ACE Inspiration

Angular (Web Framework)

Content

ACE Inspiration

- What is a Stored Procedure?
- CREATE Stored Procedure
- Stored Procedure Variables
- Stored Procedure Parameters
- Conditional Statements
- Loop Statements
- Cursor
- Calling Procedure in Java Application

What is Angular?

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- Angular is a front-end framework and written in TypeScript.
- Angular is free and open-source to build dynamic and single-page applications (SPAs).
- Angular is led by the Angular Team at Google.

Benefits of Angular

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- Gives clean structure application
- Includes lots of reusable code
- Makes more testable application

Angular Versions

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Angular 1 — also called AngularJS; was released in 2010.

Angular 2 — released in September 2016.

Angular 4 — released in March 2017.

Angular 5 — released in November 2017.

Angular 6 — released in May 2018.

Angular 7 — released in the same year in October 2018.

Angular 8 — released in May 2019.

Angular 9 — released in February 2020.

Angular 10 — released in June 2020.

Angular 11 — released in November 2020.

Angular 12 — released in May 2021.

Angular 13 — released in November 2021.

Angular 14 — released in July 2022.

TypeScript Versions

TypeScript 0.8	-	October 2012
TypeScript 0.9	-	June 2013
TypeScript 1.0	-	October 2014
TypeScript 2.0	-	September 2016
TypeScript 3.0	-	July 2018
TypeScript 4.0	-	August 2020
TypeScript 4.7.4	-	June 2022

TypeScript Data Types

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Data type	Keyword	Description
Number	number	Double precision 64-bit floating point values. It can be used to represent both, integers and fractions.
String	string	Represents a sequence of Unicode characters
Boolean	boolean	Represents logical values, true and false
Void	void	Used on function return types to represent non-returning functions
Null	null	Represents an intentional absence of an object value.
Undefined	undefined	Denotes value given to all uninitialized variables

Install Angular on Windows

Step 1: Install Node.js

- to develop your angular app to use necessary tools.
- to give npm tool that allows to download libraries and packages used in Angular.

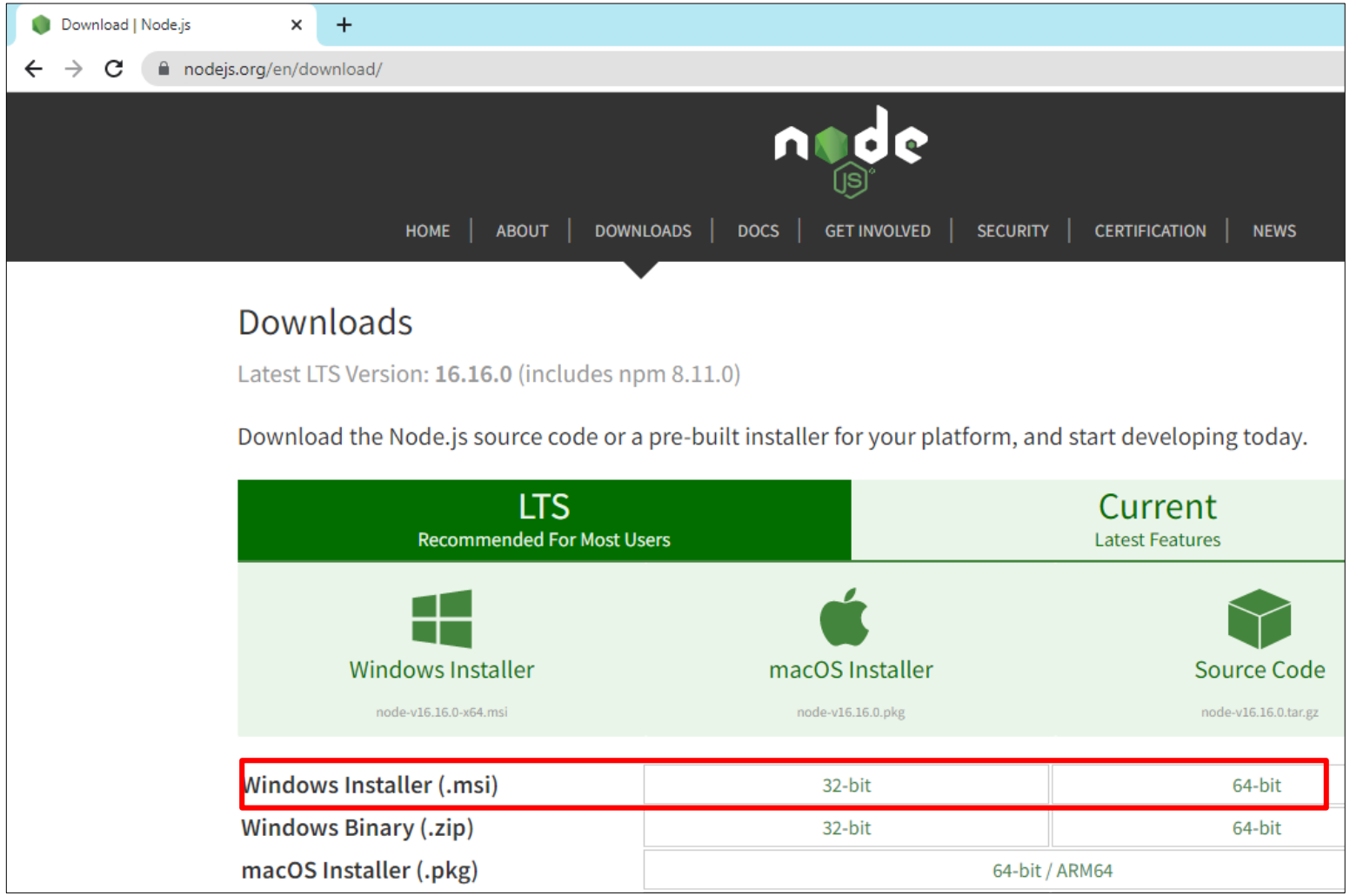
Step 2: Install TypeScript (Optional)

- can install TypeScript as an NPM package.

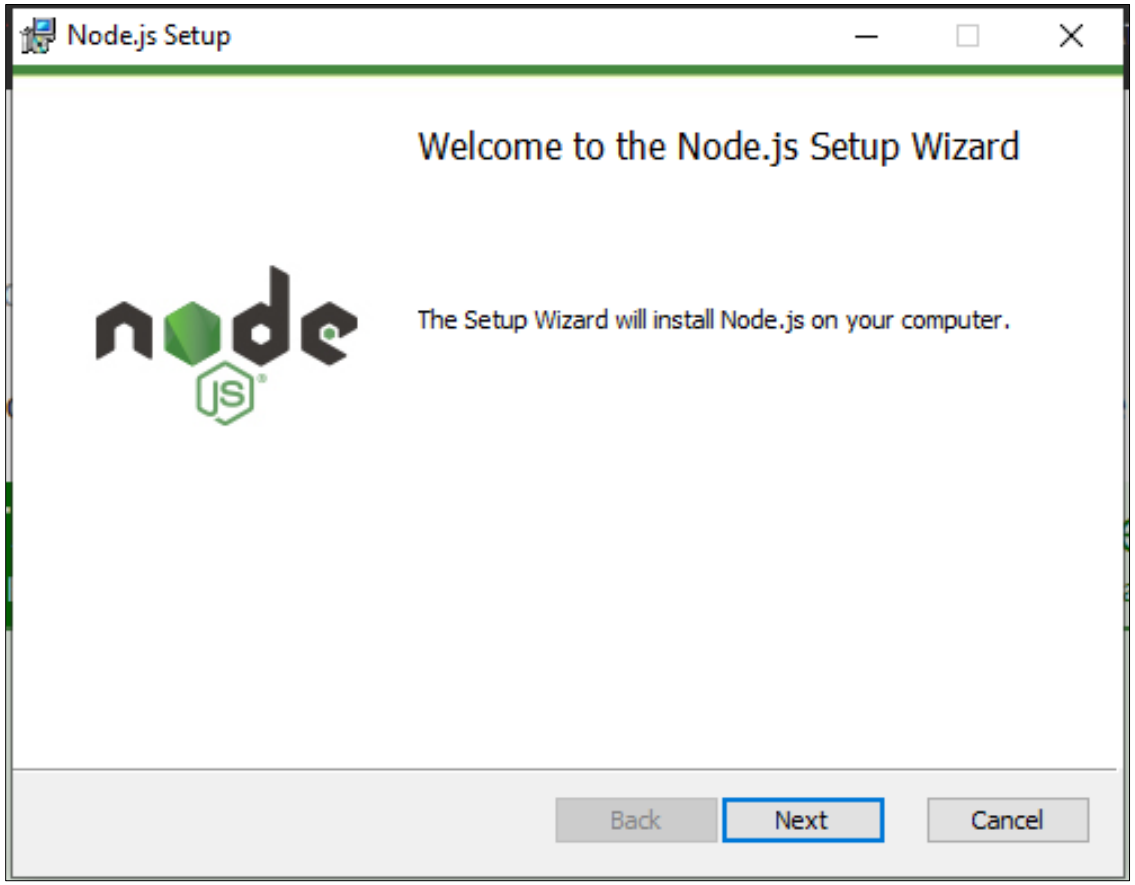
Step 3: Install Angular CLI

- to initialize, develop, and manage your Angular applications.

