Reaktivne forme

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- U glavni modul aplikacije importuje se ReactiveFormsModule
- Kreira se model forme u klasi komponente korišćenjem klasa FormGroup i FormControl (kreira se programski korišćenjem typescript koda)
- Forma se sinhronizuje sa DOM

Importovanje modula **ReactiveFormsModule**

```
import { ReactiveFormsModule } from "@angular/forms";

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

Klasa komponente

```
@Component({
  selector: 'app-primer1',
  templateUrl: './primer1.component.html',
  styleUrls: ['./primer1.component.css']
})
export class Primer1Component {

  title = 'Reaktivne forme';

  form1 = new FormGroup({
    ime: new FormControl(''),
    prezime: new FormControl('')
  });

}
```

Šablon glavne komponente

```
<div class="container">
    <div class="jumbotron">
      <h5>Reaktivne forme</h5>
    </div>

    <div class="row">
      <div class="col-md-6">

        <form>

          <div class="form-group">
            <label for="ime">Ime</label>
            <input type="text" name="ime" id="ime" class="form-control">
          </div>

          <div class="form-group">
            <label for="prezime">Prezime</label>
            <input type="text" name="prezime" id="prezime" class="form-control">
          </div>

          <div class="form-group">
              <button class="btn btn-primary" type="submit">Posalji</button>
          </div>

        </form>

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

Povezivanje šablona sa modelom

```
<form [formGroup]="form1">
```

sinhronizacija HTML-a sa dinamički kreiranom formom

one-way binding, direktiva formGroup

Povezivanje polja forme sa modelom

```
 <input type="text" name="ime" id="ime" class="form-control"
formControlName="ime">
```

```
<input type="text" name="prezime" id="prezime" class="form-control"
formControlName="prezime">
```

Sabmitovanje forme

```
<form [formGroup]="form1" (ngSubmit)="onSubmit()">
```

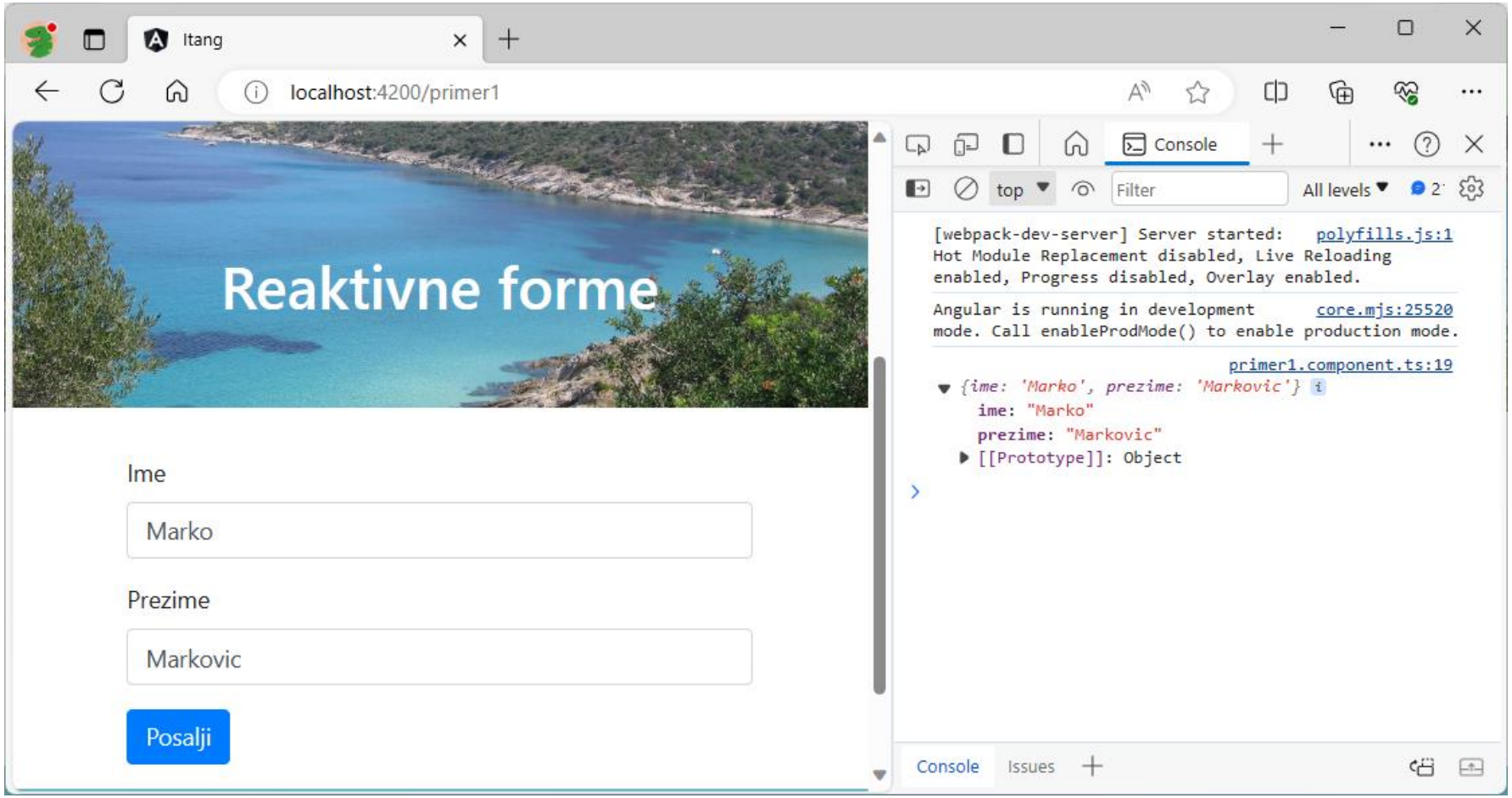
Prihvatanje podataka u klasi komponente

```
onSubmit() {
    console.log(this.form1.value);
}
```

