

Assignment - Spring Data JPA - Part 3

Q1) Create a class Address for Author with instance variables streetNumber, location, State.

```
Address.java ×
package com.akash.spring_jpa_3.model;

public class Address { no usages
    private String streetNumber; 2 usages
    private String location; 2 usages
    private String state; 2 usages

    public String getStreetNumber() { no usages
        return streetNumber;
    }

    public void setStreetNumber(String streetNumber) { no usages
        this.streetNumber = streetNumber;
    }

    public String getLocation() { no usages
        return location;
    }

    public void setLocation(String location) { no usages
        this.location = location;
    }

    public String getState() { no usages
        return state;
    }

    public void setState(String state) { no usages
        this.state = state;
    }
}
```

Q2) Create instance variable of Address class inside Author class and save it as embedded object.

```
Address.java  Author.java  application.properties

package com.akash.spring_jpa_3.model;

import jakarta.persistence.*;

@Entity
public class Author {
    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;

    private String name; 2 usages

    @Embedded 2 usages
    private Address address;

    public Long getId() { no usages
        return id;
    }

    public void setId(Long id) { no usages
        this.id = id;
    }

    public String getName() { no usages
        return name;
    }

    public void setName(String name) { no usages
        this.name = name;
    }

    public Address getAddress() { no usages
```

Q3) Introduce a List of subjects for author.

```
Ⓐ @ElementCollection 2 usages
private List<String> subjects = new ArrayList<>();

public List<String> getSubjects() { no usages
    return subjects;
}

public void setSubjects(List<String> subjects) { no usages
    this.subjects = subjects;
}
```

Q4)Persist 3 subjects for each author.

```
1 package com.akash.spring_jpa_3.controller;
2
3 import com.akash.spring_jpa_3.service.AuthorService;
4 import org.springframework.beans.factory.annotation.Autowired;
5 import org.springframework.http.ResponseEntity;
6 import org.springframework.web.bind.annotation.*;
7
8 import java.util.List;
9
10 @RestController
11 @RequestMapping("/authors")
12 public class AuthorController {
13     @Autowired
14     private AuthorService authorService;
15
16     @PostMapping("/{id}/subjects")
17     public ResponseEntity<String> addSubjects(
18         @PathVariable Long id,
19         @RequestBody List<String> subjects) {
20         authorService.saveAuthorSubjects(id, subjects);
21         return ResponseEntity.ok(body: "Subjects saved for Author ID: " + id);
22     }
23 }
24
25
```

```

1 package com.akash.spring_jpa_3.service;
2
3 import com.akash.spring_jpa_3.model.Author;
4 import com.akash.spring_jpa_3.repository.AuthorRepo;
5 import org.springframework.beans.factory.annotation.Autowired;
6 import org.springframework.stereotype.Service;
7 import org.springframework.transaction.annotation.Transactional;
8
9 import java.util.List;
10
11 @Service 2 usages
12 public class AuthorService {
13     @Autowired
14     private AuthorRepo authorRepo;
15
16     @Transactional 1 usage
17     public void saveAuthorSubjects(Long Id, List<String> subjects) {
18         Author author = authorRepo.findById(Id).orElseThrow(() -> new RuntimeException("Author not found"))
19
20         author.setSubjects(subjects);
21         authorRepo.save(author);
22     }
23 }
24

```

Search Postman Ctrl K

POST New Request + No environment

HTTP JVM / JPA_3 / New Request Save Share

POST localhost:8080/authors/1/subjects Send

Params Authorization Headers (10) Body Scripts Settings Cookies

Headers 9 hidden

Key	Value	Description
<input checked="" type="checkbox"/> Content-Type	application/json	
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Body Cookies Headers (5) Test Results 200 OK • 80 ms • 195 B Save Response

Raw Preview Visualize

1 Subjects saved for Author ID: 1

Q5) Create an Entity book with an instance variable bookName.

```
2
3  import jakarta.persistence.Entity;
4  import jakarta.persistence.GeneratedValue;
5  import jakarta.persistence.GenerationType;
6  import jakarta.persistence.Id;
7
8  @Entity
9  public class Book {
10      @Id
11      @GeneratedValue(strategy = GenerationType.IDENTITY)
12      private Long id;
13
14      private String bookName; 2 usages
15
16      public Long getId() { no usages
17          return id;
18      }
19
20      public void setId(Long id) { no usages
```