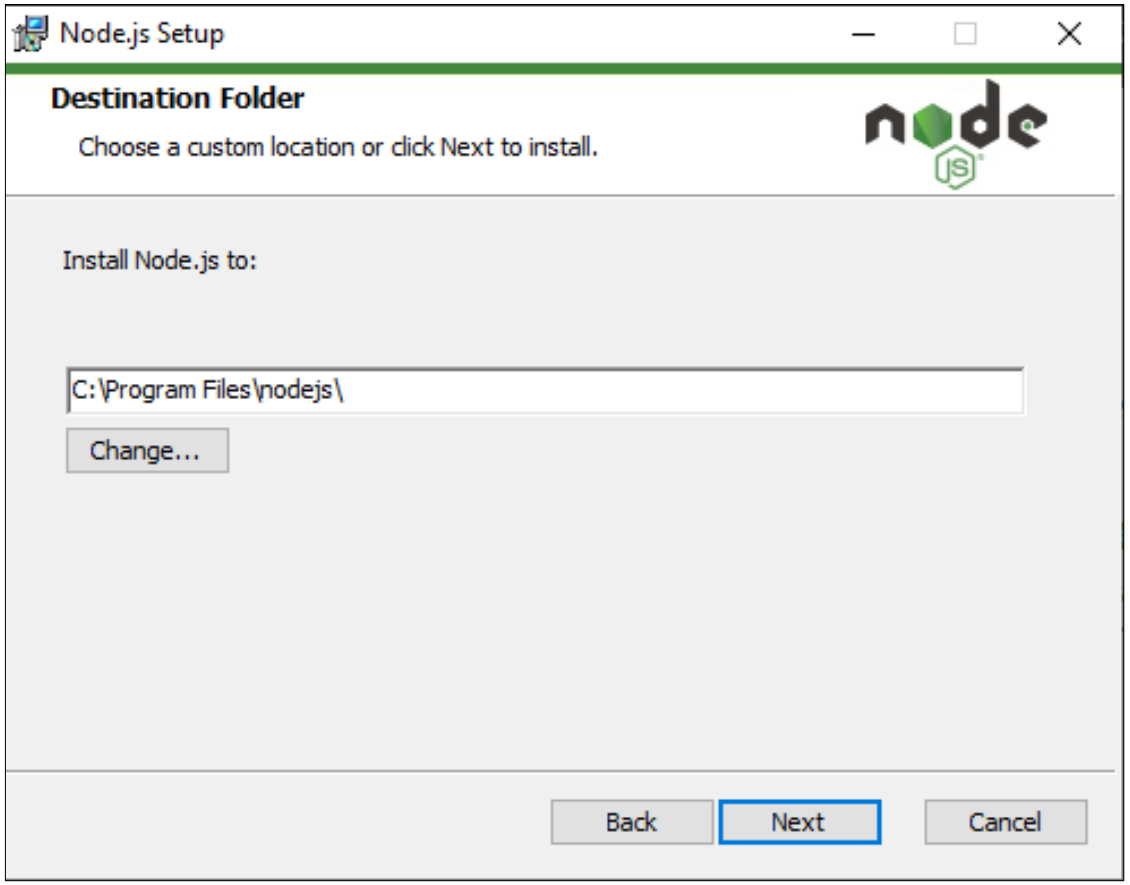
Step 1: Install Node.js

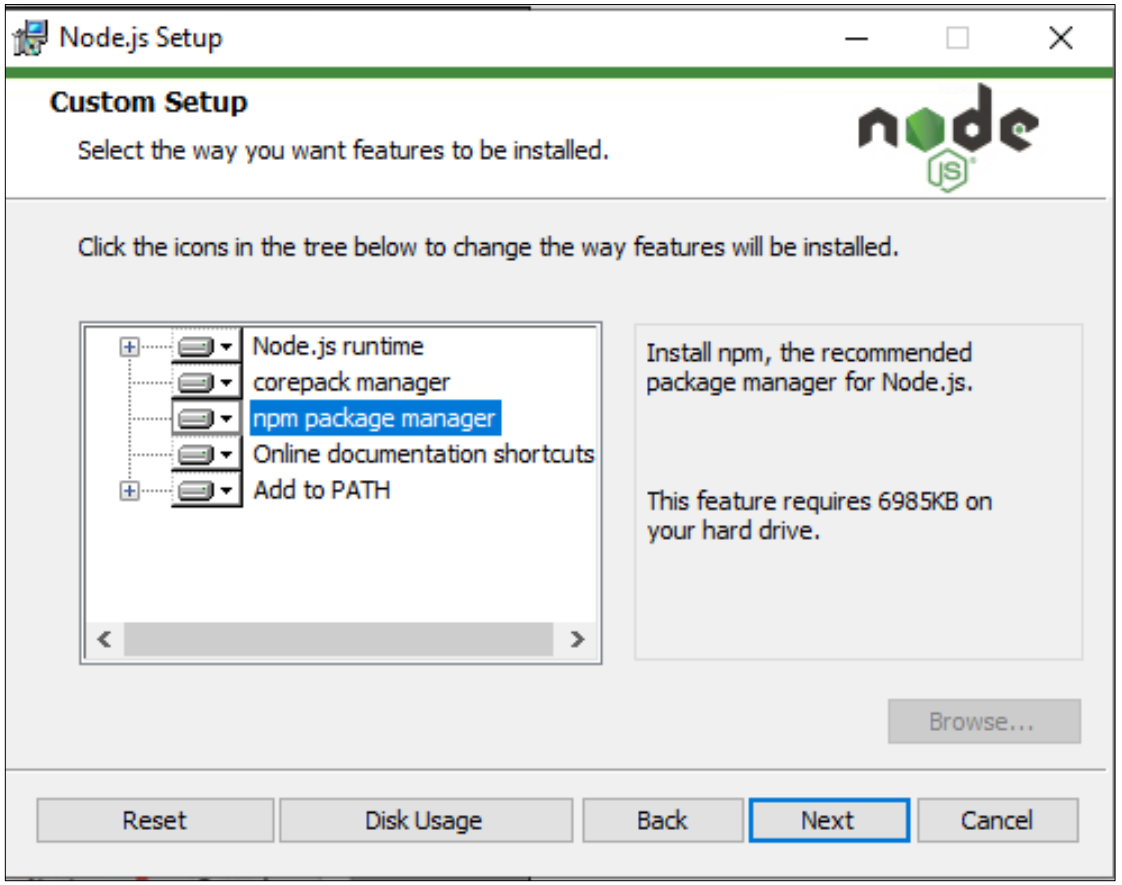


Step 1: Install Node.js

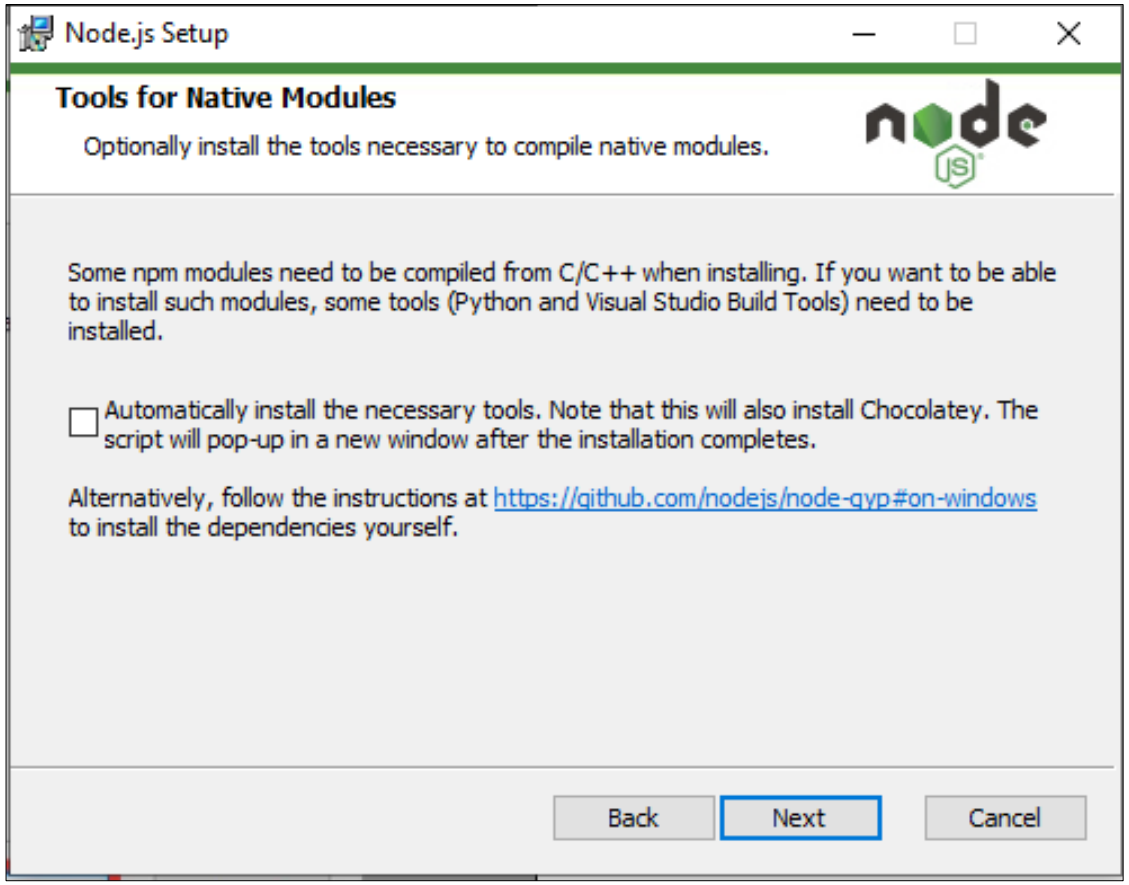


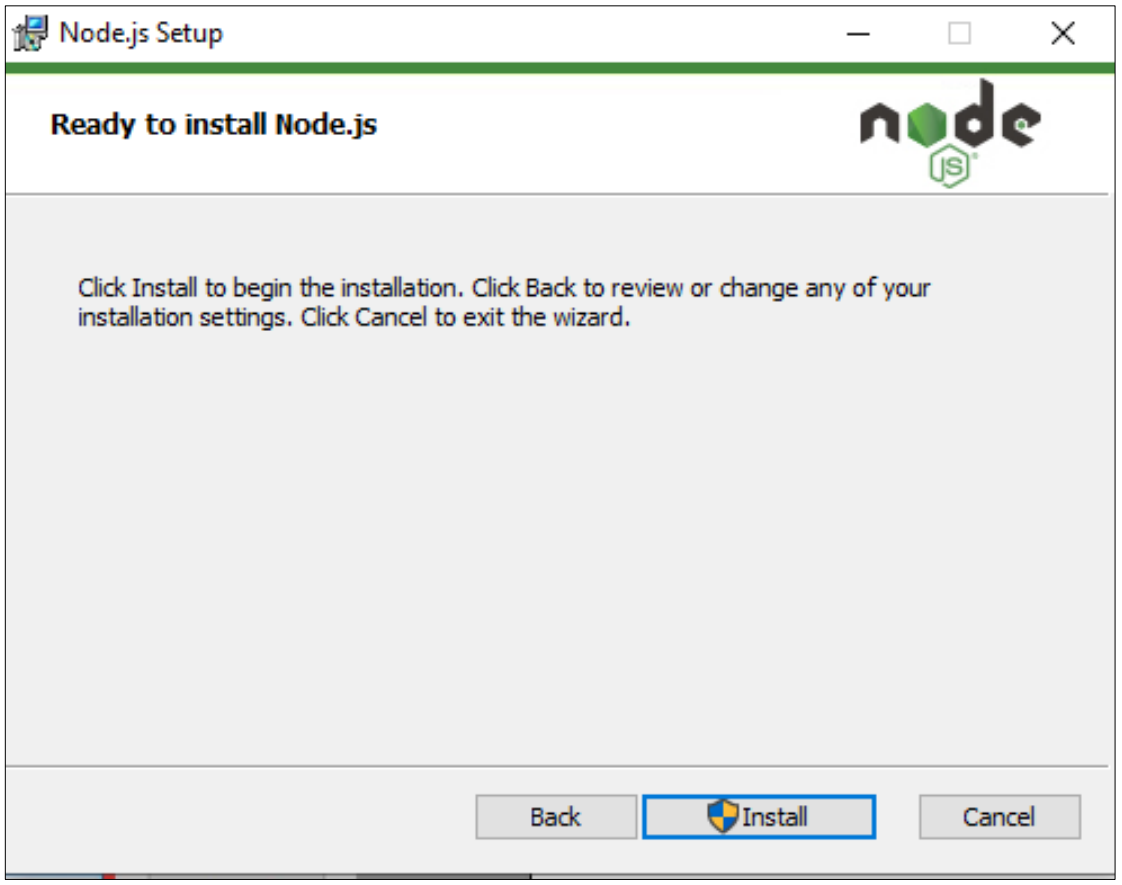
Step 1: Install Node.js



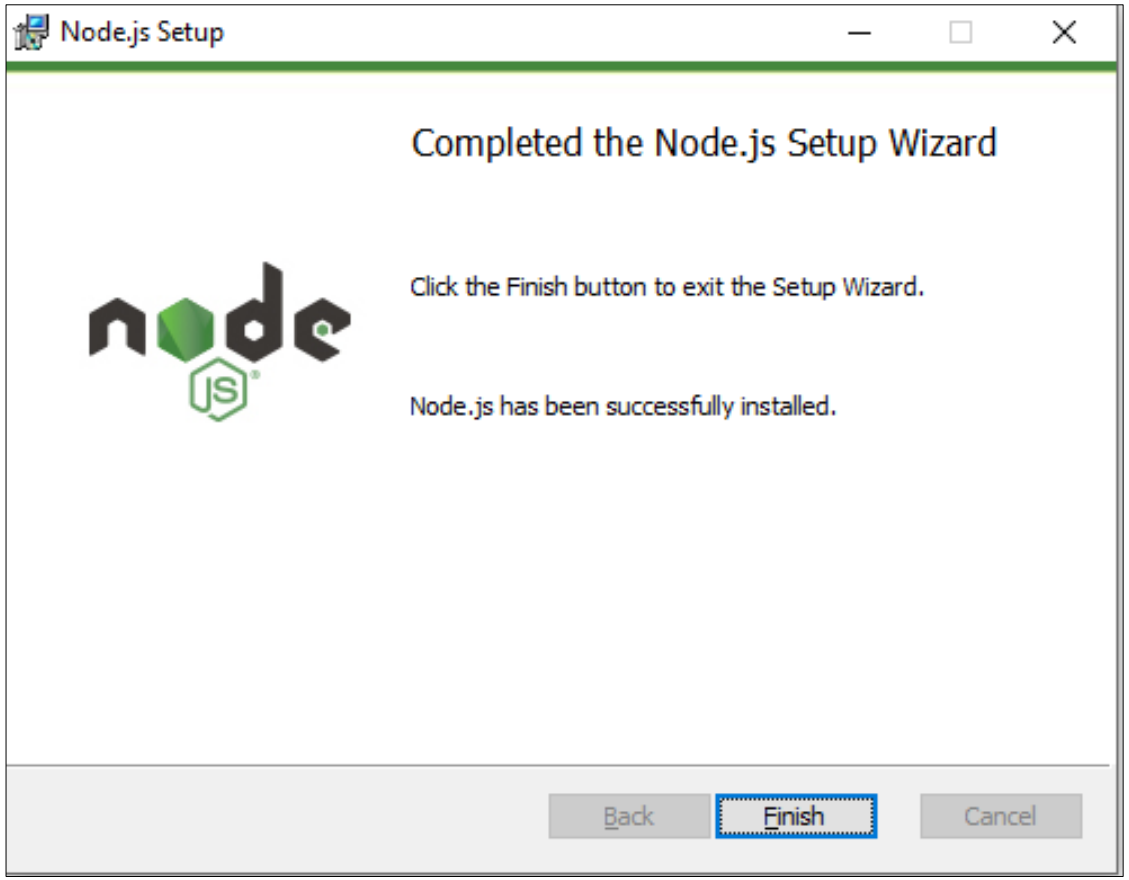


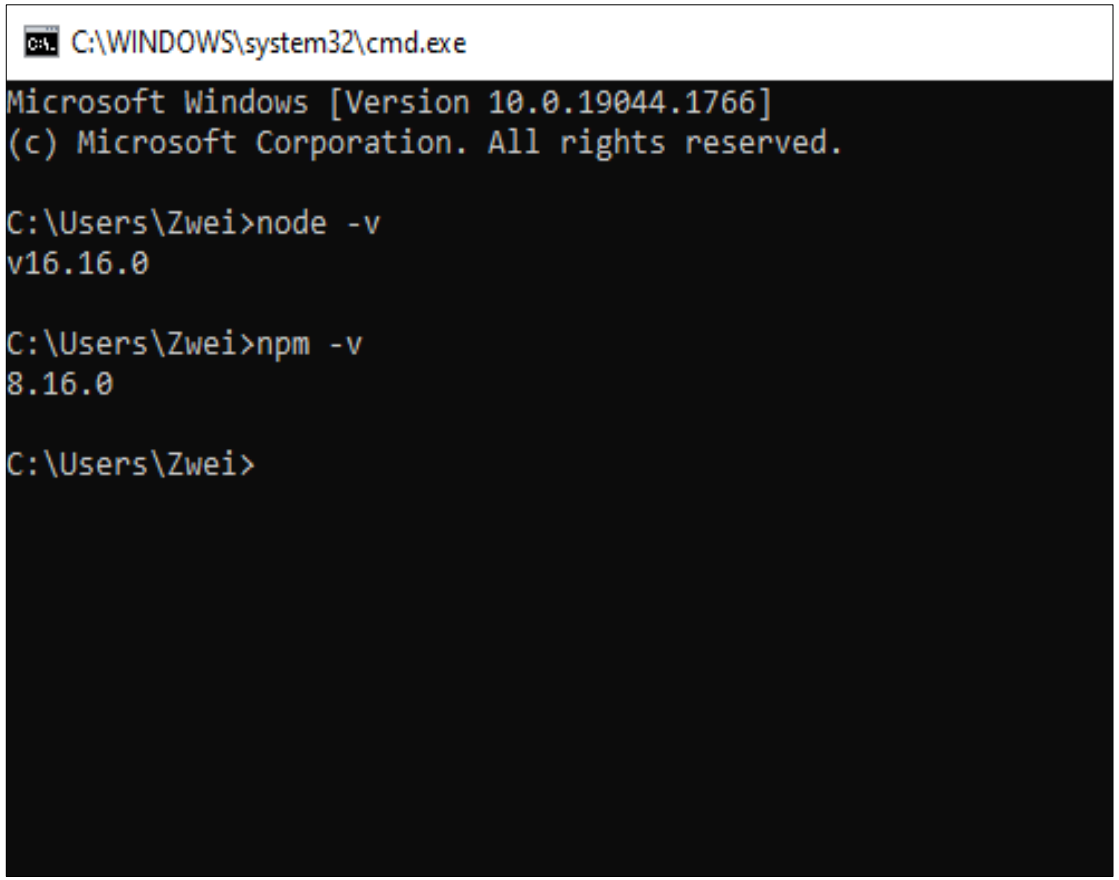
Step 1: Install Node.js



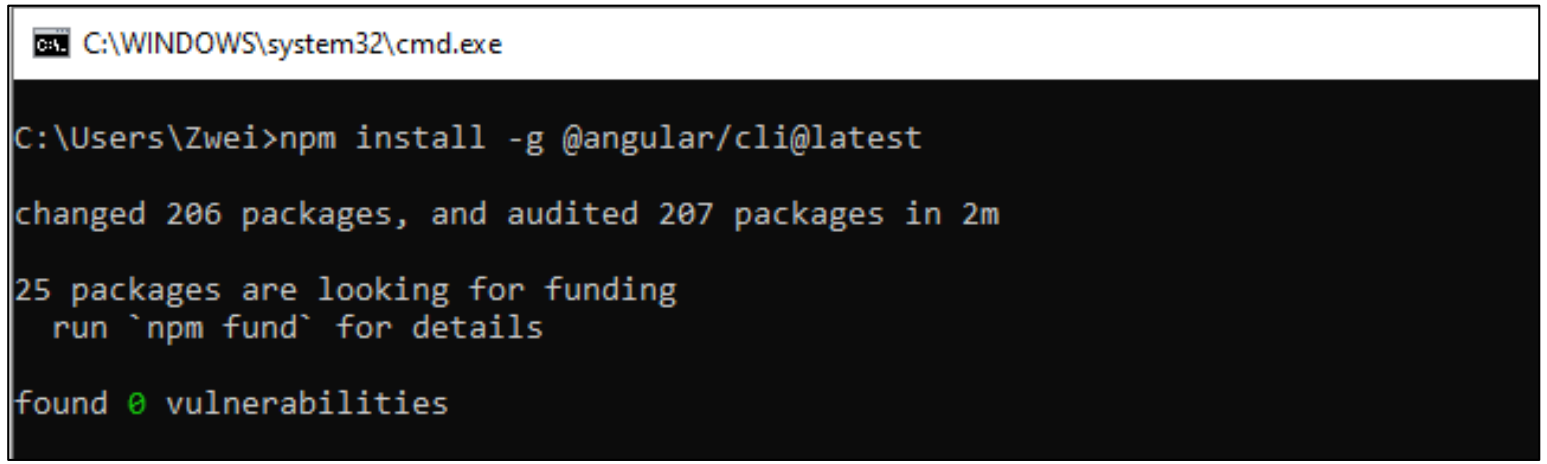


Step 1: Install Node.js

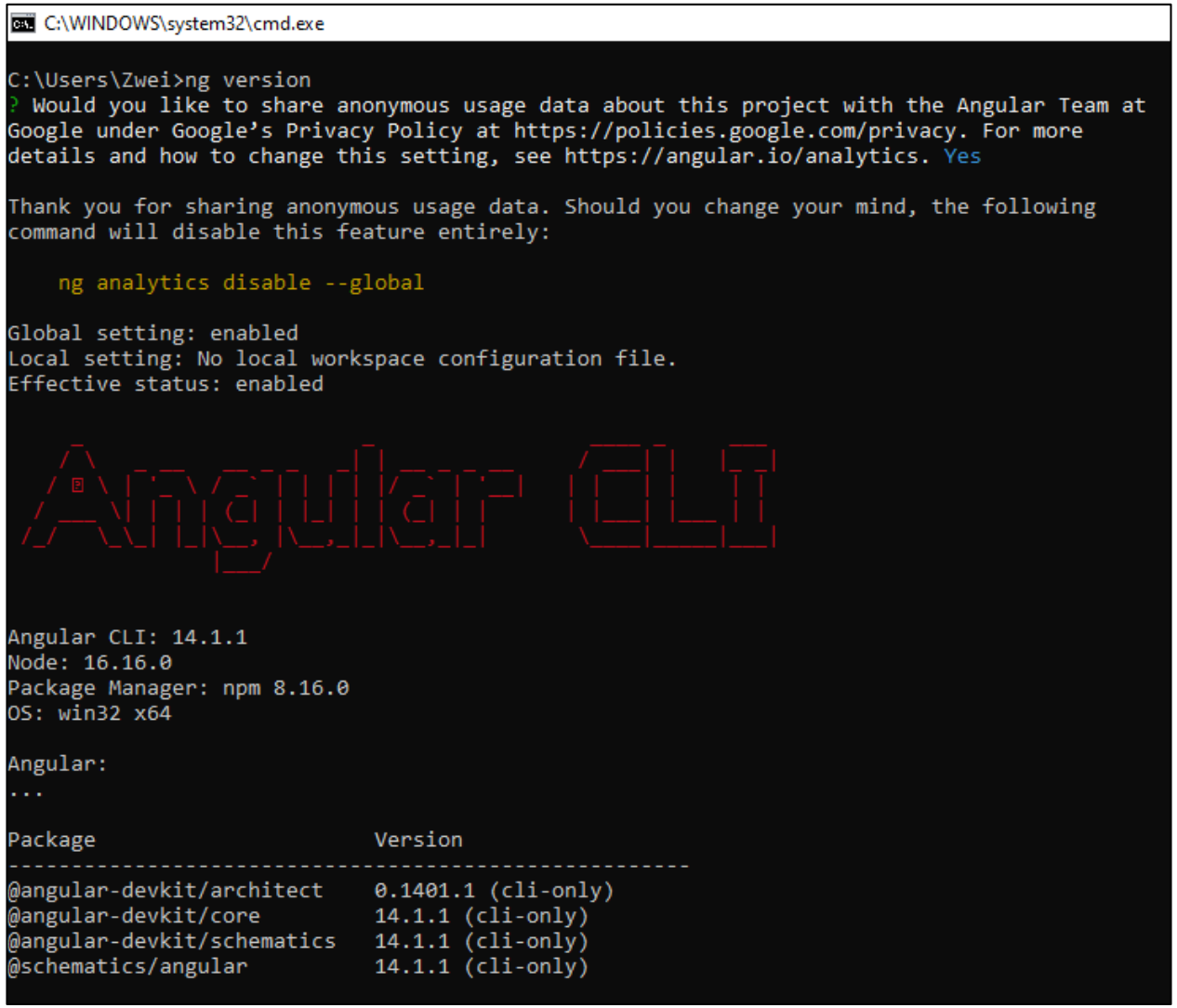




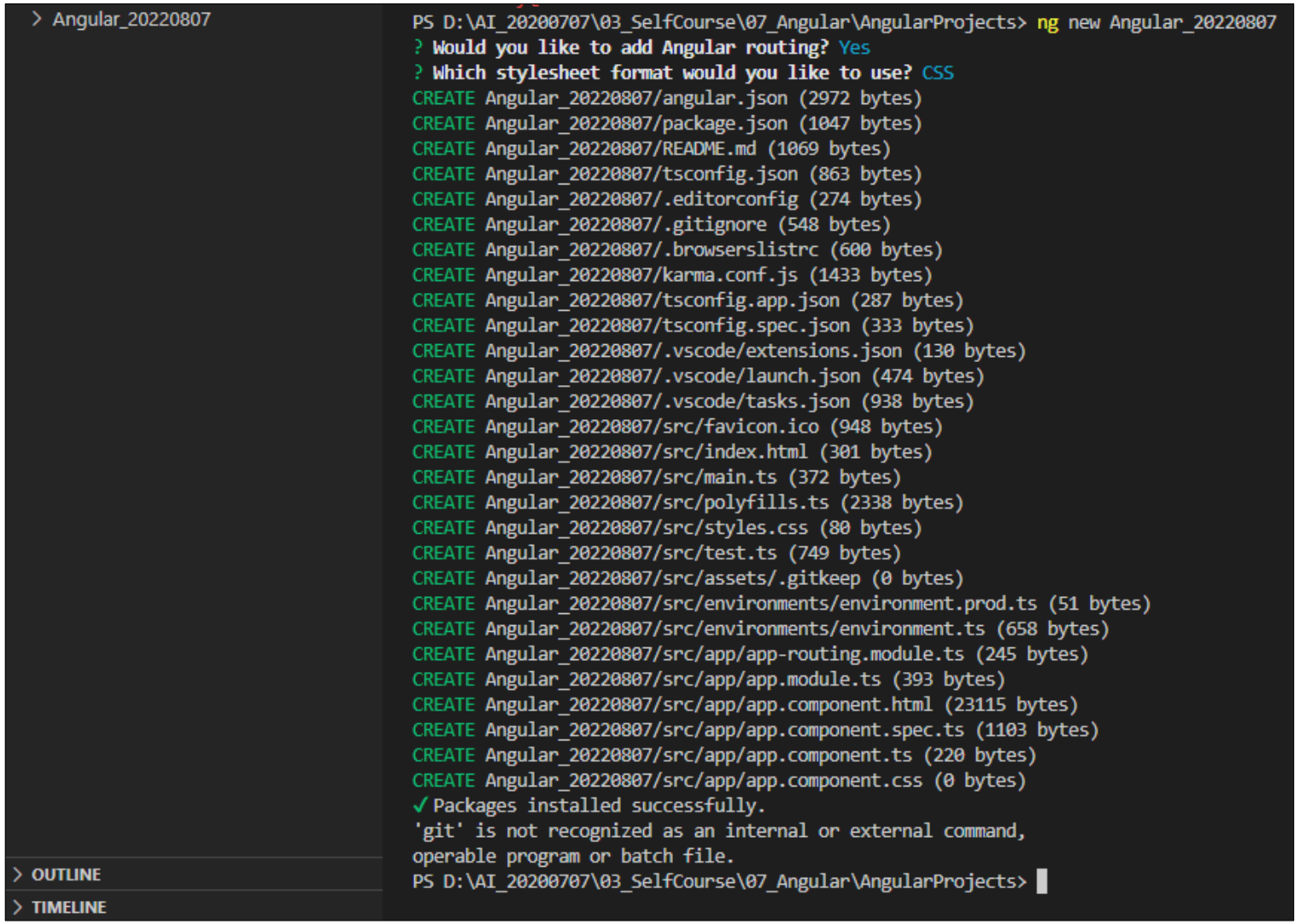
Step 3: Install Angular CLI



Step 3: Install Angular CLI



Creating Angular Project using VS Code



Creating Angular Project using VS Code

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Change the directory to project folder

```
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects> cd Angular_20220807
```

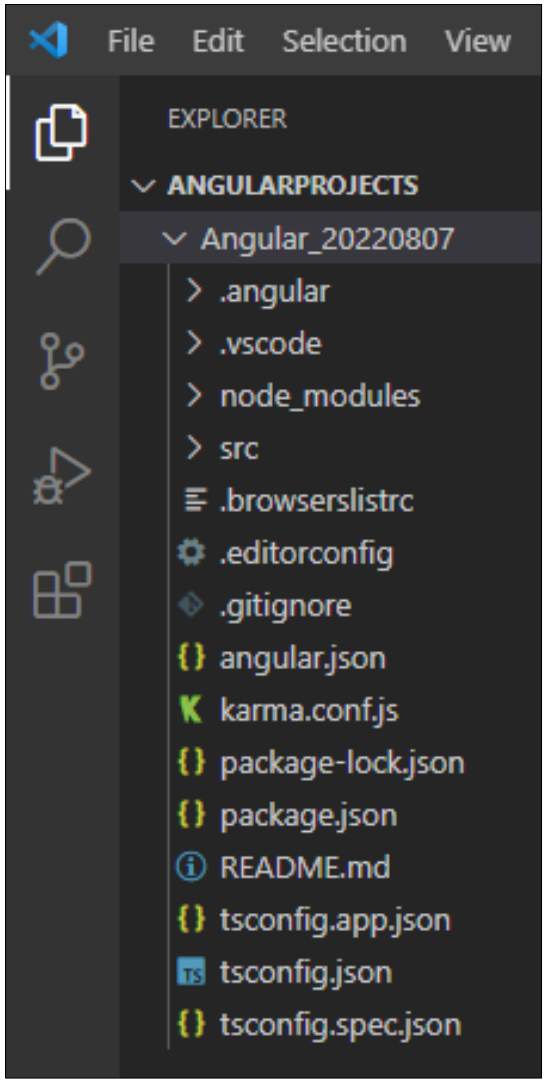
Compiling Project

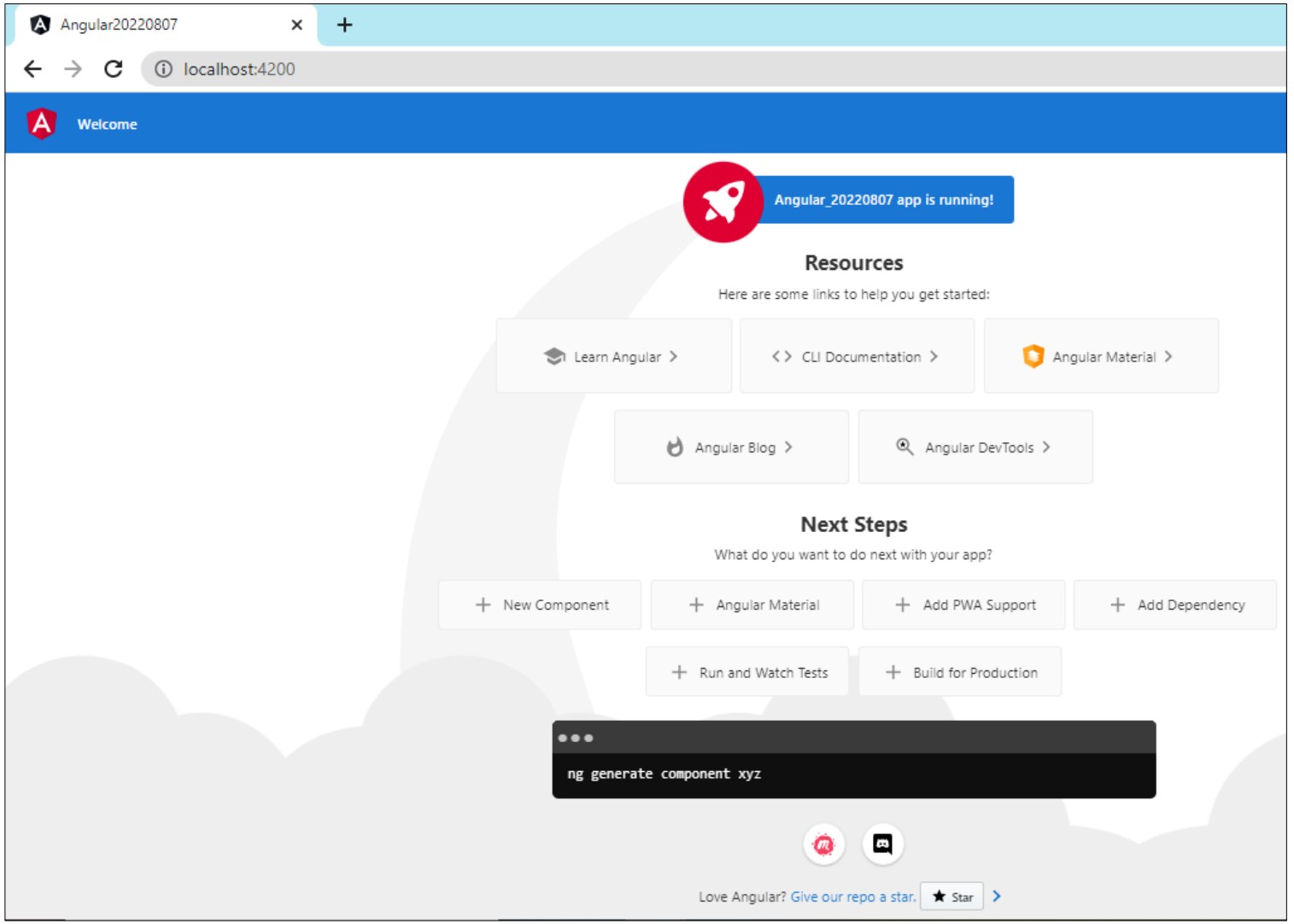
```
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\Angular_20220807> ng serve
? Would you like to share anonymous usage data about this project with the Angular Team at
Google under Google's Privacy Policy at https://policies.google.com/privacy. For more
details and how to change this setting, see https://angular.io/analytics. No
Global setting: enabled
Local setting: disabled
Effective status: disabled
✓ Browser application bundle generation complete.

Initial Chunk Files   | Names         |  Raw Size
vendor.js             | vendor        |   2.04 MB |
polyfills.js          | polyfills     | 315.35 kB |
styles.css, styles.js | styles        | 207.38 kB |
main.js               | main          |  50.19 kB |
runtime.js            | runtime       |   6.53 kB |

                      | Initial Total |   2.61 MB

Build at: 2022-08-06T18:49:10.581Z - Hash: b9cea07174df2217 - Time: 63370ms

** Angular Live Development Server is listening on localhost:4200, open your browser on http://lo
calhost:4200/ **


√ Compiled successfully.
```

The ng serve command will do two things

- build the angular application
- start the webserver

Creating Angular Project using VS Code





Understanding Angular

To understand the capabilities of the Angular framework,

- Components
- Templates
- Directives
- Dependency injection

Component

The Component is the main building block of an Angular Application.

The Angular Components are plain JavaScript classes and defined using @Component Decorator.

The Component is responsible to provide the data to the view.

The Components consists of three main building blocks

- Template
- Class
- MetaData

Component : Template(View)

The template defines the layout and content of the View.

Component : Class

The Class provides the data & logic to the View.

TypeScript is used to create the class, but JavaScript can be used directly in the class.

Class Contains the Properties & Methods.

The Properties of a class can be bind to the view using Data Binding.

Component : Metadata

Angular uses metadata to process the class.

@Component decorator is used to provide the Metadata to the Component.