Šablon komponente

```
<div class="col-6">
    <form [formGroup]="form1" (ngSubmit)="onSubmit()">
        <div class="form-group">
            <label for="ime">Ime</label>
            <input type="text" name="ime" id="ime" class="form-control" formControlName="ime">
        </div>

        <div class="form-group">
            <label for="prezime">Prezime</label>
            <input type="text" name="prezime" id="prezime" class="form-control"
formControlName="prezime">
        </div>

        <div class="form-group">
            <button class="btn btn-primary" type="submit">Posalji</button>
        </div>
    </form>
</div>
```

Rezultat sabmitovanja forme



Validacija reaktivne forme

```
import { FormGroup, FormControl, Validators } from '@angular/forms';
```

```
@Component({
  selector: 'app-primer2',
  templateUrl: './primer2.component.html',
  styleUrls: ['./primer2.component.css']
})
export class Primer2Component   {

  title = 'Reaktivne forme';

  form1 = new FormGroup({
    ime: new FormControl('',Validators.required),
    prezime: new FormControl('',Validators.required)
  });

  onSubmit(){
    console.log(this.form1.value);
  }
}
```

Prikaz validacionih grešaka – polje ime

```
<div class="form-group">
  <label for="ime">Ime</label>
  <input type="text" id="ime" class="form-control" formControlName="ime">
  <div *ngIf="form1.get('ime')?.invalid && (form1.get('ime')?.dirty ||
form1.get('ime')?.touched)" class="alert alert-danger">
    Unesi ime
  </div>
</div>
```