Q6) Implement One to One mapping between Author and Book.

```
7   import java.util.ArrayList;
8   import java.util.List;
9
10  @Entity
11  public class Author_1 {
12      @Id
13      @GeneratedValue(strategy = GenerationType.IDENTITY)
14      private Long id;
15
16      private String name; 2 usages
17
18      @Embedded 2 usages
19      private Address address;
20
21      @ElementCollection 2 usages
22      private List<String> subjects = new ArrayList<>();
23
24      @OneToOne(cascade = CascadeType.ALL) no usages
25      @JoinColumn(name = "book_id")
26      private Book_1 book;
27
```

Q7) Implement One to Many Mapping between Author and Book(Unidirectional, BiDirectional and without additional table) and implement cascade save.

a) Unidirectional

```
7 import java.util.ArrayList;
8 import java.util.List;
9
10 @Entity
11 public class Author_2 {
12     @Id
13     @GeneratedValue(strategy = GenerationType.IDENTITY)
14     private Long id;
15
16     private String name; 2 usages
17
18     @Embedded 2 usages
19     private Address address;
20
21     @ElementCollection 2 usages
22     private List<String> subjects = new ArrayList<>();
23     //Unidirectional
24     @OneToMany(cascade = CascadeType.ALL) no usages
25     @JoinColumn(name = "author_id")
26     private List<Book_2> books = new ArrayList<>();
27
```


b) Bidirectional

```
1 package com.akash.spring_jpa_3.model.mapping.one_to_many;
2
3 import jakarta.persistence.*;
4
5 @Entity
6 public class Book_2 {
7     @Id
8     @GeneratedValue(strategy = GenerationType.IDENTITY)
9     private Long id;
10
11     private String bookName; 2 usages
12
13
14     @ManyToOne no usages
15     @JoinColumn(name = "author_id")
16     private Author_2 author;
17
18     public Long getId() { return id; }
19
20
21     public void setId(Long id) { this.id = id; }
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```

Q8)Implement Many to Many Mapping between Author and Book.

```
4
5 import java.util.ArrayList;
6 import java.util.List;
7
8 @Entity
9 public class Book_3 {
10     @Id
11     @GeneratedValue(strategy = GenerationType.IDENTITY)
12     private Long id;
13
14     private String bookName; 2 usages
15
16     @ManyToMany(mappedBy = "books") no usages
17     private List<Author_3> authors = new ArrayList<>();
18
19
20     public Long getId() { return id; }
21
22
23     public void setId(Long id) { this.id = id; }
24
25
26
27
28     public String getBookName() { return bookName; }
```

```

1 package com.akash.spring_jpa_3.model.mapping.many_to_many;
2
3
4 > import ...
5
6
7
8
9
10 @Entity
11 public class Author_3 {
12     @Id
13     @GeneratedValue(strategy = GenerationType.IDENTITY)
14     private Long id;
15
16     private String name; 2 usages
17
18     @Embedded 2 usages
19     private Address address;
20
21     @ElementCollection 2 usages
22     private List<String> subjects = new ArrayList<>();
23
24     @ManyToMany(cascade = CascadeType.ALL) no usages
25     @JoinTable(
26         name = "author_book",
27         joinColumns = @JoinColumn(name = "author_id"),
28         inverseJoinColumns = @JoinColumn(name = "book_id")
29     )
30     private List<Book_3> books = new ArrayList<>();
31

```

Q9) Which method on the session object can be used to remove an object from the cache?

Ans -> `session.evict(object);`

Q10) What does `@transactional` annotation do?

Ans ->

- `@Transactional` ensures that the method runs inside a database transaction.
- If any operation inside the method fails, all changes will be rolled back.
- Without it, partial data might be persisted.

```
6      @Transactional 1 usage
7      public void saveAuthorSubjects(Long Id, List<String> subjects) {
8          Author author = authorRepo.findById(Id).orElseThrow(() -> new RuntimeException("Author not found"));
9
10         author.setSubjects(subjects);
11         authorRepo.save(author);
12     }
13 }
14 |
```