Important Component metadata properties

- Selector
- Providers
- Directives
- styleUrls
- templateURL

Component : app.component.ts

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TS app.component.ts ×

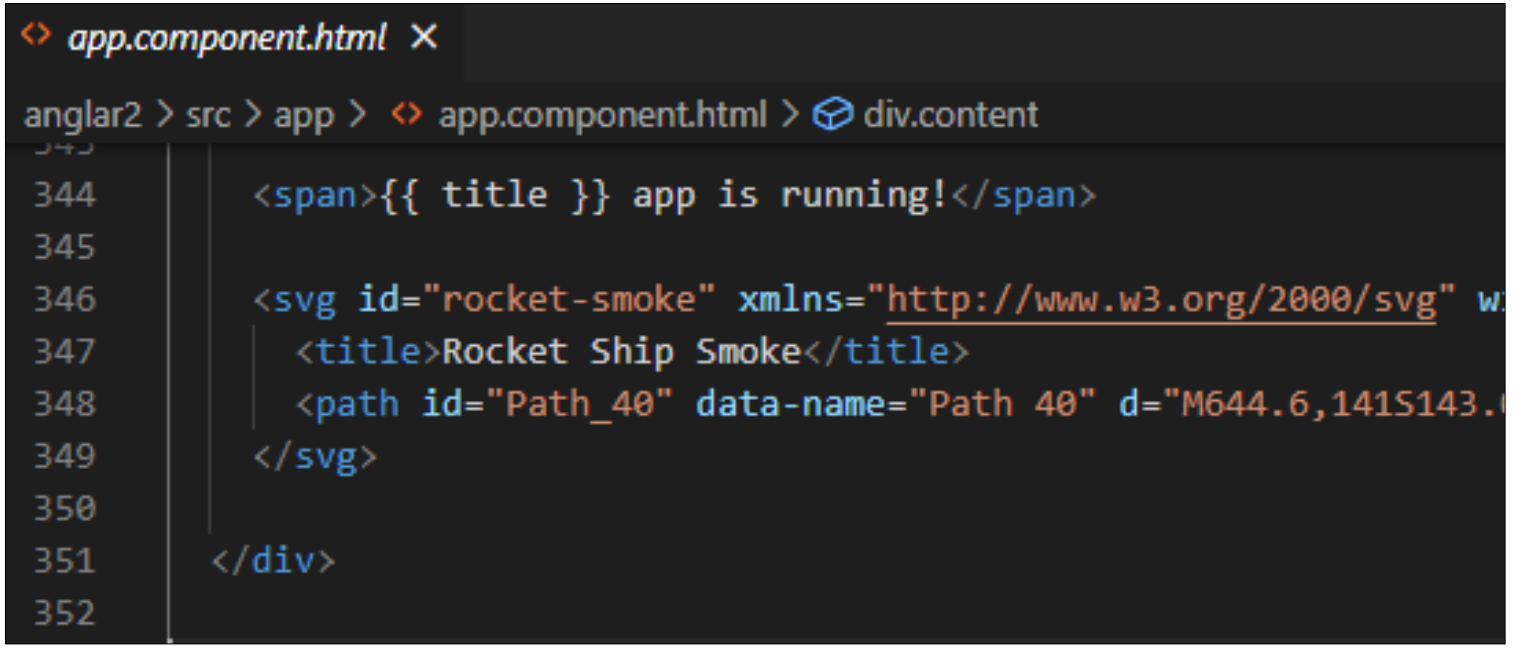
anglar2 > src > app > TS app.component.ts > ...

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

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'anglar2';
}

```

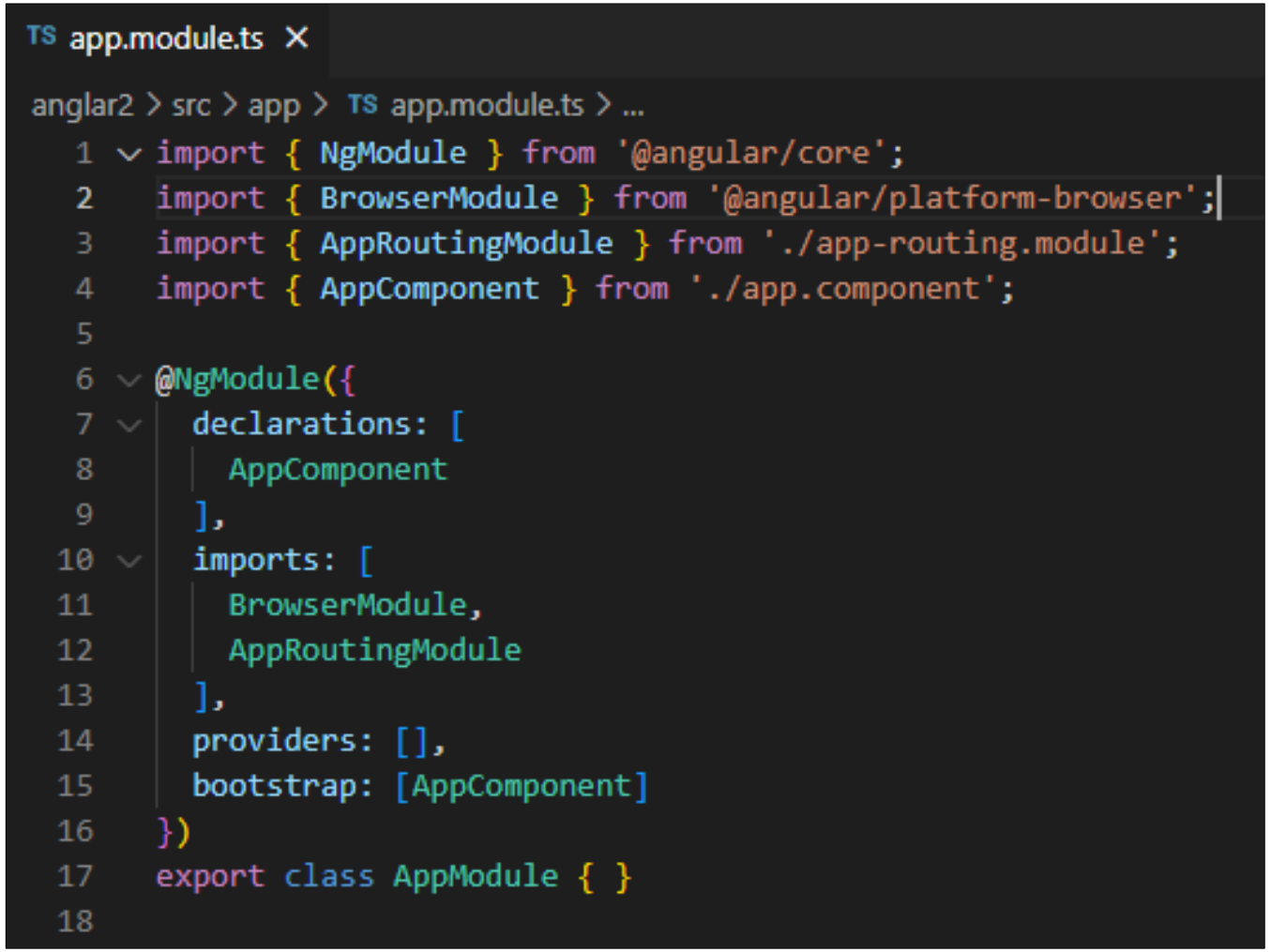
Template : app.component.html

In Angular, a template is a blueprint for a fragment of a user interface (UI).

Templates are written in HTML, and special syntax can be used within a template to build on many of Angular's features.



Angular Module : app.module.ts



The Angular Module organizes the components, directives, pipes, and services that are related and arrange them into cohesive blocks of functionality.

Directives

The Angular directive helps us to manipulate the DOM.

The appearance, behavior, or layout of a DOM element can be changed by using the Directives.

There are three kinds of directives in Angular:

- Component Directive
- Structural directives
- Attribute directives

Directives : Structural

Structural directives are responsible for the Structure and Layout of the DOM Element.

It is used to hide or display the things on the DOM.

Structural Directives can be easily identified using the '*'.

Some Directives are as follows:

- *ngIf
- *ngFor
- *ngSwitch

Directives : Attribute

Attribute directives listen to and modify the behavior of other HTML elements, attributes, properties, and components.

Some Directives are as follows:

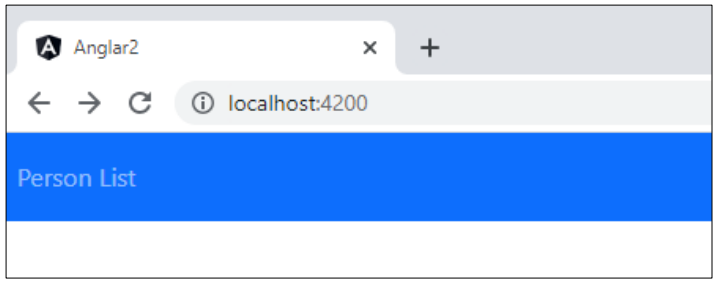
- NgClass : Adds and removes a set of CSS classes.
- NgStyle : Adds and removes a set of HTML styles.
- NgModel : Adds two-way data binding to an HTML form element.

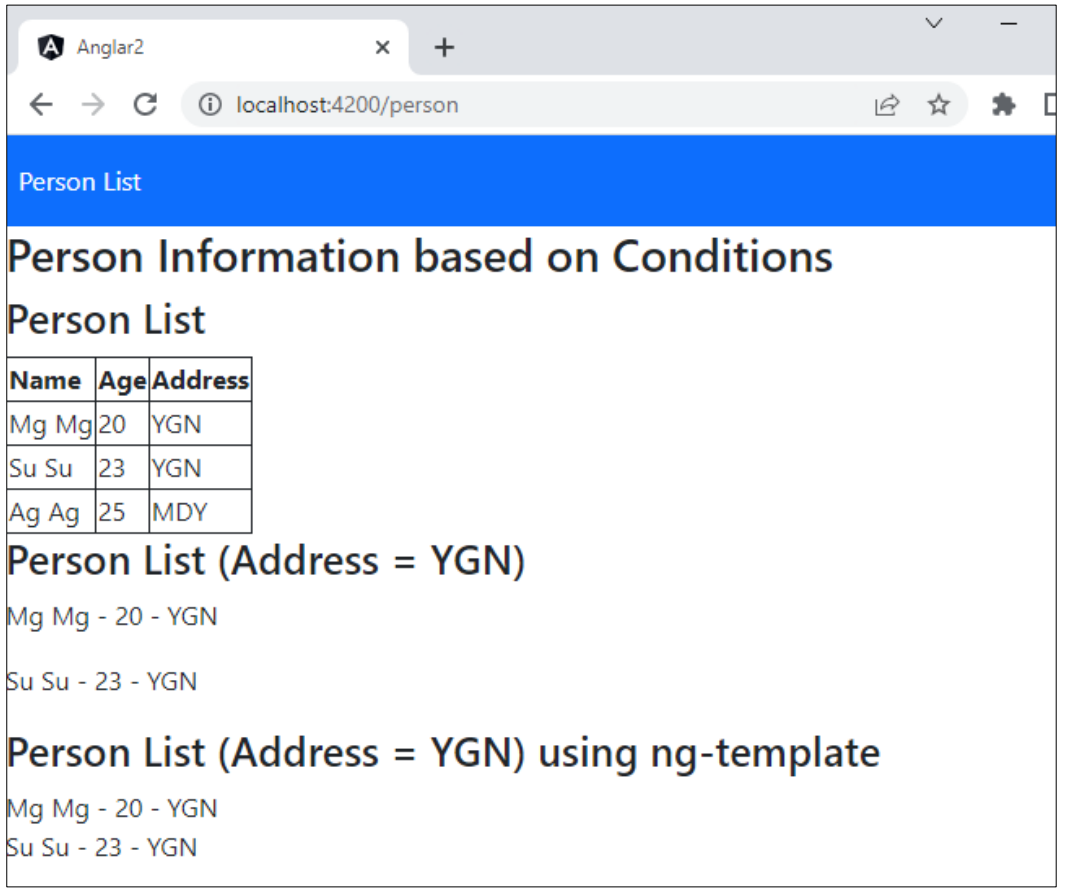
Some Events in Angular

Event name	Description
(click)	The click event occurs when an element is clicked.
(change)	The change event is triggered when change occurs on the binding elements, like select, Textarea, input, and other elements.
(dblclick)	The double-click event occurs when an element is clicked two times.
(blur)	The blur event fires when an element has lost focus.
(submit)	The submit event fire when clicking on the button or inputting with type submit.

Example : Person List

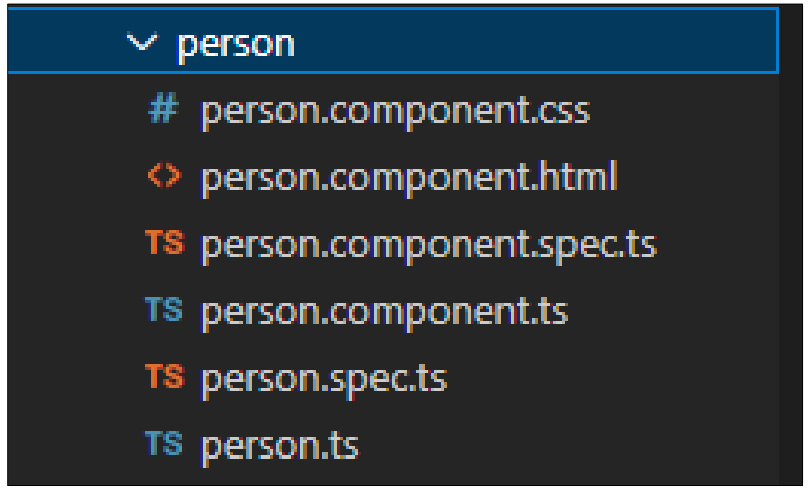
Output:



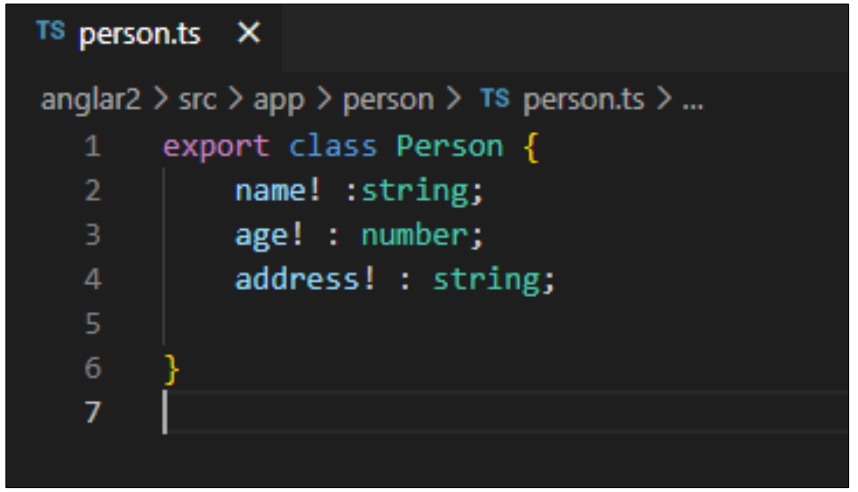


Example : Person List

book folder



book.ts



Example : Person List

book.component.ts

TS person.component.ts

anglar2 > src > app > person > TS person.component.ts > PersonComponent

```ts
import { Component, OnInit } from '@angular/core';
import { Person } from './person';

@Component({
  selector: 'app-person',
  templateUrl: './person.component.html',
  styleUrls: ['./person.component.css']
})
export class PersonComponent implements OnInit {
  title: string ="Person Information based on Conditions" ;

  personList: Person[] =[
 {name: 'Mg Mg',age : 20, address:'YGN'},
 {name: 'Su Su',age : 23, address:'YGN'},
 {name: 'Ag Ag',age : 25, address:'MDY'}
  ]

  constructor() { }

  ngOnInit(): void {
  }
}

```

Example : Person List

ACE Inspiration

book.component.html

person.component.html

anglar2 > src > app > person > person.component.html > h2

```
1   <h2> {{title}} </h2>
2   <h3>Person List</h3>
3   <table>
4     <thead>
5       <tr>
6         <th> Name</th>
7         <th> Age </th>
8         <th> Address</th>
9       </tr>
10    </thead>
11    <tbody>
12      <tr *ngFor = "let person of personList" >
13        <td> {{ person.name }} </td>
14        <td> {{ person.age }} </td>
15        <td> {{ person.address}} </td>
16      </tr>
17    </tbody>
18  </table>
```

```
34    <h3>Person List (Address = YGN)</h3>
35      <div *ngFor="let person of personList">
36        <p *ngIf="person.address=='YGN'">
37          {{ person.name }} - {{person.age}} - {{person.address}}
38        </p>
39      </div>
40
41  <h3>Person List (Address = YGN) using ng-template</h3>
42    <div *ngFor="let person of personList">
43      <ng-template [ngIf]= "person.address=='YGN'">
44        <div> {{ person.name }} - {{person.age}} - {{person.address}}</div>
45      </ng-template>
46    </div>
```

Example : Person List

app-routing.module.ts

TS app-routing.module.ts

anglar2 > src > app > TS app-routing.module.ts > ...