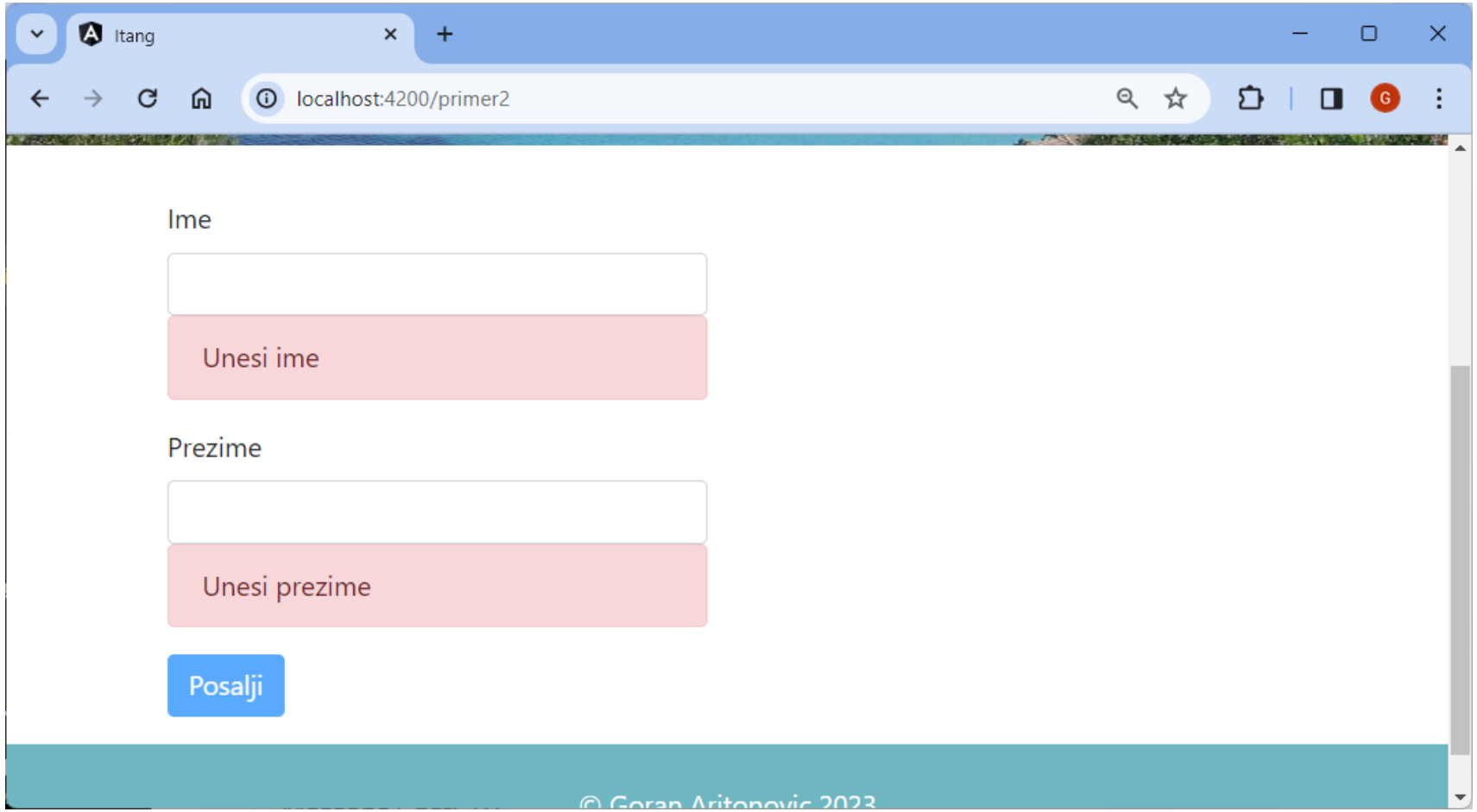
Prikaz validacionih grešaka – polje prezime

```
<div class="form-group">
  <label for="prezime">Prezime</label>
  <input type="text"  id="prezime" class="form-control" formControlName="prezime">

  <div *ngIf="form1.get('prezime')?.invalid && (form1.get('prezime')?.dirty ||
form1.get('prezime')?.touched)" class="alert alert-danger">
    Unesi prezime
  </div>
</div>
```

Zabrana sabmitovanje ne validnih podataka

```
<button class="btn btn-primary" [disabled]="form1.invalid" type="submit">
Posalji
</button>
```

Validacione greške



Getteri za pristup kontrolama forme

```
get ime() { return this.form1.controls.ime; }
// get ime() { return this.form1.get('ime'); }

get prezime() { return this.form1.controls.prezime; }
// get prezime() { return this.form1.get('prezime'); }
```

