

Annotation-Based Configuration

Case Study Title: Library Management System

POJO Classes:

1. Book.java

- addBook(), searchBook()

2. Member.jav

- registerMember(), viewMembers()

2. Loan.java

- issueBook(), returnBook()

Code:

```
//Book.java

package com.library;

import java.util.ArrayList;
import java.util.List;
import org.springframework.stereotype.Component;

@Component

public class Book {

    private List<String> books = new ArrayList<>();

    public void addBook(String title) {

        books.add(title);

        System.out.println("Book added: " + title);

    }

    public void searchBook(String title) {

        if (books.contains(title)) {

            System.out.println("Book found: " + title);

        } else {

            System.out.println("Book not found.");

        }

    }

}
```

```
}
```

```
}
```

```
}
```

```
//Loan.java
```

```
package com.library;
```

```
import org.springframework.stereotype.Component;
```

```
@Component
```

```
public class Loan {
```

```
    public void issueBook(String book, String member) {
```

```
        System.out.println("Book '" + book + "' issued to " + member);
```

```
    }
```

```
    public void returnBook(String book, String member) {
```

```
        System.out.println("Book '" + book + "' returned by " + member);
```

```
    }
```

```
}
```

```
//Member.java
```

```
package com.library;
```

```
import java.util.ArrayList;
```

```
import java.util.List;
```

```
import org.springframework.stereotype.Component;
```

```
@Component
```

```
public class Member {
```

```
    private List<String> members = new ArrayList<>();
```

```
    public void registerMember(String name) {
```

```
        members.add(name);
```

```
        System.out.println("Member registered: " + name);
```

```
    }
```

```

public void viewMembers() {
    System.out.println("Registered Members:");
    for (String member : members) {
        System.out.println("- " + member);
    }
}

}

//LibraryService.java

package com.library;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Component;

@Component
public class LibraryService {

    @Autowired
    private Book book;

    @Autowired
    private Member member;

    @Autowired
    private Loan loan;

    public void performOperations() {
        member.registerMember("Deepika");
        member.viewMembers();

        book.addBook("The Pragmatic Programmer");
        book.searchBook("The Pragmatic Programmer");
        loan.issueBook("The Pragmatic Programmer", "sree");
        loan.returnBook("The Pragmatic Programmer", "Sree");
    }
}

```

```

}

//MainApp.java

package com.library;

import org.springframework.context.ApplicationContext;

import
org.springframework.context.annotation.AnnotationConfigApplicationContext;

import org.springframework.context.annotation.ComponentScan;

import org.springframework.context.annotation.Configuration;

@Configuration

@ComponentScan("com.library")

public class MainApp {

public static void main(String[] args) {

ApplicationContext context = new

AnnotationConfigApplicationContext(MainApp.class);

LibraryService libraryService = context.getBean(LibraryService.class);

libraryService.performOperations();

}

}

```

Output:

Member registered: Sree

Registered Members: - Sree

Book added: The Pragmatic Programmer

Book found: The Pragmatic Programmer

Book 'The Pragmatic Programmer' issued to Sree

Book 'The Pragmatic Programmer' returned by Sree