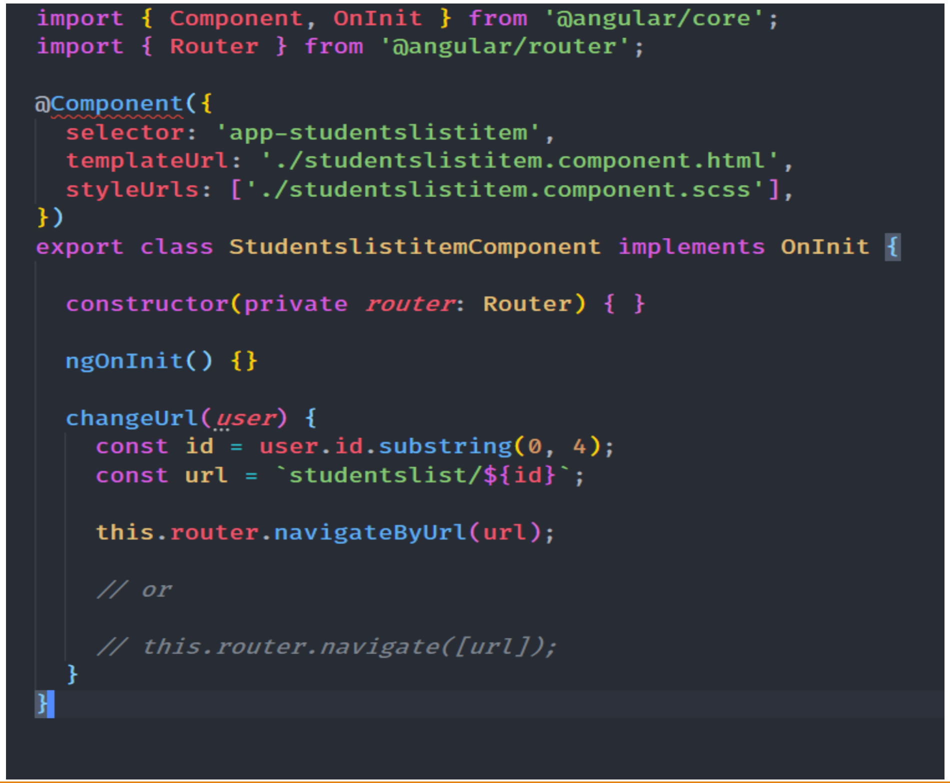

Passing Data Between Components

- We move the relevant code to the new component files.



src > app > studentslist > studentslistitem > studentslistitem.component.html > ion-item