Validacija upotrebom getera

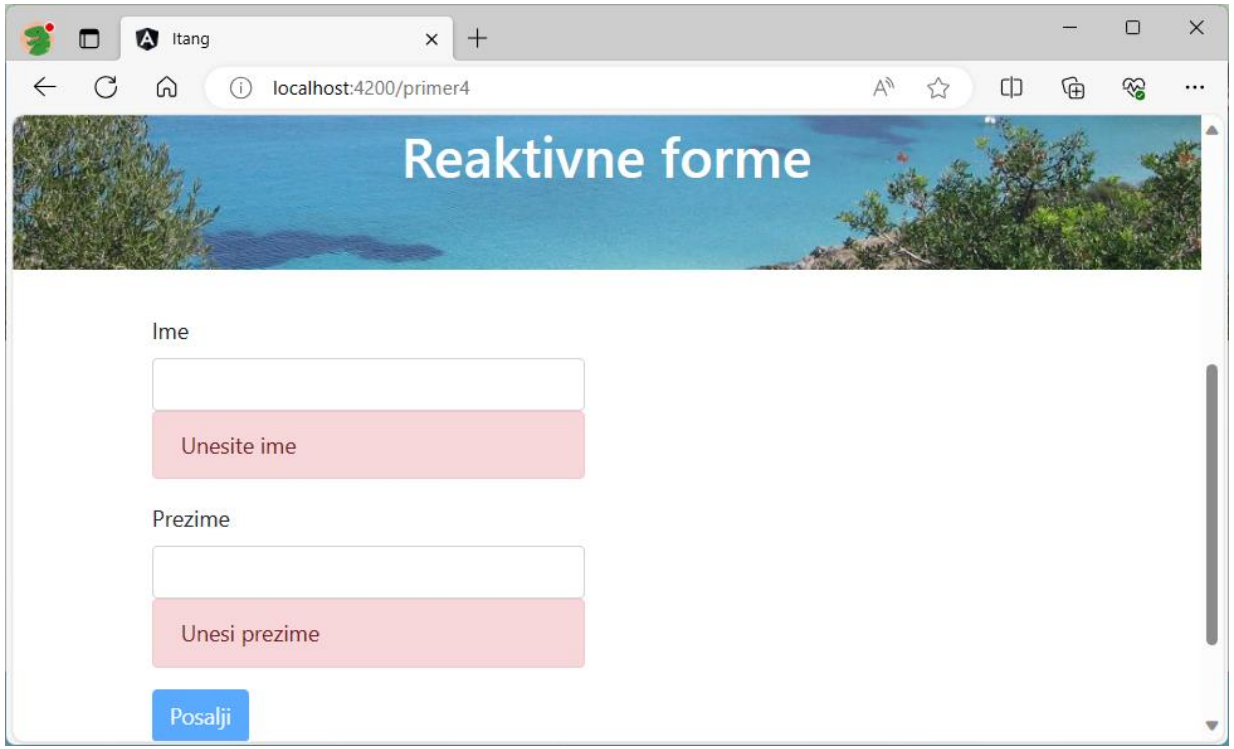
```
<div class="form-group">
  <label for="ime">Ime</label>
  <input type="text"  id="ime" class="form-control" formControlName="ime">

  <div *ngIf="ime.invalid && (ime.dirty || ime.touched)" class="alert alert-danger">
    Unesi ime
  </div>
</div>
```

