

Project Lombok for Spring Boot

Project Lombok :

Project Lombok is a Java library that helps to **reduce boilerplate code** in Java applications. It uses **annotations** to generate commonly used methods like getters, setters, constructors, toString(), equals(), and hashCode() at **compile time**, keeping the code clean and readable.

Use of Lombok in Spring Boot :

Spring Boot projects often require many **POJOs** (like entity classes, DTOs, etc.). Writing getters/setters/constructors manually becomes repetitive. Lombok makes this concise and cleaner.

Add Lombok in Spring Boot :

Step 1: Add Dependency in pom.xml (for Maven)

```
<dependency>  
  <groupId>org.projectlombok</groupId>  
  <artifactId>lombok</artifactId>  
  <version>1.18.32</version> <!-- Check for latest version -->  
  <scope>provided</scope>  
</dependency>
```

Step 2: Enable Annotation Processing in IDE

- In **IntelliJ IDEA**:
Settings > Build, Execution, Deployment > Compiler > Annotation Processors → Check Enable annotation processing.

Common Lombok Annotations

Annotation	Description
@Getter	Generates getters for all fields
@Setter	Generates setters for all fields
@ToString	Generates toString() method
@EqualsAndHashCode	Generates equals() and hashCode() methods
@NoArgsConstructor	Generates a no-argument constructor
@AllArgsConstructor	Generates a constructor with all fields
@RequiredArgsConstructor	Constructor with final/non-null fields
@Data	Combines @Getter, @Setter, @ToString, @EqualsAndHashCode, and @RequiredArgsConstructor
@Builder	Implements the Builder pattern
@Value	Makes class immutable: final fields + constructor + getters
@Slf4j	Adds private static final Logger log for logging
@Cleanup	Ensures a resource is closed
@SneakyThrows	Avoids checked exceptions declaration

Spring Boot Entity with Lombok

```
import lombok.*;

@Data
@NoArgsConstructor
@AllArgsConstructor
@Builder
@Entity
public class Student
{

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long id;

    private String name;
    private String course;
}
```

This single class automatically gets:

- Getters/Setters
- toString()
- equals() and hashCode()
- All-args & no-args constructor
- Builder support