```
1   import { NgModule } from '@angular/core';
2   import { RouterModule, Routes } from '@angular/router';
3   import { PersonComponent } from './person/person.component';
4
5   const routes: Routes = [
6     {path: 'person', component: PersonComponent}
7   ];
8
9   @NgModule({
10    imports: [RouterModule.forRoot(routes)],
11    exports: [RouterModule]
12  })
13  export class AppRoutingModule { }
14
```

Example : Person List

app.module.ts

TS app.module.ts

anglar2 > src > app > TS app.module.ts > ...

```ts
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { PersonComponent } from './person/person.component';

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

Example : One-way Binding(DataSource-View)

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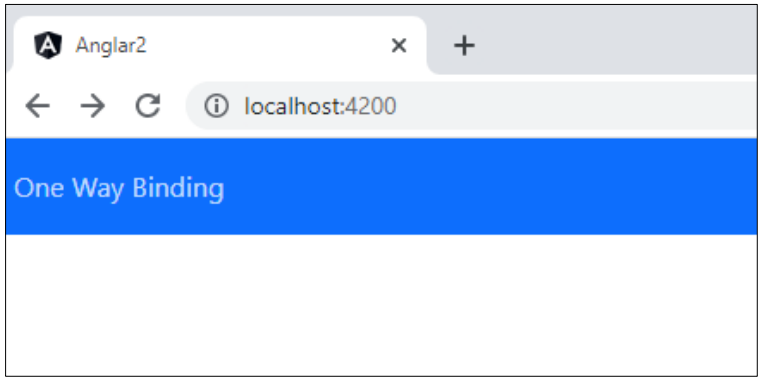
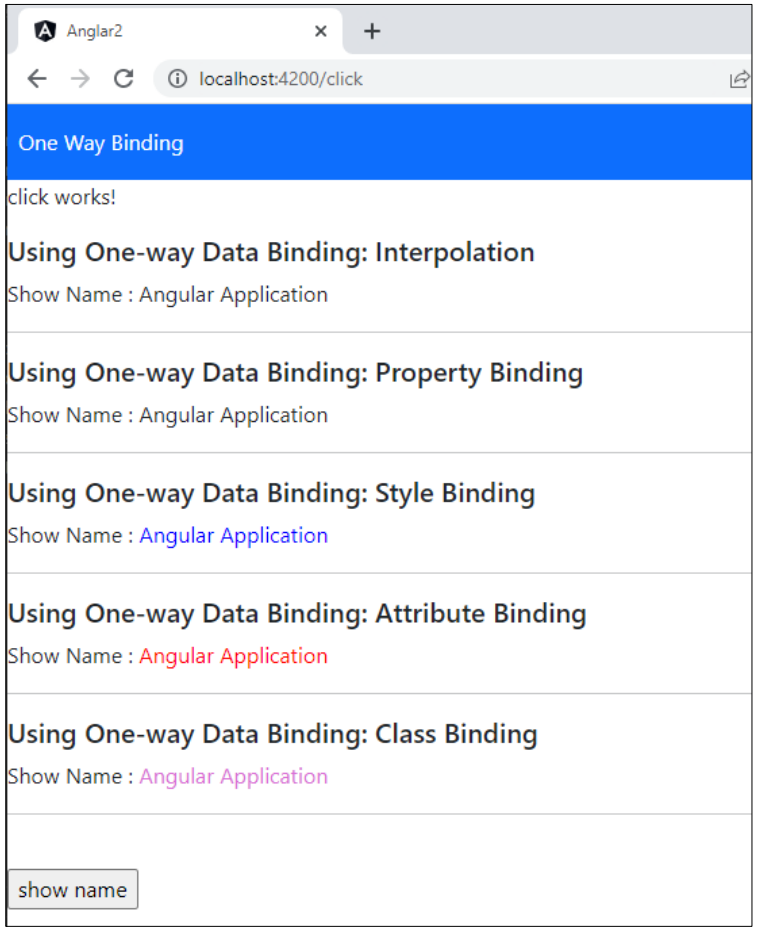
Output:





Example : One-way Binding(DataSource-View)

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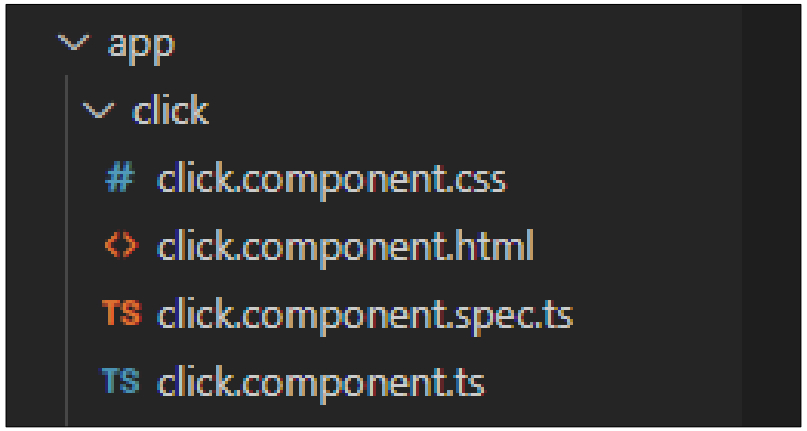
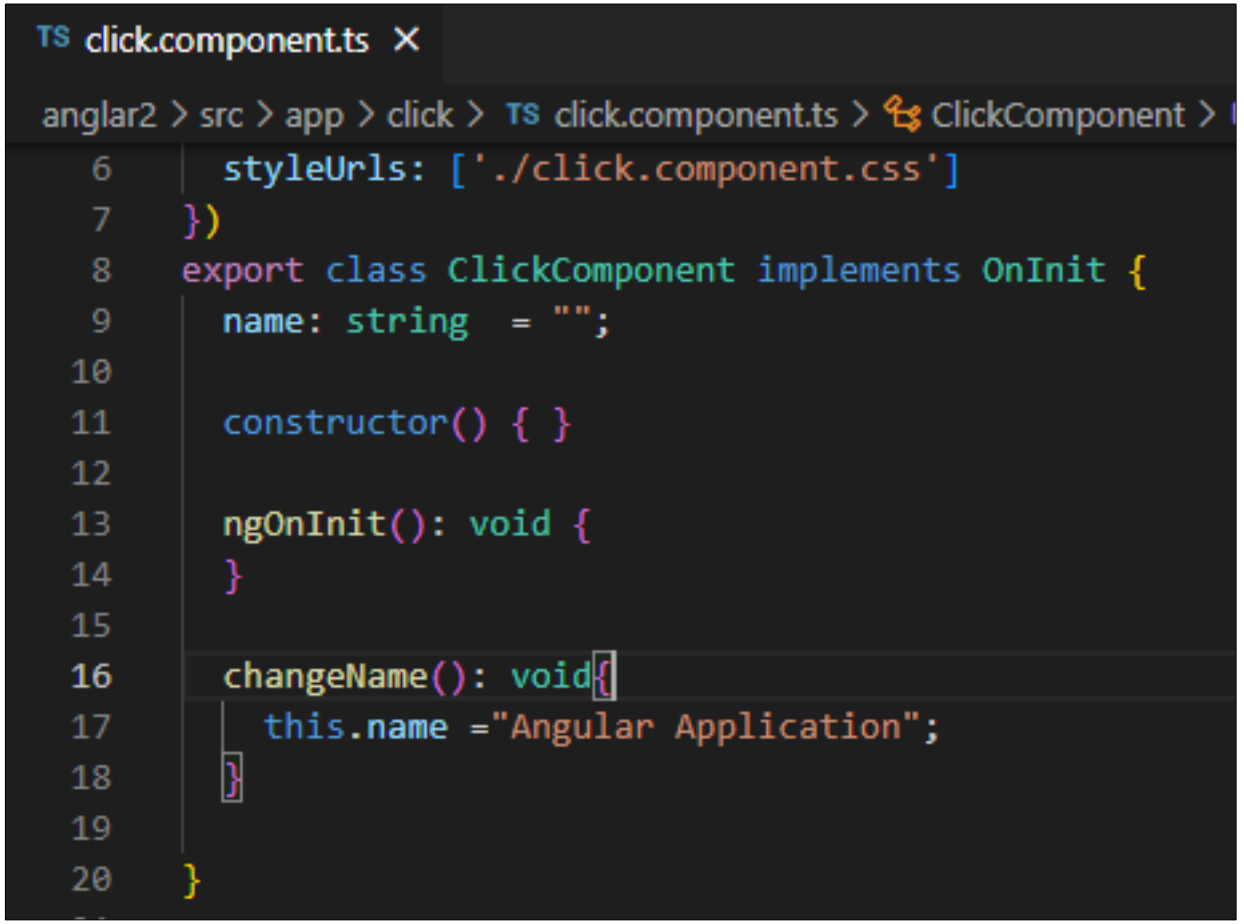
click folder



click.component.ts



Example : One-way Binding(DataSource-View)

ACE Inspiration

click.component.html

click.component.html

anglar2 > src > app > click > click.component.html > h5

```
1   <p>click works!</p>
2
3   <h5>Using One-way Data Binding: Interpolation</h5>
4   Show Name : {{name}}
5   <hr>
6   <h5>Using One-way Data Binding: Property Binding</h5>
7   Show Name : <span [innerHTML]='name'></span>
8   <hr>
9   <h5>Using One-way Data Binding: Style Binding</h5>
10  Show Name : <span [style.color]="'blue'" >{{name}}</span>
11  <hr>
12  <h5>Using One-way Data Binding: Attribute Binding</h5>
13  Show Name : <font [attr.color]="'red'">{{name}}</font>
14  <hr>
15  <h5>Using One-way Data Binding: Class Binding</h5>
16  Show Name : <font class="colorClass">{{name}}</font>
17  <hr>
18  <br>
19  <input type="button" value="show name" (click)="changeName()">
```

styles.css

styles.css

anglar2 > src > # styles.css > .colorClass

```
1   /* You can add global styles to this
2   .boldClass{
3       font-weight:bold;
4   }
5   .italicClass{
6       font-style:italic;
7   }
8   .colorClass{
9       color: orchid;
10  }
```

index.html

```
<link rel="icon" type="image/x-icon" href="favicon.ico">
<link rel="icon" type="text/css" href="/anglar2/src/styles.css">
```

Spring Boot + Angular First Application

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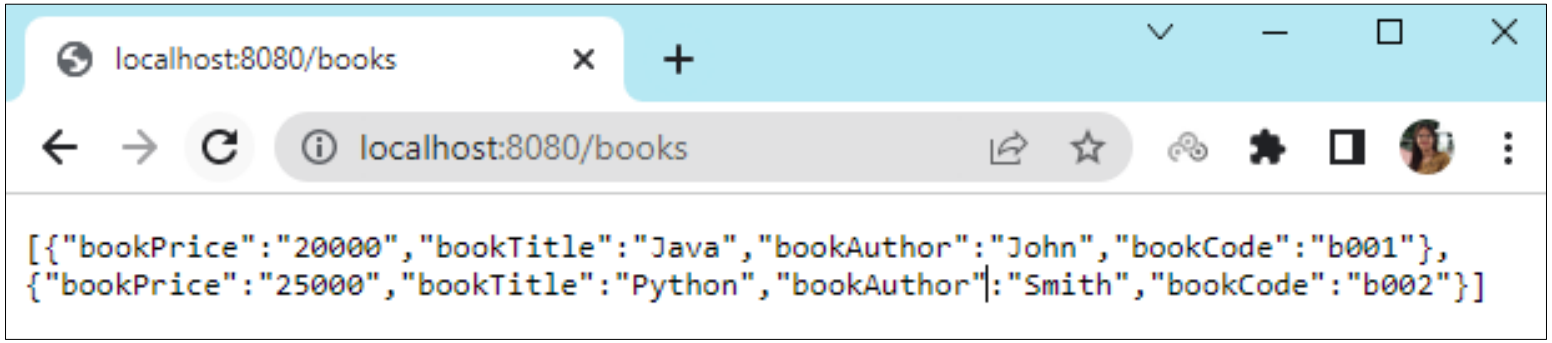
Backend Output:



BookBean.java

```
package com.book.model;
public class BookBean {
		private String BookCode;
		private String BookTitle;
		private String BookAuthor;
		private String BookPrice;
// getters, setters
}
```

BookBean.java

```
package com.book.model;
public class BookBean {
        private String BookCode;
        private String BookTitle;
        private String BookAuthor;
        private String BookPrice;
// getters, setters
}
```

BookController.java

```
package com.book.controller;
//Import statements
@CrossOrigin(origins = "http://localhost:4200")
@RestController
public class BookController {
		private List<BookBean> bookList = createList();
@RequestMapping(value = "/books", method = RequestMethod.GET,produces = "application/json")
		public List<BookBean> firstPage() {
			return bookList;
		}
```