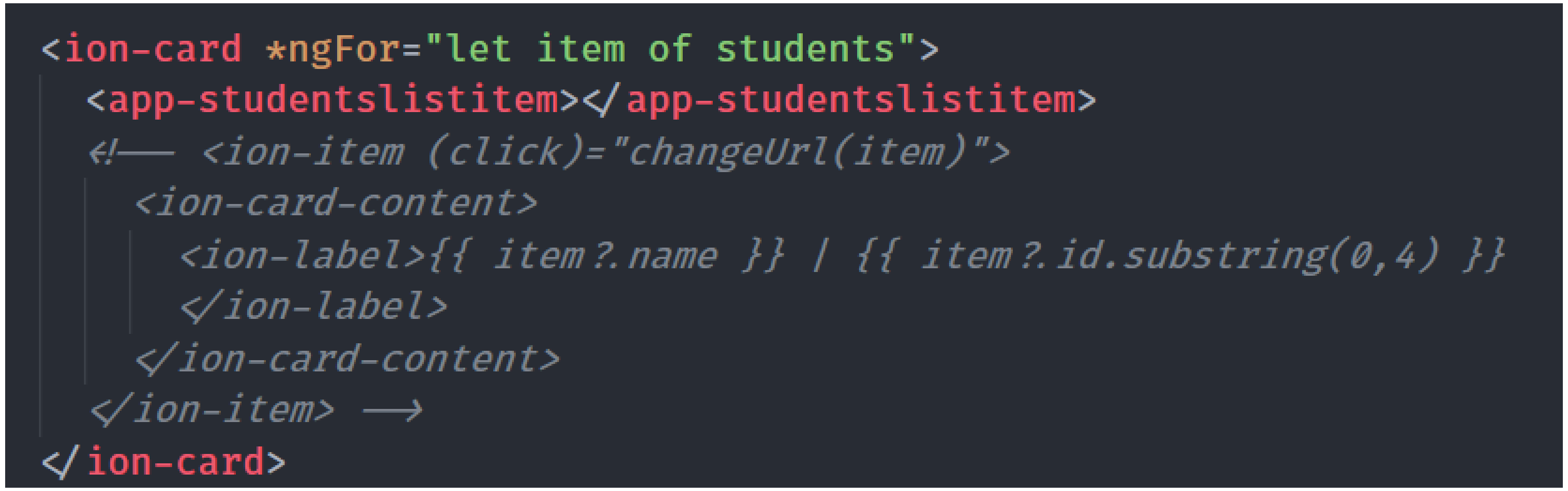
```html
<ion-item (click)="changeUrl(item)">
  <ion-card-content>
    <ion-label>{{ item?.name }} | {{ item?.id.substring(0,4) }}
    </ion-label>
  </ion-card-content>
</ion-item>
```



```typescript
import { Component, OnInit } from '@angular/core';
import { Router } from '@angular/router';

@Component({
  selector: 'app-studentslistitem',
  templateUrl: './studentslistitem.component.html',
  styleUrls: ['./studentslistitem.component.scss'],
})
export class StudentslistitemComponent implements OnInit {

  constructor(private router: Router) { }

  ngOnInit() {}

  changeUrl(user) {
    const id = user.id.substring(0, 4);
    const url = `studentslist/${id}`;

    this.router.navigateByUrl(url);

    // or

    // this.router.navigate([url]);
  }
}
```

Passing Data Between Components

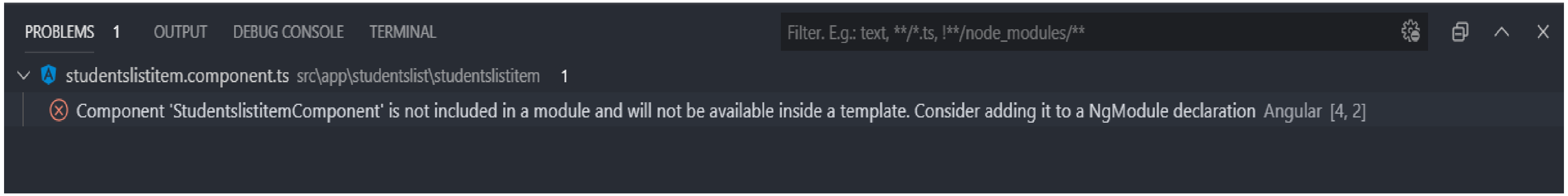
- Here’s how the code would look like. But we have a few problems. We created a component but did not add to any module. Remember, every component belongs to some module.



```
<ion-card *ngFor="let item of students">
  <app-studentslistitem></app-studentslistitem>
  <!-- <ion-item (click)="changeUrl(item)">
    <ion-card-content>
      <ion-label>{{ item?.name }} | {{ item?.id.substring(0,4) }}
      </ion-label>
    </ion-card-content>
  </ion-item> -->
</ion-card>
```

Passing Data Between Components

- So we will import it in the module file of studentslist. VSCode is also telling us about the problem