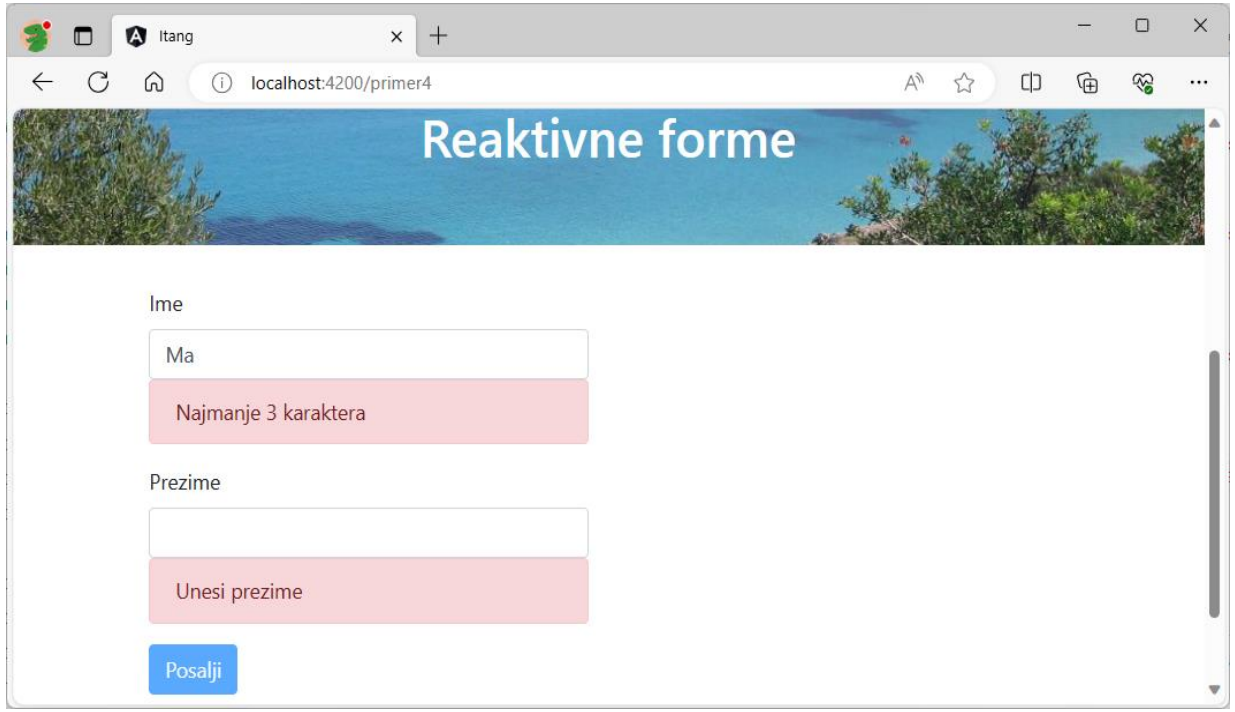
Definisanje više validatora za polje forme

```
form1 = new FormGroup({
    ime: new FormControl('', [Validators.required, Validators.minLength(3)]),
    prezime: new FormControl('', Validators.required)
  });
```

```
<div *ngIf="ime.invalid && (ime.dirty || ime.touched)" class="alert alert-danger">
    <div *ngIf="ime.hasError('required')">
      Unesite ime
    </div>
    <div *ngIf="ime.hasError('minlength')">
      Najmanje 3 karaktera
    </div>
</div>
```

Validacija forme





FormBuilder

- Koristi se za kreiranje reaktivnih formi uz minimalnu količinu koda
- Metoda group() kreira instancu FormGroup
- Metoda control() kreira instancu FormControl
- Ubacuje se u konstruktor komponente

```
import { FormGroup, FormBuilder, Validators } from '@angular/forms';
```

FormBuilder

```
export class Primer5Component {

  title = 'Form builder';
  form1: FormGroup;

  constructor(private fb: FormBuilder) {
    this.form1 = fb.group({
      ime: ['', [Validators.required, Validators.maxLength(10)]],
      prezime: ['', Validators.required]
    }
    );
  }

  get ime() { return this.form1.controls['ime']; }
  get prezime() { return this.form1.controls['prezime']; }

  onSubmit() {
    console.log(this.form1.value);
  }

}
```

Šablon komponente

```
<div class="form-group">
  <label for="ime">Ime</label>
  <input type="text" id="ime" class="form-control" formControlName="ime">
  <div *ngIf="ime.invalid && (ime.dirty || ime.touched)" class="alert alert-danger">
    <div *ngIf="ime.hasError('required')">
      Unesite ime
    </div>
    <div *ngIf="ime.hasError('maxlength')">
      Najvise karaktera
    </div>
  </div>
</div>
```

```
<div class="form-group">
      <button class="btn btn-primary" [disabled]="form1.invalid"  type="submit">Posalji</button>
</div>
```

Reaktivna forma primer -1

```
export class Student {
    constructor(public ime: string, public prezime: string, public pol: string,
    public smer: string  ) {
    }
}
```

Reaktivna forma primer -2

```
export class StudentComponent  {

  title = 'Rectivne Forme Vezba';

    student: Student = new Student('', '', 'muski', 'Informatika');
    smerovi = ['Informatika', 'Marketing', 'Menadzment'];

    studentForm = new FormGroup({
      ime: new FormControl('',[Validators.required]),
      prezime: new FormControl('', [Validators.required]),
      pol: new FormControl('muski', [Validators.required]),
      smer: new FormControl('Informatika', [Validators.required])
    });
```