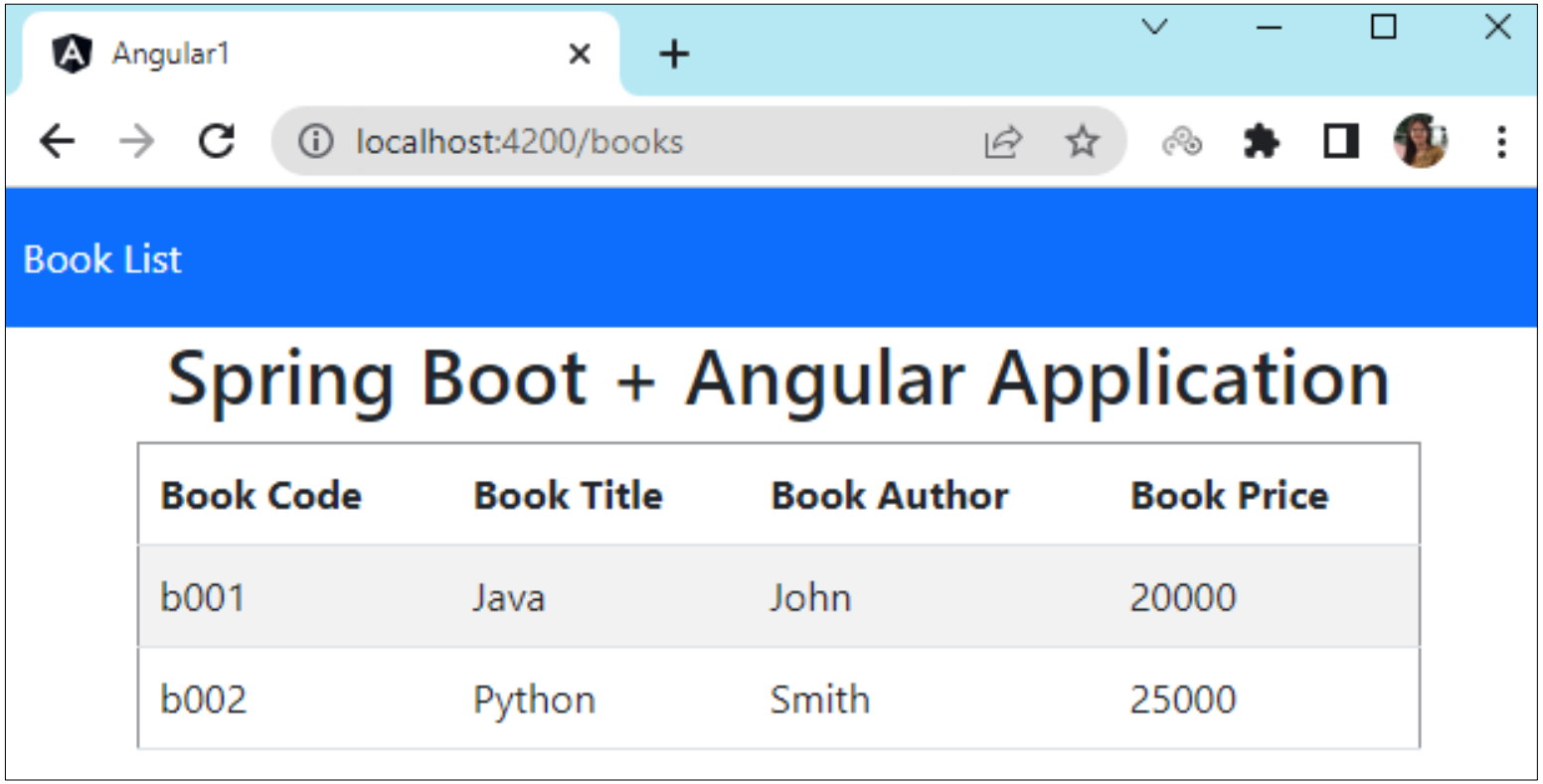
Spring Boot + Angular First Application


```
private static List<BookBean> createList() {
                        List<BookBean> bookList = new ArrayList<BookBean>();
                        BookBean book1 = new BookBean();
                        book1.setBookCode("b001");
                        book1.setBookTitle("Java");
                        book1.setBookAuthor("John");
                        book1.setBookPrice("20000");

                        BookBean book2 = new BookBean();
                        book2.setBookCode("b002");
                        book2.setBookTitle("Python");
                        book2.setBookAuthor("Smith");
                        book2.setBookPrice("25000");
                        bookList.add(book1);
                        bookList.add(book2);
                        return bookList;
            }
}
```

Spring Boot + Angular First Application

Frontend Output:



Spring Boot + Angular First Application

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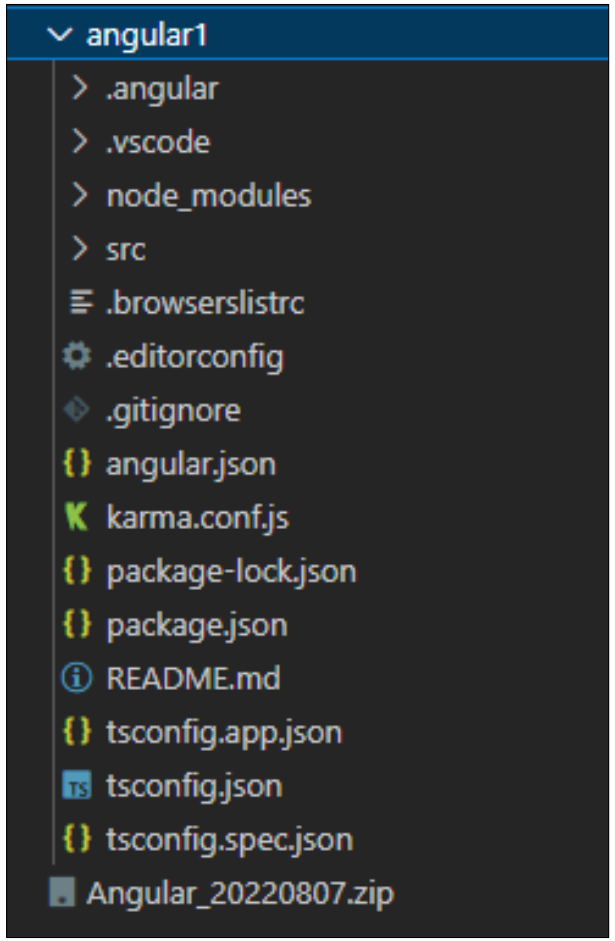
Front-end Angular project structure:



Spring Boot + Angular First Application

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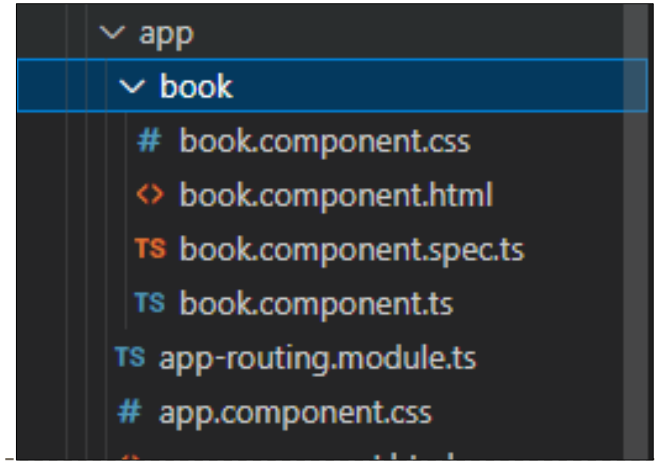
Create Book component:

```
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects> cd angular1
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\angular1> ng generate component book
CREATE src/app/book/book.component.html (19 bytes)
CREATE src/app/book/book.component.spec.ts (585 bytes)
CREATE src/app/book/book.component.ts (267 bytes)
CREATE src/app/book/book.component.css (0 bytes)
UPDATE src/app/app.module.ts (467 bytes)
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\angular1>
```



Spring Boot + Angular First Application

ACE Inspiration

book.component.html

```
<table border="1" class="table table-striped" >
  <thead>
   <tr>
    <th>Book Code</th>
    <th>Book Title</th>
    <th>Book Author</th>
    <th>Book Price</th>
   </tr>
  </thead>
  <tbody>
    <tr *ngFor="let book of books">
      <td>{{book.bookCode}}</td>
      <td>{{book.bookTitle}}</td>
      <td>{{book.bookAuthor}}</td>
       <td>{{book.bookPrice}}</td>
    </tr>
  </tbody>
</table>
```

Spring Boot + Angular First Application

Create Book service:

```
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\angular1> ng generate service book
CREATE src/app/book.service.spec.ts (347 bytes)
CREATE src/app/book.service.ts (133 bytes)
```

Spring Boot + Angular First Application

book.service.ts

```
import { Injectable } from '@angular/core';
import { HttpClient } from '@angular/common/http‘;
import { Observable } from 'rxjs';
import { Book } from './book';

@Injectable({
 providedIn: 'root'
})
export class BookService {
 private baseURL = "http://localhost:8080/books";
 constructor(private httpClient: HttpClient) { }

 getBookList(): Observable<Book[]>{
  return this.httpClient.get<Book[]>(`${this.baseURL}`);
 }
}
```

Spring Boot + Angular First Application

Create Book model:

```
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\angular1> ng generate class book
CREATE src/app/book.spec.ts (146 bytes)
CREATE src/app/book.ts (22 bytes)
PS D:\AI_20200707\03_SelfCourse\07_Angular\AngularProjects\angular1>
```

book.ts

```
export class Book{
   bookCode!: string
   bookTitle!: string;
   bookAuthor!: string;
   bookPrice!: string;
}
```

Spring Boot + Angular First Application

app.component.html

```
<nav class="navbar navbar-expand-sm bg-primary navbar-dark">
 <ul class = "navbar-nav">
    <li class = "nav-item">
       <a routerLink="books" routerLinkActive="active" class="nav-link" >Book List</a>
    </li>

 </ul>
</nav>

<h1 class="text-center"> {{title}} </h1>
<div class = "container">
 <router-outlet></router-outlet>
</div>
```

Spring Boot + Angular First Application

app.module.ts

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { BookComponent } from './book/book.component';
import { HttpClientModule } from '@angular/common/http';

@NgModule({
 declarations: [
  AppComponent,
  BookComponent
 ],
```

```
imports: [
  BrowserModule,
  AppRoutingModule,
  HttpClientModule
 ],
 providers: [],
 bootstrap: [AppComponent]
})
export class AppModule { }
```

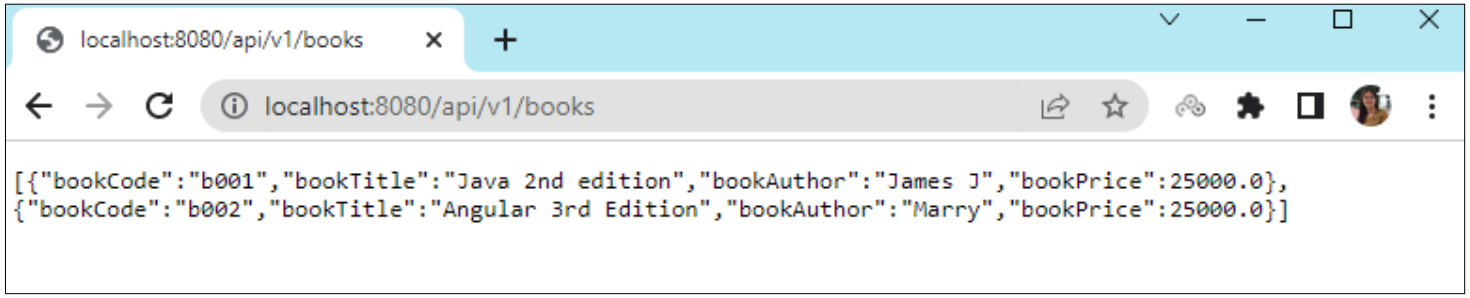
app-routing.module.ts

```
import { NgModule } from '@angular/core';
import { RouterModule, Routes } from '@angular/router';
import { BookComponent } from './book/book.component';

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

@NgModule({
 imports: [RouterModule.forRoot(routes)],
 exports: [RouterModule]
})
export class AppRoutingModule { }
```

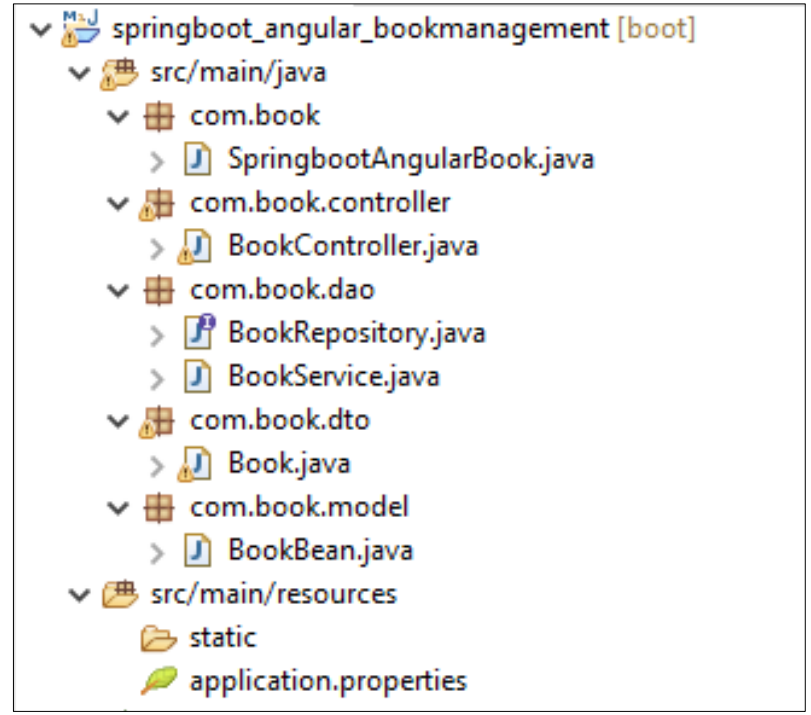
BookManagement Project

ACE Inspiration

Backend Output:



Project Structure:



BookBean.java

```
package com.book.model;
public class BookBean {
		private String BookCode;
		private String BookTitle;
		private String BookAuthor;
		private String BookPrice;
// getters, setters
}
```

Spring Boot + Angular First Application

ACE Inspiration

BookController.java

```
package com.book.controller;

//Import statements
@CrossOrigin(origins = "http://localhost:4200")
@RestController
 @RequestMapping("/api/v1/")
public class BookController {

@Autowired
private BookService bookService;

@GetMapping(value="/books",produces = "application/json")
                public List<Book> displayBook(ModelMap model) {
                                return bookService.getAllBook();

}
```

Spring Boot + Angular First Application

```
@PostMapping(value="/books",produces = "application/json")
public Book addbook(@RequestBody Book book) {
		Book dto = new Book();
		dto.setBookCode(book.getBookCode());
		dto.setBookTitle(book.getBookTitle());
		dto.setBookAuthor(book.getBookAuthor());
		dto.setBookPrice(Double.valueOf(book.getBookPrice()));
		return bookService.saveBook(dto);
}

// get employee by id rest api
@GetMapping("/books/{bookCode}")
public ResponseEntity<Book> getBookByBookCode(@PathVariable String bookCode) {
		Book book = new Book();
		book = bookService.getBookByBookCode(bookCode);
		return ResponseEntity.ok(book);
}
```

Spring Boot + Angular First Application

ACE Inspiration