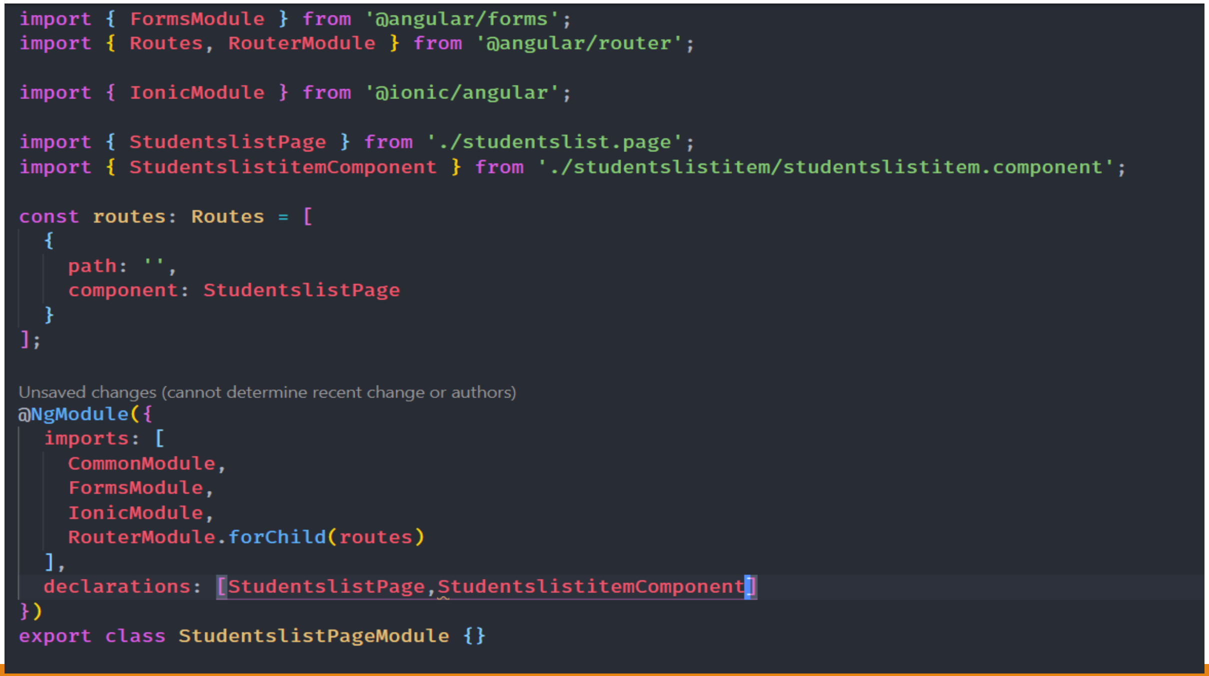
```
studentslistitem.component.ts src\app\studentslist\studentslistitem 1
Component 'StudentslistitemComponent' is not included in a module and will not be available inside a template. Consider adding it to a NgModule declaration Angular [4, 2]
```

- Now we go to the studentslist.module.ts file and add the component into the declarations

Passing Data Between Components

- Just copy the class name and past it inside declarations, you will see a yellow icon, click on it

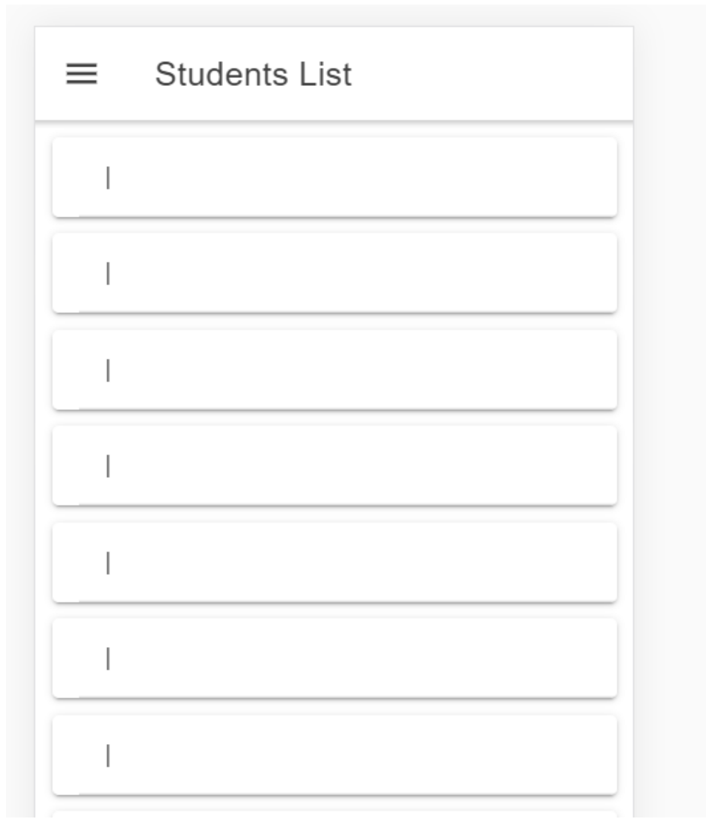
  and it will auto-import the file.



```
import { FormsModule } from '@angular/forms';
import { Routes, RouterModule } from '@angular/router';

import { IonicModule } from '@ionic/angular';

import { StudentslistPage } from './studentslist.page';
import { StudentslistitemComponent } from './studentslistitem/studentslistitem.component';

const routes: Routes = [
  {
    path: '',
    component: StudentslistPage
  }
];

Unsaved changes (cannot determine recent change or authors)
@NgModule({
  imports: [
    CommonModule,
    FormsModule,
    IonicModule,
    RouterModule.forChild(routes)
  ],
  declarations: [StudentslistPage,StudentslistitemComponent]
})
export class StudentslistPageModule {}
```

