ANGULAR

Programiranje internet aplikacija

Elektrotehnički fakultet, Univerzitet u Beogradu

2023/2024

Uvod

- Front-end JavaScript framework
- Najpoznatiji:

Google

TS TypeScript

facebook

JSX

HTML CSS JS

Angular

- TypeScript – proširuje JavaScript tipovima
- Glavni koncepti
  - NgModules
  - Komponente
  - Two-way binding
  - Servisi
  - Dependency injection
  - Rutiranje
- Single page aplikacija

Instalacija, kreiranje i pokretanje aplikacije

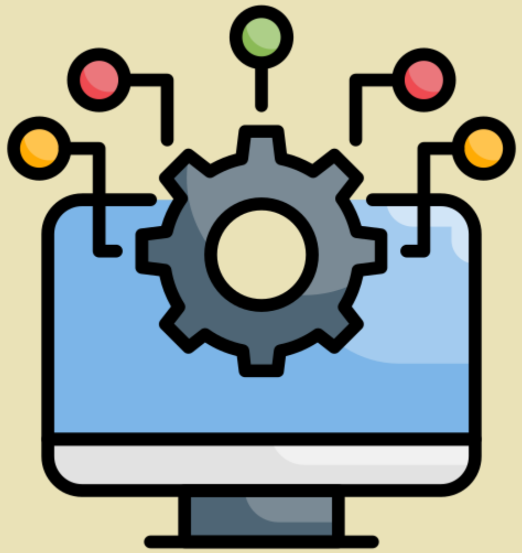
- Node.js (18.17.1)
  - https://nodejs.org/download/release/v18.17.1/
  - Node package manager (npm 9.6.7)

```
npm install –g @angular/cli@16.2.2
```