```
// update employee rest api
@PutMapping(value="/books/{bookCode}",produces = "application/json")
public ResponseEntity<Book> updateBook(@PathVariable String bookCode, @RequestBody Book bookDetails) {
        Book book = new Book();
        book = bookService.getBookByBookCode(bookCode);
        book.setBookTitle(bookDetails.getBookTitle());
        book.setBookAuthor(bookDetails.getBookAuthor());
        book.setBookPrice(bookDetails.getBookPrice());
        Book updatedBook = bookService.update(book, book.getBookCode());
        return ResponseEntity.ok(updatedBook);
```

Spring Boot + Angular First Application

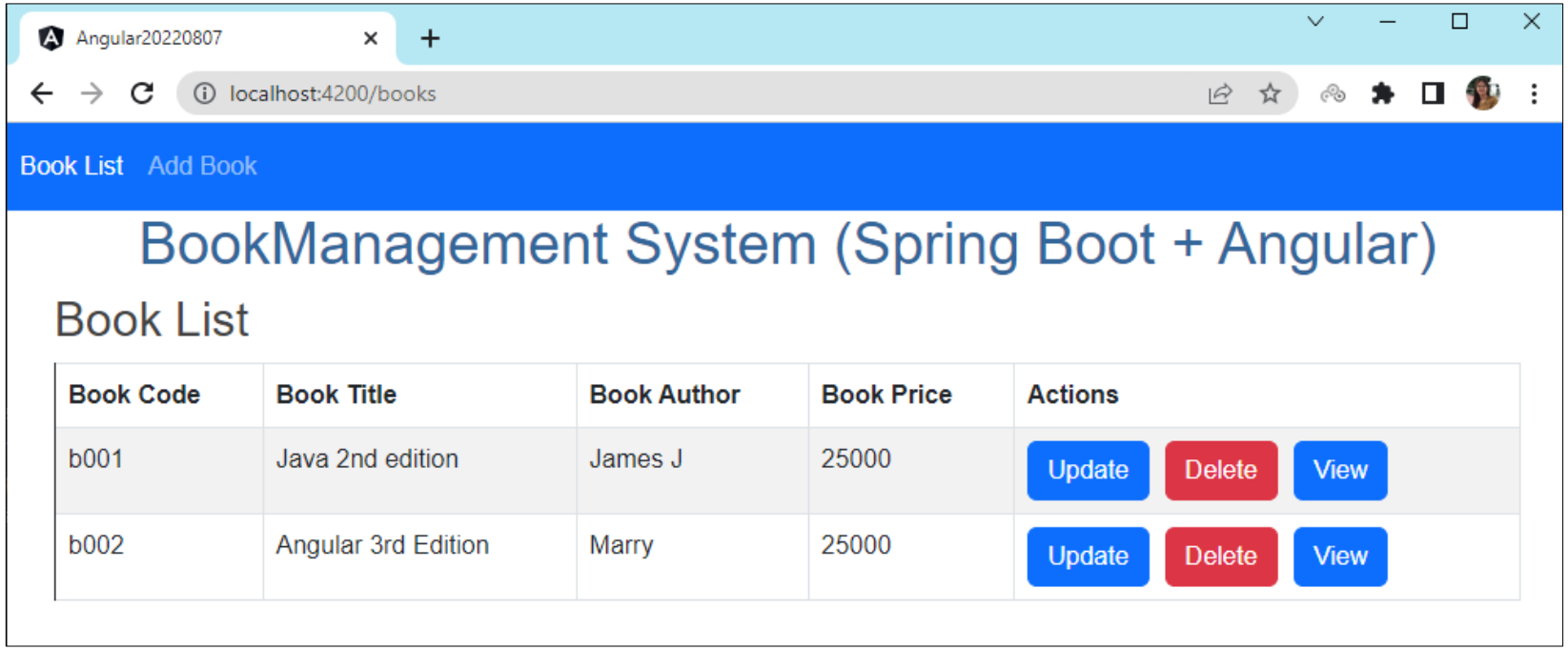
ACE Inspiration

```
// delete employee rest api
@DeleteMapping("/books/{bookCode}")
public ResponseEntity<Map<String, Boolean>> deleteBook(@PathVariable String bookCode) {

        bookService.delete(bookCode);
        Map<String, Boolean> response = new HashMap<>();
        response.put("deleted", Boolean.TRUE);
        return ResponseEntity.ok(response);
}

}
```

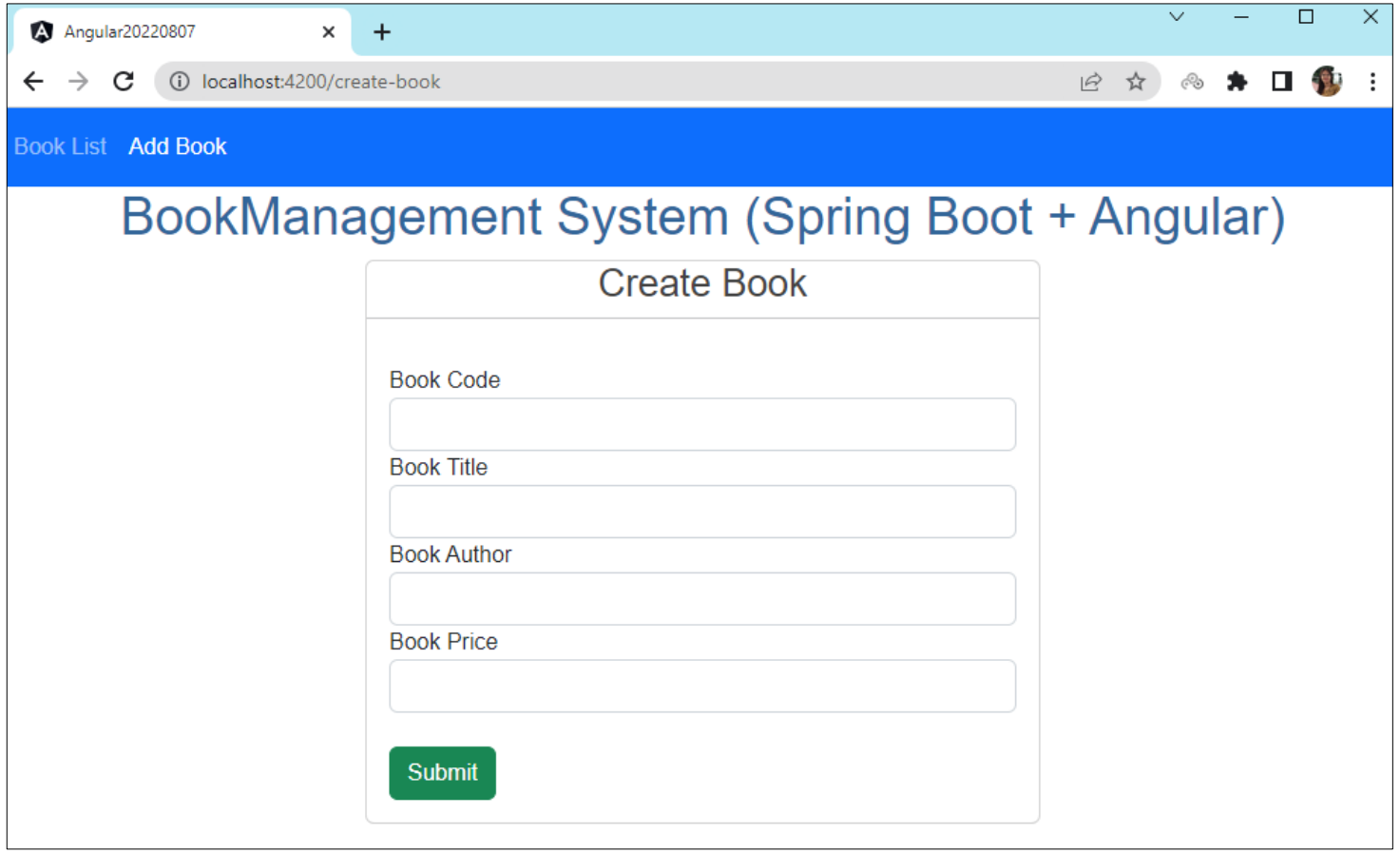
BookManagement Project

ACE Inspiration

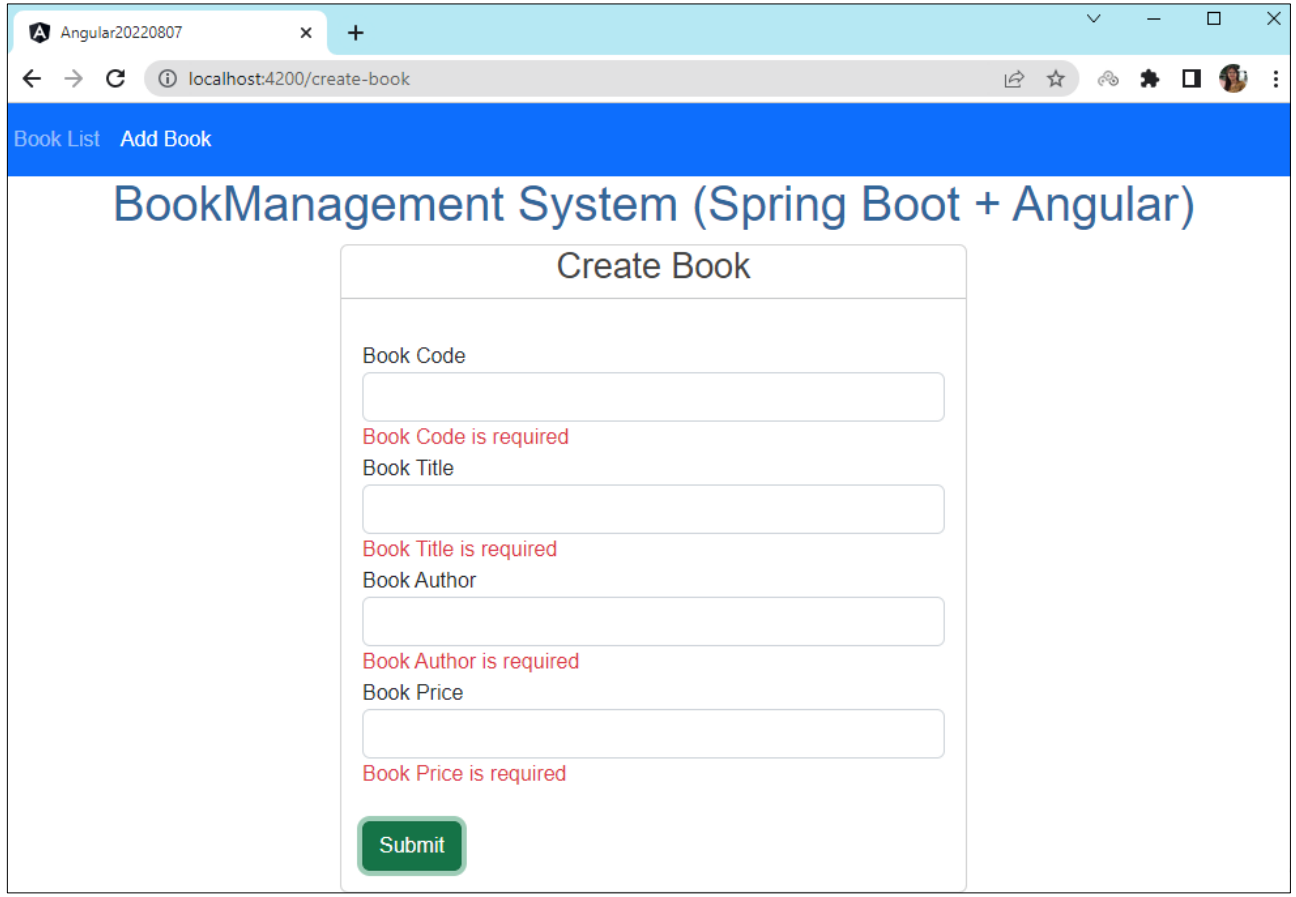
Frontend Output: Book List



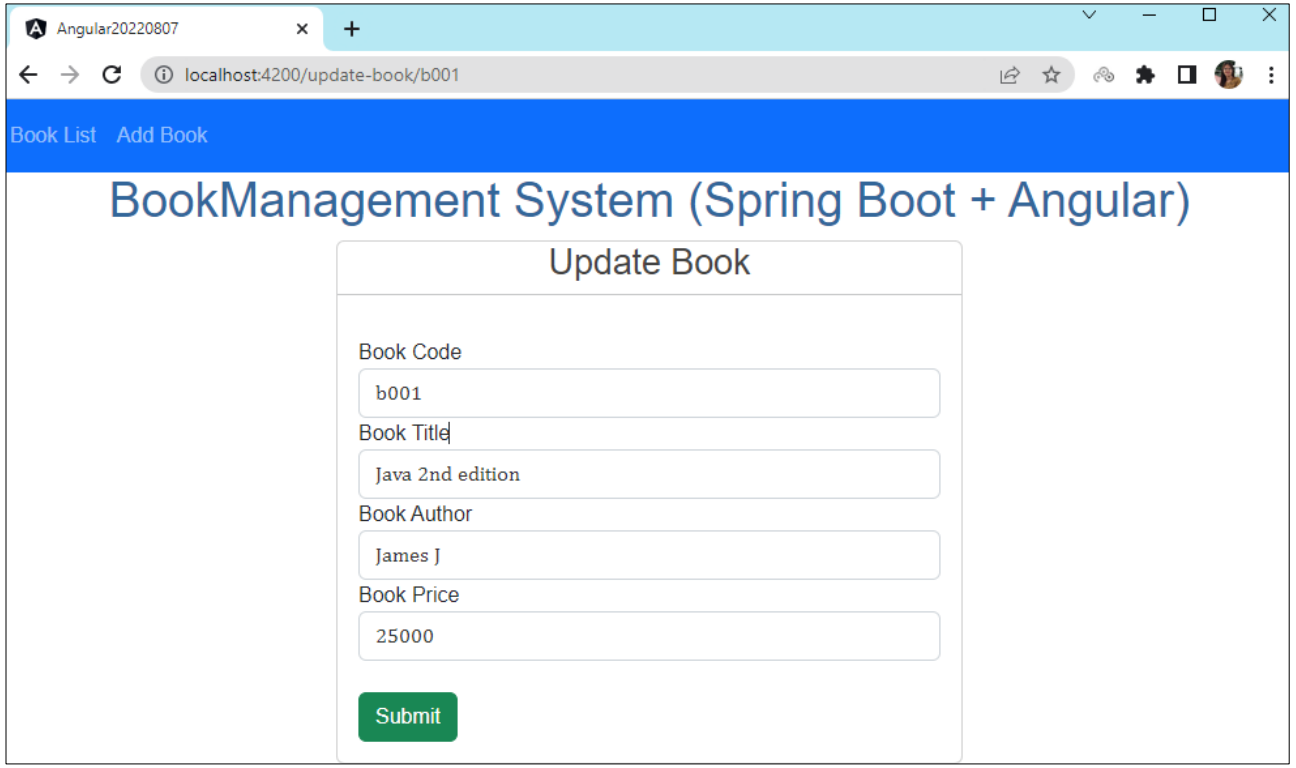
Frontend Output: Create Book



Frontend Output: Create Book – Template Driven Validation

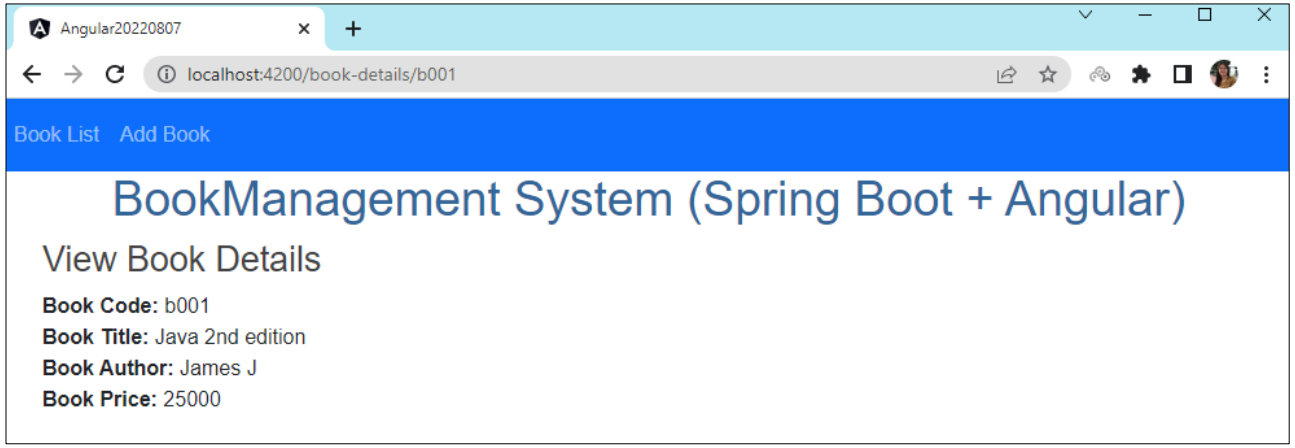


Frontend Output: Update Book



BookManagement Project

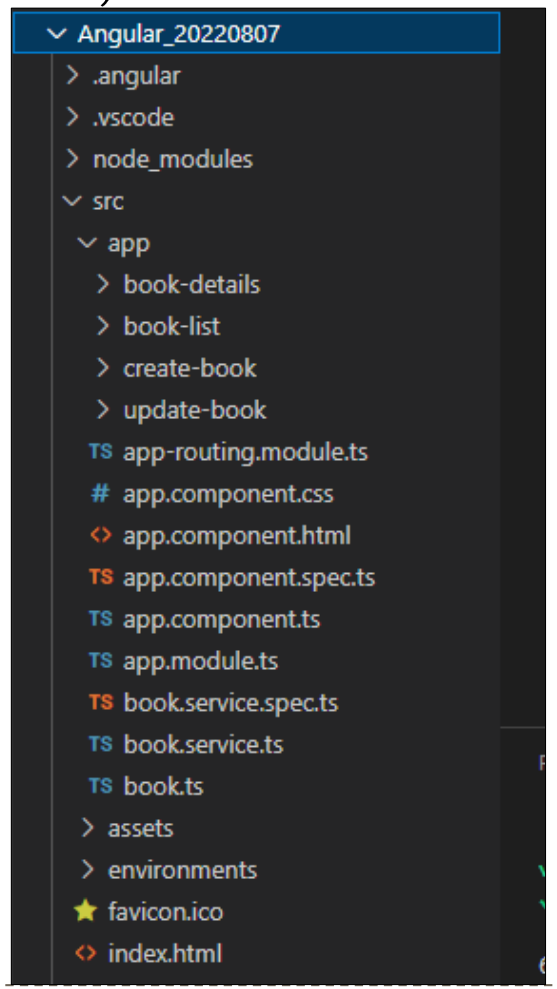
Frontend Output: Book Detail

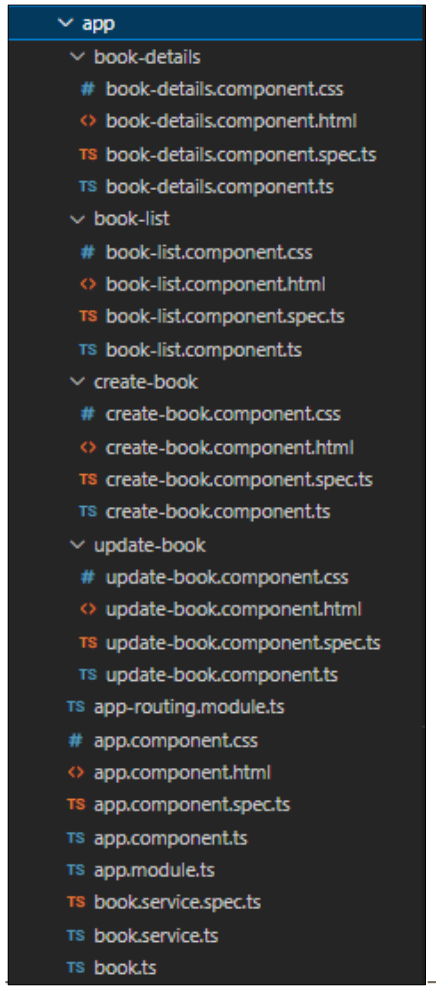


BookManagement Project

ACE Inspiration

Project Structure:





book.ts