Passing Data Between Components

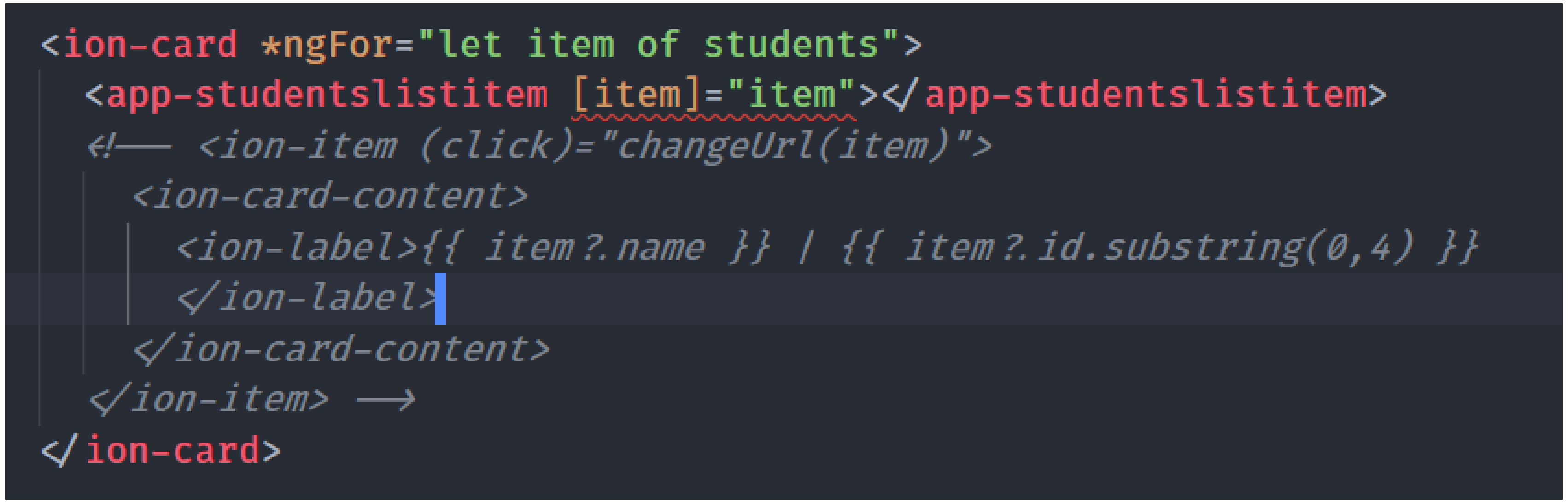
- Now our app is working but its not displaying anything.
- Why? Because we have to tell it what to display.
- It has no idea what **item** variable is.
- So we use **@Input()** property binding, to pass item to the component.