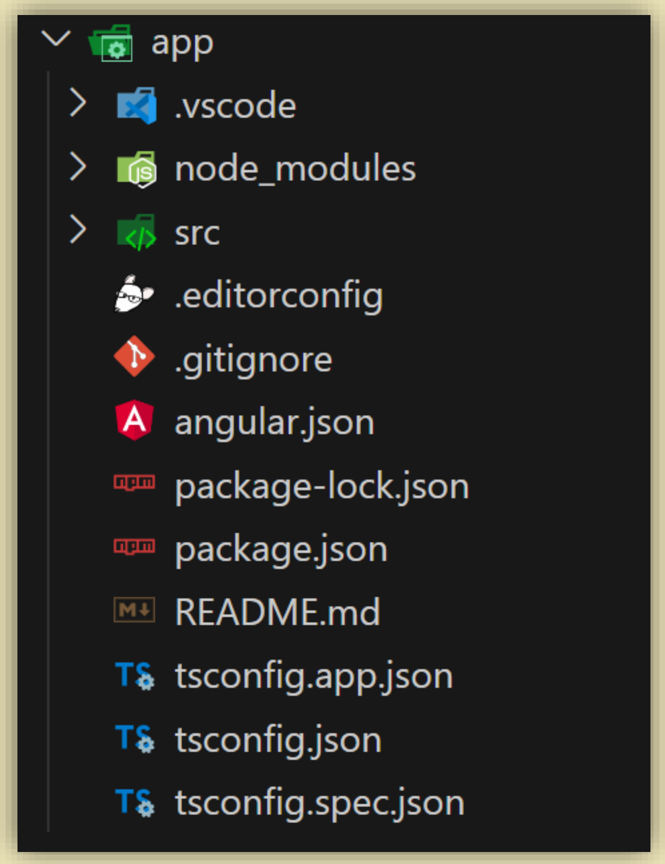
```
ng new naziv_aplikacije
```

- add routing – YES
- style – CSS

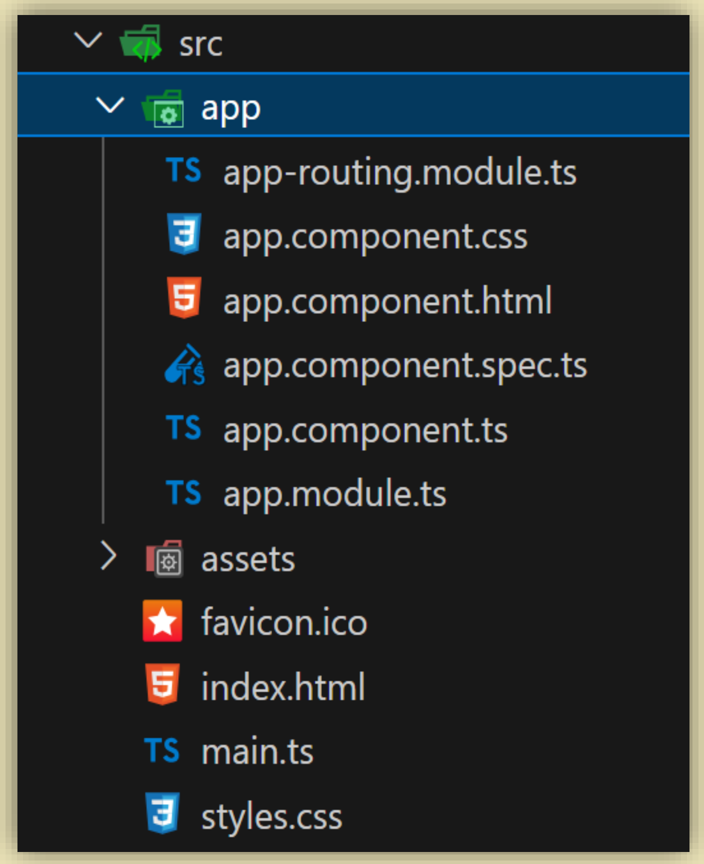
```
ng serve --open
```



Struktura aplikacije

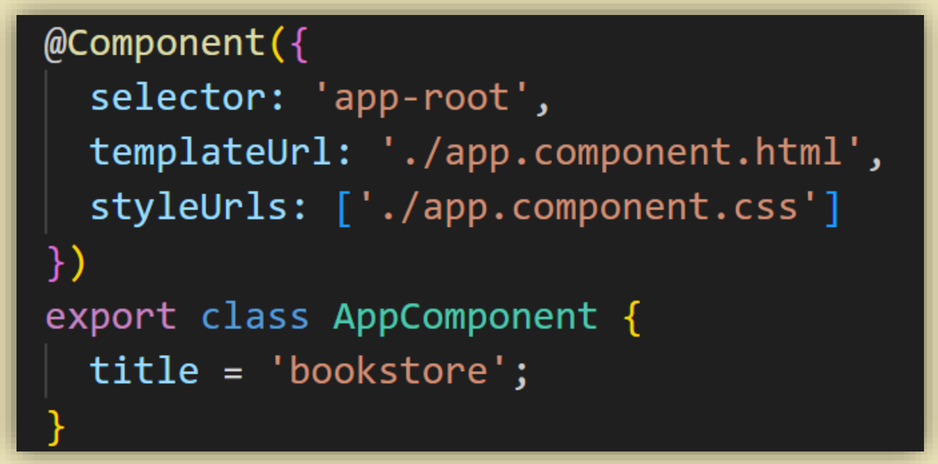


```
app
  .vscode
  node_modules
  src
  .editorconfig
  .gitignore
  angular.json
  package-lock.json
  package.json
  README.md
  tsconfig.app.json
  tsconfig.json
  tsconfig.spec.json
```

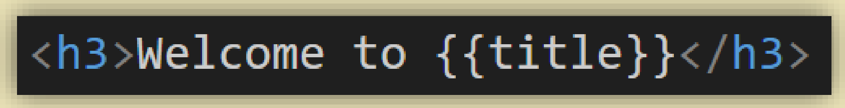


```
src
  app
    app-routing.module.ts
    app.component.css
    app.component.html
    app.component.spec.ts
    app.component.ts
    app.module.ts
  assets
  favicon.ico
  index.html
  main.ts
  styles.css
```

Interpolacija



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



```
<h3>Welcome to {{title}}</h3>
```