```
export class Book{
   bookCode!: string
   bookTitle!: string;
   bookAuthor!: string;
   bookPrice!: string;

}
```

book.service.ts

```
import { Injectable } from '@angular/core';
import { HttpClient } from '@angular/common/http'
import { Observable } from 'rxjs';
import { Book } from './book';

@Injectable({
  providedIn: 'root'
})
export class BookService {

  private baseURL = "http://localhost:8080/api/v1/books";

  constructor(private httpClient: HttpClient) { }
```

BookManagement Project

```
getBookList(): Observable<Book[]>{
  return this.httpClient.get<Book[]>(`${this.baseURL}`);
 }

 createBook(book: Book): Observable<Object>{
  return this.httpClient.post(`${this.baseURL}`, book);
 }

 getBookByBookCode(bookCode: string): Observable<Book>{
  return this.httpClient.get<Book>(`${this.baseURL}/${bookCode}`);
 }

 updateBook(bookCode: string, book: Book): Observable<Object>{
  return this.httpClient.put(`${this.baseURL}/${bookCode}`, book);
 }

 deleteBook(bookCode: string): Observable<Object>{
  return this.httpClient.delete(`${this.baseURL}/${bookCode}`);
 }
}
```

book-list.component.html

```
<!-- <p>book-list works!</p> -->
<ng-template [ngIf]="check" [ngIfElse]="noData">
  <div class = "row">
    <h2> Book List</h2>
  </div>
  <table class = "table table-striped table-bordered">
    <thead>
      <tr>
        <th> Book Code</th>
        <th> Book Title </th>
        <th> Book Author</th>
        <th> Book Price</th>
        <th> Actions </th>
      </tr>
    </thead>
```

```
<tbody>
        <tr *ngFor = "let book of books" >
          <td> {{ book.bookCode }} </td>
          <td> {{ book.bookTitle }} </td>
          <td> {{ book.bookAuthor}} </td>
          <td> {{ book.bookPrice}} </td>
          <td>
<button (click) = "updateBook(book.bookCode)" class = "btn btn-primary"> Update</button>
<button (click) = "deleteBook(book.bookCode)" class = "btn btn-danger" style="margin-left: 10px"> Delete</button>
 <button (click) = "bookDetails(book.bookCode)" class = "btn btn-primary" style="margin-left: 10px"> View</button>
          </td>
        </tr>
      </tbody>
  </table>

  </ng-template>
<ng-template #noData>
<h4>No Book Found!</h4>
</ng-template>
```

book-list.component.ts

```
import { Component, OnInit } from '@angular/core';
import { Book} from '../book'
import { BookService } from '../book.service'
import { Router } from '@angular/router';
@Component({
 selector: 'app-book-list',
 templateUrl: './book-list.component.html',
 styleUrls: ['./book-list.component.css']
})
export class BookListComponent implements OnInit {
 books: Book[];
 check =false;
 constructor(private bookService: BookService,
  private router: Router) {
    this.books=[];
  }
```

BookManagement Project

```
ngOnInit(): void {
  this.getBooks();
 }

 private getBooks(){
  this.bookService.getBookList()
  .subscribe({
    next: (data) => {
    this.books = data;
    if(this.books.length!=0){
      this.check=true;
    }
  },
  error: (e) => console.log(e)
});
}

 bookDetails(bookCode: string){
  this.router.navigate(['book-details', bookCode]);
 }
```

```
updateBook(bookCode: string){
   this.router.navigate(['update-book', bookCode]);
  }

  deleteBook(bookCode: string){
   this.bookService.deleteBook(bookCode)
   .subscribe({
    next: (data) => {
     console.log(data);
     this.getBooks();
   },
   error: (e) => console.log(e)
  });
  }
}
```

create-book.component.html

```
<div class="row">
  <div class="card col-md-6 offset-md-3 offset-md-3">
    <div class="row">
      <h3 class="text-center"> Create Book </h3>
      <hr />
      <div class="card-body">
        <form #templateDrivenForm = "ngForm" (ngSubmit)="onSubmit(templateDrivenForm)" >
          <div class="form-group">
            <label> Book Code</label>
            <input type="text" class="form-control" id="bookCode" [(ngModel)]="book.bookCode"
              name="bookCode" #bookCode="ngModel" required>

           <span class="text-danger" *ngIf = "submitted">
            Book Code is required
        </span>
      </div>
```

BookManagement Project

```
<div class="form-group">
            <label>Book Title</label>
            <input type="text" class="form-control" id="bookTitle" [(ngModel)]="book.bookTitle"
              name="bookTitle"  #bookTitle="ngModel" required>
              <span class="text-danger" *ngIf = "submitted">
                Book Title is required
              </span>
</div>

<div class="form-group">
            <label> Book Author</label>
            <input type="text" class="form-control" id="bookAuthor" [(ngModel)]="book.bookAuthor"
              name="bookAuthor"  #bookAuthor="ngModel" required>
              <span class="text-danger" *ngIf = "submitted">
                Book Author is required
              </span>
</div>
```

```
            <div class="form-group">
              <label> Book Price</label>
              <input type="text" class="form-control" id="bookPrice" [(ngModel)]="book.bookPrice"
                name="bookPrice"  #bookPrice="ngModel" required>
                <span class="text-danger" *ngIf = "submitted">
                  Book Price is required
                </span>
            </div>

            <br />
            <button class="btn btn-success" type="submit" >Submit</button>
          </form>
        </div>
      </div>
    </div>
</div>
```

create-book.component.ts

```
import { NgForm } from '@angular/forms';
import { Component, OnInit } from '@angular/core';
import { Book } from '../book';
import { BookService } from '../book.service';
import { Router } from '@angular/router';

@Component({
 selector: 'app-create-book',
 templateUrl: './create-book.component.html',
 styleUrls: ['./create-book.component.css']
})
export class CreateBookComponent implements OnInit {
 book: Book = new Book();
 message='';
 submitted=false;
```

BookManagement Project

```
constructor(private bookService: BookService,
  private router: Router) { }

 ngOnInit(): void {}

  saveBook(){
  this.bookService.createBook(this.book)
  .subscribe({
   next: (data) =>{
    console.log(data);

    this.goToBookList();
    //this.message = 'Book was inserted successfully!';
  },
  error: (e) => console.log(e)
 });
 }
```

```
goToBookList(){
   this.router.navigate(['/books']);
 }

 onSubmit(form: NgForm):void{

   if (form.valid) {
     this.submitted=false;
      console.log(form.value);
       this.saveBook();
    } else {
     this.submitted=true;
      console.log('invalid form');
    }
  }
}
```

update-book.component.html

```
<div class="row">
  <div class="card col-md-6 offset-md-3 offset-md-3">
    <div class="row">
      <h3 class="text-center"> Update Book </h3>
      <hr />
      <div class="card-body">
        <form (ngSubmit)="onSubmit()">

          <div class="form-group">
            <label> Book Code</label>
            <input type="text" class="form-control" id="bookCode" [(ngModel)]="book.bookCode"
              name="bookCode" readonly>
          </div>
```

BookManagement Project

```
<div class="form-group">
            <label>Book Title</label>
            <input type="text" class="form-control" id="bookTitle" [(ngModel)]="book.bookTitle"
              name="bookTitle">
          </div>

          <div class="form-group">
            <label> Book Author</label>
            <input type="text" class="form-control" id="bookAuthor" [(ngModel)]="book.bookAuthor"
              name="bookAuthor">
          </div>
```

```
<div class="form-group">
                <label> Book Price</label>
                <input type="text" class="form-control" id="bookPrice" [(ngModel)]="book.bookPrice"
                  name="bookPrice">
              </div>

              <br />
              <button class="btn btn-success" type="submit">Submit</button>

            </form>
          </div>
        </div>
      </div>
</div>
```

update-book.component.ts

```
import { Component, OnInit } from '@angular/core';
import { BookService } from '../book.service';
import { Book} from '../book';
import { ActivatedRoute, Router } from '@angular/router';

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

 bookCode!: string;
 book: Book= new Book();
 message ='';
```

```
constructor(private bookService: BookService,
  private route: ActivatedRoute,
  private router: Router) { }

 ngOnInit(): void {
  this.bookCode = this.route.snapshot.params['bookCode'];

  this.bookService.getBookByBookCode(this.bookCode)
  .subscribe({
   next: (data) => {
   this.book = data;
  },
  error: (e) => console.log(e)
 });
 }
```

BookManagement Project

```
onSubmit(){
  this.bookService.updateBook(this.bookCode, this.book)
  .subscribe({
   next: (data )=>{
   this.goToBookList();
  },
  error: (e) => console.log(e)
 });
 }

 goToBookList(){
  this.router.navigate(['/books']);
 }
}
```

book-details.component.html

```
<h3> View Book Details</h3>
<div>
  <div>
    <label> <b> Book Code: </b></label> {{book.bookCode}}
  </div>
  <div>
    <label> <b> Book Title: </b></label> {{book.bookTitle}}
  </div>
  <div>
    <label> <b> Book Author: </b></label> {{book.bookAuthor}}
  </div>
  <div>
    <label> <b> Book Price: </b></label> {{book.bookPrice}}
  </div>
</div>
```

book-details.component.ts

```
import { Component, OnInit } from '@angular/core';
import { Book } from '../book';
import { ActivatedRoute } from '@angular/router';
import { BookService } from '../book.service';

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

 bookCode!:string
 book!: Book
 constructor(private route: ActivatedRoute, private bookService: BookService) { }
```

```
ngOnInit(): void {
   this.bookCode = this.route.snapshot.params['bookCode'];

   this.book = new Book();
   this.bookService.getBookByBookCode(this.bookCode)
   .subscribe({
     next: (data)=> {
     this.book = data;
   },
   error: (e) => console.log(e)
  });
  }
}
```

app-routing.module.ts

```
import { NgModule } from '@angular/core';
import { Routes, RouterModule } from '@angular/router';
import { BookListComponent } from './book-list/book-list.component';
import { CreateBookComponent } from './create-book/create-book.component';
import { UpdateBookComponent } from './update-book/update-book.component';
import { BookDetailsComponent } from './book-details/book-details.component';

const routes: Routes = [
  {path: 'books', component: BookListComponent},
  {path: 'create-book', component: CreateBookComponent},
  {path: '', redirectTo: 'books', pathMatch: 'full'},
  {path: 'update-book/:bookCode', component: UpdateBookComponent},
  {path: 'book-details/:bookCode', component: BookDetailsComponent}
];
```

```
@NgModule({
 imports:
[RouterModule.forRoot(routes)],

 exports: [RouterModule]
})
export class AppRoutingModule { }
```

app.component.html

```
<nav class="navbar navbar-expand-sm bg-primary navbar-dark">
 <ul class = "navbar-nav">
    <li class = "nav-item">
       <a routerLink="books" routerLinkActive="active" class="nav-link" >Book List</a>
    </li>
    <li class = "nav-item">
       <a routerLink="create-book" routerLinkActive="active" class="nav-link" >Add Book</a>
    </li>
 </ul>
</nav>

<h1 class="text-center"> {{title}} </h1>
<div class = "container">
 <router-outlet></router-outlet>
</div>
```

app.component.ts

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

@Component({
 selector: 'app-root',
 templateUrl: './app.component.html',
 styleUrls: ['./app.component.css']
})


export class AppComponent {
 title = 'BookManagement System (Spring Boot + Angular)';
 }
```

app.module.ts

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { HttpClientModule } from '@angular/common/http'
import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { BookListComponent } from './book-list/book-list.component';
import { CreateBookComponent } from './create-book/create-book.component';
import { FormsModule} from '@angular/forms';
import { UpdateBookComponent } from './update-book/update-book.component';
import { BookDetailsComponent } from './book-details/book-details.component'

@NgModule({
 declarations: [
   AppComponent,
   BookListComponent,
   CreateBookComponent,
   UpdateBookComponent,
   BookDetailsComponent ],
```

BookManagement Project


```
imports: [
   BrowserModule,
   AppRoutingModule,
   HttpClientModule,
   FormsModule
 ],
 providers: [],
 bootstrap: [AppComponent]
})
export class AppModule { }
```

angular.json

```
"styles": [
          "src/styles.css",
          "node_modules/bootstrap/dist/css/bootstrap.min.css"
        ],
        "scripts": [
          "node_modules/jquery/dist/jquery.min.js",
          "node_modules/bootstrap/dist/js/bootstrap.min.js"
        ]
```

ACE Inspiration

Thank you!!

Q&As