Passing Data Between Components

- Now we pass via Input item variable to the component. But the linter is telling us that the

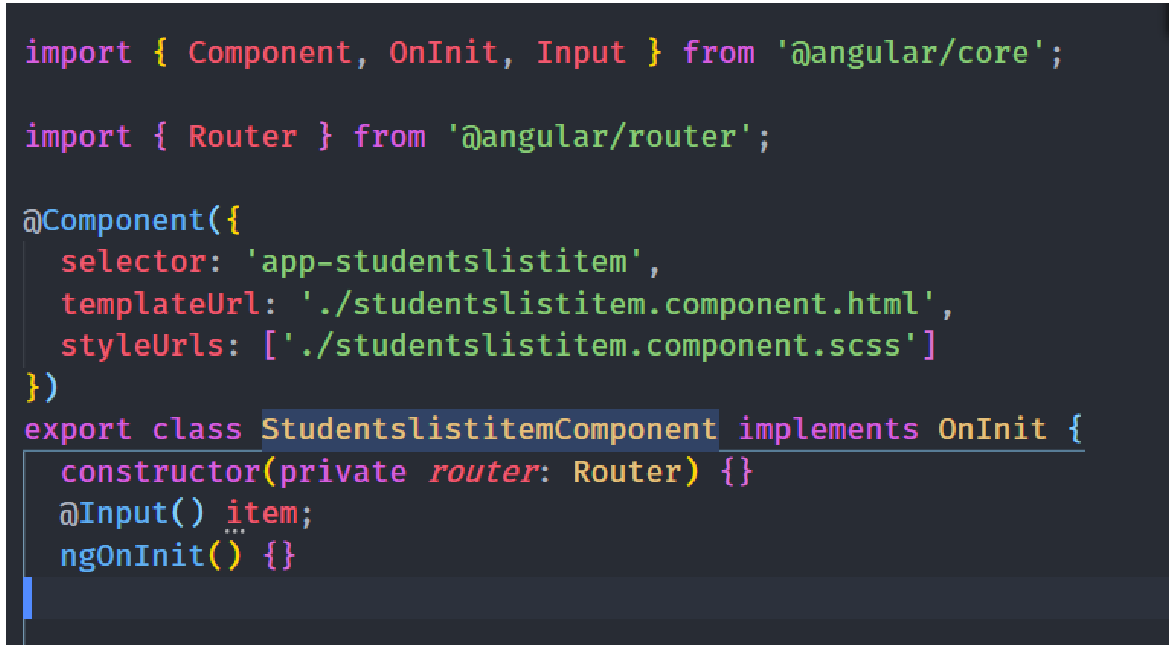
component doesnot know what **item** is.



```
<ion-card *ngFor="let item of students">
  <app-studentslistitem [item]="item"></app-studentslistitem>
  <!-- <ion-item (click)="changeUrl(item)">
    <ion-card-content>
      <ion-label>{{ item?.name }} | {{ item?.id.substring(0,4) }}
      </ion-label>
    </ion-card-content>
  </ion-item> -->
</ion-card>
```

Passing Data Between Components

- We create @Input() and let it know that its will be passed down from a top/higher component.



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

import { Router } from '@angular/router';