Kreiranje komponenti, servisa i rutiranje

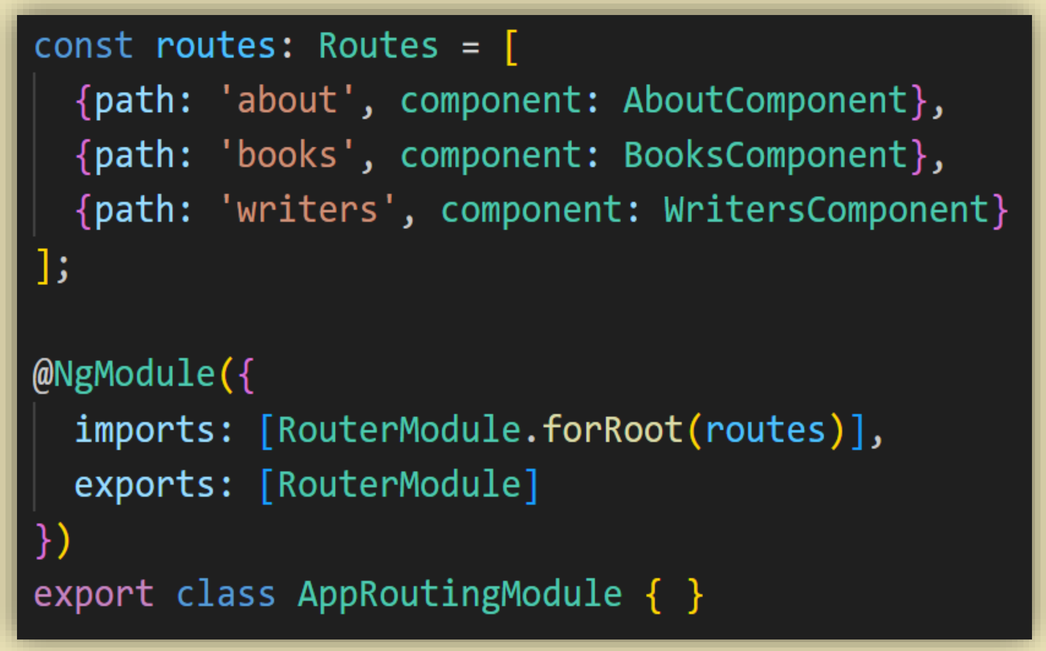
- Kreiranje komponenti

ng generate component component_name
(ng g c component_name)

- Kreiranje servisa

ng generate service service_name
(ng g s service_name)

- Rutiranje



```
const routes: Routes = [
  {path: 'about', component: AboutComponent},
  {path: 'books', component: BooksComponent},
  {path: 'writers', component: WritersComponent}
];

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

Direktive

Klase koje definišu strukturu i ponašanje

- **Direktiva komponenta** – direktive sa šablonom
- **Strukturalne direktive** – direktive koje manipulišu elementima u DOM-u
  - *ngFor, *ngIf, *ngSwitch
  - Jedna strukturalna direktiva po elementu
- **Atributske direktive** – direktive koje manipulišu izgledom elemenata u DOM-u

One-way binding

- **Interpolacija**
- **Property binding**

  <img alt=”item” [src]=”itemImageUrl”> HTML

  itemImageUrl = ’../assets/phone.svg’; TS
- **Attribute binding**

  <button type=”button” [attr.aria-label]=”actionName”>

  {{actionName}} with Aria

  </button>
- **Class and style binding**

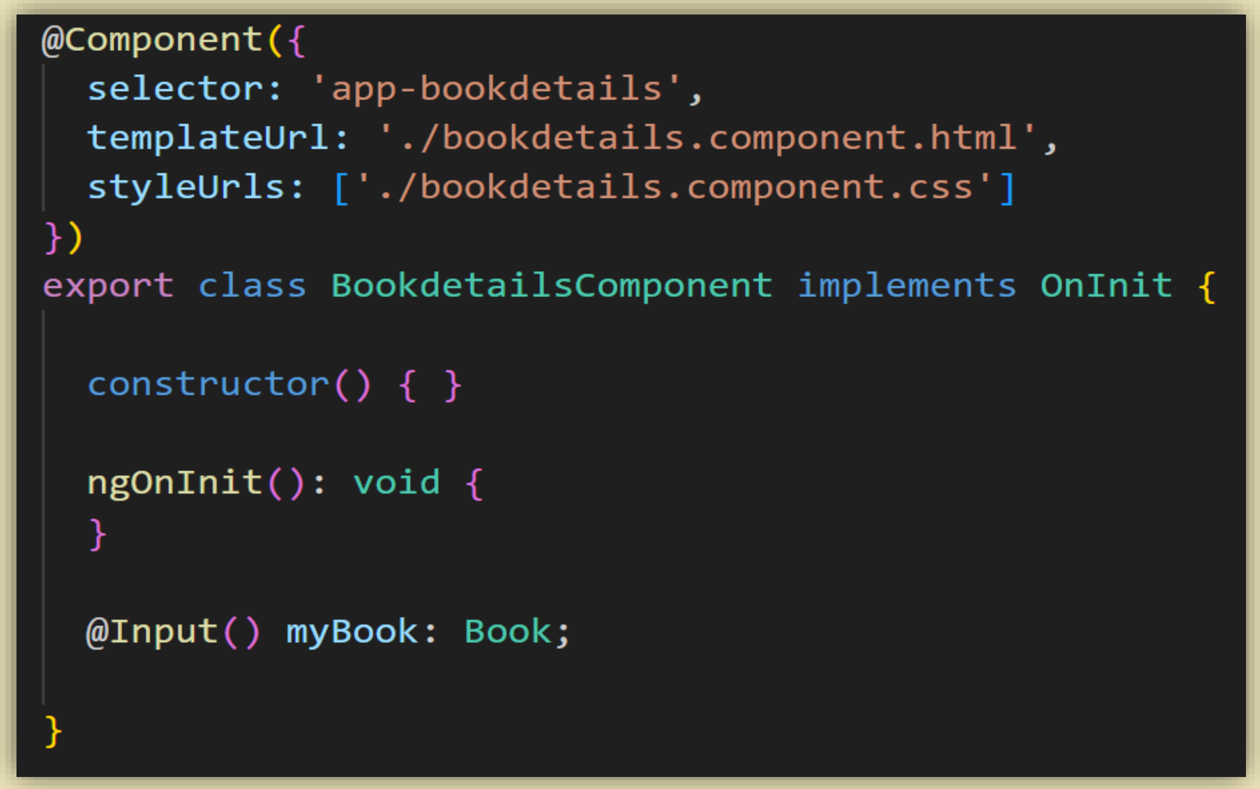
  [class.sale]=”onSale”   true, false
- **Event binding**

  <button (click)=”onSave()”>Save</button>

from data source to view target

from view target to data source

Prosleđivanje podataka u komponentu



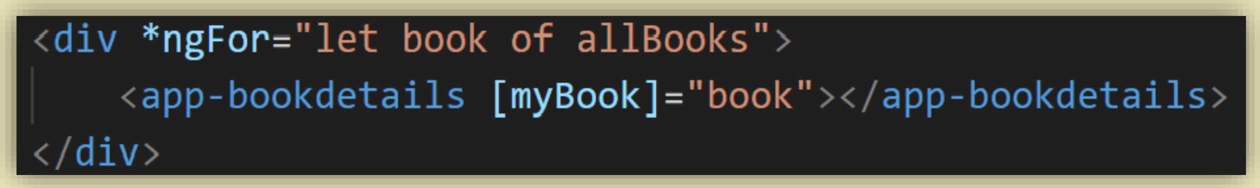
```
@Component({
  selector: 'app-bookdetails',
  templateUrl: './bookdetails.component.html',
  styleUrls: ['./bookdetails.component.css']
})
export class BookdetailsComponent implements OnInit {