Geteri za pristup kontrolama

```
get ime() { return this.studentForm.controls.ime; }
  get prezime() { return this.studentForm.controls.prezime; }
  get pol() { return this.studentForm.controls.pol; }
  get smer() { return this.studentForm.controls.smer; }
```

Metode resetuj() i setDefault()

```
resetuj() {
    this.student = new Student('', '', 'muski', 'Informatika');
    this.studentForm.reset(this.student);
  }


  setDefault() {
    this.studentForm.patchValue({ ime: 'Marko', prezime: 'Markovic', pol: 'muski’,
     smer: 'Informatika' });
  }
```

```
 setDefault() {
    this.studentForm.setValue({ ime: 'Marko', prezime: 'Markovic', pol: 'muski',
    smer: 'Informatika' });
  }
```

setValue() zahteva dodeljivanje vrednosti svim kontrolama, patchValue() dozvoljava izbor kontrola

Metoda onSubmit()

```
onSubmit() {
  this.student.ime = this.ime?.value||'';
  this.student.prezime = this.prezime?.value || '';
  this.student.pol = this.pol?.value || '';
  this.student.smer = this.smer?.value || '';

  console.log('Ime : ' + this.student.ime);
  console.log('Prezime : ' + this.student.prezime);
  console.log('Pol: ' + this.student.pol);
  console.log('Smer: ' + this.student.smer);

  this.resetuj();
}
```

```
<form [formGroup]="studentForm" (ngSubmit)="onSubmit()">

          <div class="form-grup">
            <label for="ime">Ime:</label>
            <input type="text" id="ime" name="ime" formControlName="ime"
           class="form-control">
            <div *ngIf="ime.invalid && (ime.dirty || ime.touched)">
              Unesite ime.
            </div>
          </div>

          <div class="form-grup">
            <label for="ime">Prezime:</label>
            <input type="text" id="prezime" name="prezime" formControlName="prezime"
            class="form-control">
            <div *ngIf="prezime.invalid && (prezime.dirty || prezime.touched)">
              Unesite prezime.
            </div>
          </div>
```

```
<div class="form-group">

      <label>Odaberi pol:</label>
      <div class="form-check">
        <input type="radio" name="pol" value="muski" id="radio1"
        class="form-check-input" formControlName="pol">
        <label for="radio1" class="form-check-label">Muski</label>
      </div>

      <div class="form-check">
        <input type="radio" name="pol" value="zenski" id="radio2"
        class="form-check-input" formControlName="pol">
        <label for="radio2" class="form-check-label">Zenski</label>
      </div>
  </div>

  <div class="form-group">
    <label for="smer">Odaberi smer</label>
    <select name="smer" id="smer" formControlName="smer" class="form-control">
      <option *ngFor="let smer of smerovi" [value]="smer">
       {{smer}}
      </option>
    </select>
  </div>
```

```
<div class="form-group">
    <button [disabled]="studentForm.invalid" class="btn btn-primary">Posalji</button>

    <button type="button" (click)="setDefault()"
            class="btn btn-primary">Default</button>

    <button type="button" (click)="resetuj()"
           class="btn btn-primary">Reset</button>
  </div>
```

Pitanje 1

Povezivanje postojeće instance klase FormGroup sa elementom form kod reaktivnih formi vrši se korišćenjem direktive:

a. formGroup
b. formControlName
c. bindForm

Odgovor: a

Pitanje 2

Sinhronizacija instance klase FormControl sa DOM elementom kod reaktivnih formi vrši se posredstvom direktive:

a. control
b. controlBind
c. formControlName

Odgovor: c

Pitanje 3

Kod reaktivnih formi :

a. Instance klase FormGroup i FormControl se kreiraju na osnovu šablona komponente gde se nalazi forma
b. Kreira se model forme u kome se instanciraju klase FormGroup i FormControl pa se vrši sinhronizacija modela sa formom
c. Forma se kreira instanciranjem klasi ReactiveForm

Odgovor: b

Pitanje 4

Kod reaktivnih formi klasa koja omogućava brzo kreiranje modela forme naziva se :

a. FormGenerator
b. CreateForm
c. FormBuilder

Odgovor: c