@Component({
  selector: 'app-studentslistitem',
  templateUrl: './studentslistitem.component.html',
  styleUrls: ['./studentslistitem.component.scss']
})
export class StudentslistitemComponent implements OnInit {
  constructor(private router: Router) {}
  @Input() item;
  ngOnInit() {}
```

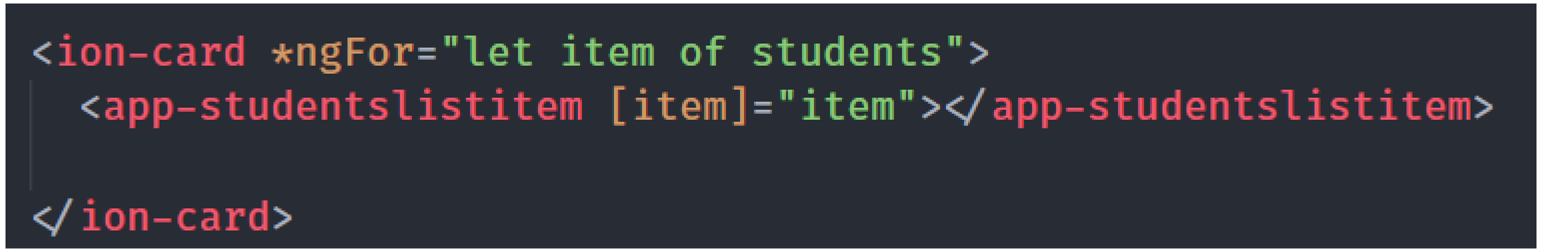
Passing Data Between Components

- Now we run our application and its working the same as before.

- **Parent, Child and Sibling Components**

- Parent component are basically higher/upper component for a inner component. In our example,

app-studentslist is the parent component to **app-studentslistitem** while it itself is child Component

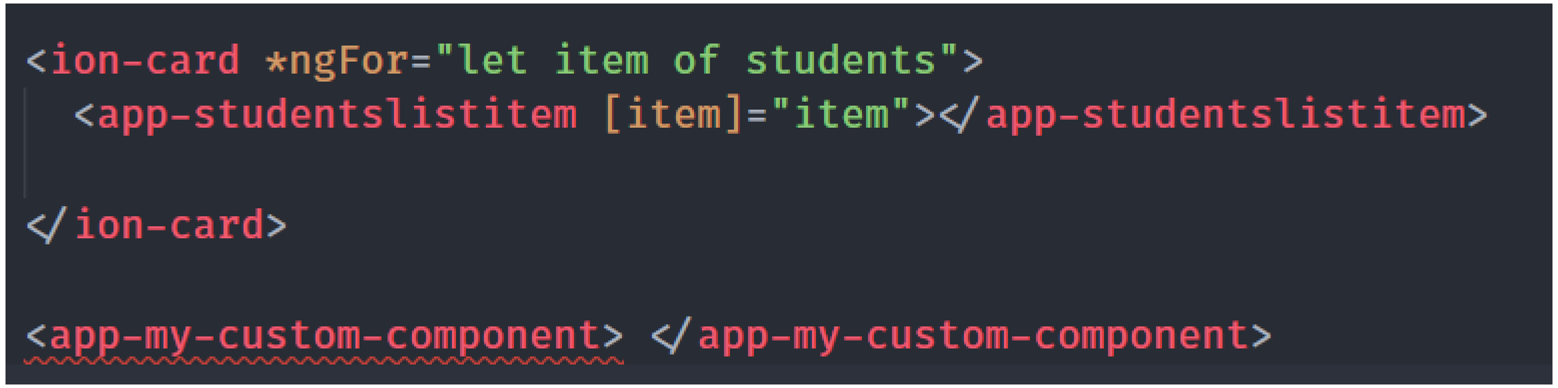


```
<ion-card *ngFor="let item of students">
  <app-studentslistitem [item]="item"></app-studentslistitem>