  constructor() { }

  ngOnInit(): void {
  }

  @Input() myBook: Book;

}
```

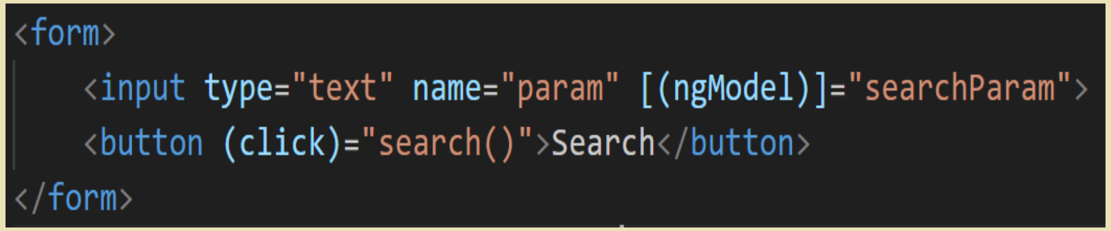


```
<div *ngFor="let book of allBooks">
    <app-bookdetails [myBook]="book"></app-bookdetails>
</div>
```

Forme

- reactive vs **template-driven**

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



```
<form>
    <input type="text" name="param" [(ngModel)]="searchParam">
    <button (click)="search()">Search</button>
</form>
```

Two-way binding

Povezivanje sa backend-om

- NgModule

```
import { HttpClientModule }
from '@angular/common/http'
```

- Servis (DI)

```
import { HttpClient }
from '@angular/common/http'
```

- Uz pomoć HttpClient-a šaljemo HTTP zahteve ka backend-u, a kao odgovor dobijamo Observable

- Observable se izvršava tek kada se na njega subscribe-ujemo

Guards

```
export const authenticationGuard : CanActivateFn = (route, state) => {
        const oauthService: AuthService = inject(AuthService);

        if (oauthService.hasAccess() ) {
                return true;
        }

        return false;
        };
}
```

```
const routes: Route[] = [
  {
        path: 'home’,
        component: HomeComponent,
        canActivate: [authenticationGuard]
  }
]
```

ng generate guard guard_name
(ng g g guard_name)

HVALA NA PAŽNJI!