</ion-card>
```

Passing Data Between Components

- Sibling components are basically on the same level. Siblings mean brother/sisters. They're the same level.

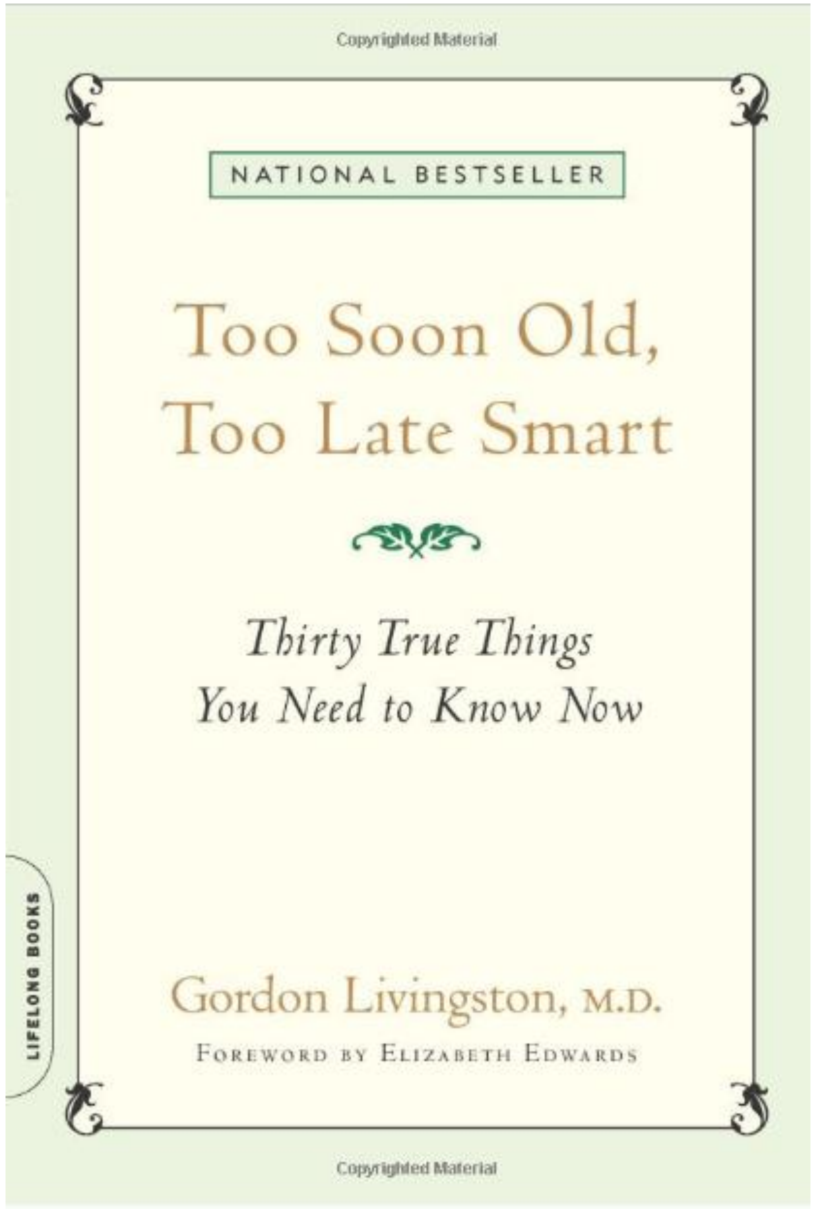
- Here, app-studentslistitem and app-my-custom-component are sibling components because they're at the same level.



```
<ion-card *ngFor="let item of students">
  <app-studentslistitem [item]="item"></app-studentslistitem>

</ion-card>

<app-my-custom-component> </app-my-custom-component>
```

"Only bad things happen quickly.

Virtually all the happiness-producing processes in our lives take time, usually a long time: learning new things, changing old behaviors, building satisfying relationships, raising children. This is why patience and determination are among life's primary virtues."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Thirty True Things You Need to Know Now
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Foreword by Elizabeth Edwards
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Passing Data Between Components

- There are three major ways to pass / share data between components.

1. Using Input(), Output() event emitters.

2. Using a parents shared state.

3. Using an Angular Service.

Passing Data Between Components

Using Input(), Output() event emitters

This is ideal for parent, child components. However, once the number of components increase, this becomes hard.

Using a parents shared state

We declare the variable in the parent component and keep passing it down via Input. Can get complicated very quickly.

Passing Data Between Components

Using Services

This is mostly the desired approach when using Input(), Output() becomes complicated.

Using Store/NgRx

This is an option for large applications. Basically all the state is stored in one global store. We will not cover this in this course.

Passing Data Between Components

Review:

Parent to Child: Sharing Data via Input.

Child to Parent: Sharing Data via Output.

When passing data between components that lack a direct connection, such as siblings, grandchildren, etc, you should you a shared service. We will use rxjs alongside Services (BehaviorSubject).