

Java Assignment-6: Spring Boot Annotations

1. Spring Core Annotations:

- **@Autowired:** Marks a dependency that Spring will resolve and inject.
- **@Bean:** Defines a factory method for creating a Spring bean.
- **@Qualifier:** Used with @Autowired to specify which bean to inject when multiple beans of the same type are available.
- **@Value:** Injects a value from properties or environment variables.
- **@Component:** Marks a class as a Spring component.
- **@Configuration:** Indicates a class defines Spring bean configuration.
- **@Profile:** Defines a set of beans loaded based on the active profile.
- **@Scope:** Specifies the scope of a Spring bean (e.g., singleton, prototype).

2. Spring Web Annotations:

- **@RequestMapping:** Maps HTTP requests to controller methods.
- **@PathVariable:** Binds a URI template variable to a method parameter.
- **@RequestBody:** Maps the HTTP request body to a method parameter.
- **@RequestParam:** Binds a query parameter or form data field to a method parameter.
- **@RestController:** Combines @Controller and @ResponseBody for RESTful web services.
- **@GetMapping, @PostMapping, etc.:** Variants of @RequestMapping with predefined HTTP methods.

3. Spring Boot Annotations:

- **@SpringBootApplication:** Marks the main class of a Spring Boot application.
- **@EnableAutoConfiguration:** Enables auto-configuration based on classpath beans.
- **@Scheduled:** Configures and schedules tasks.
- **@EnableScheduling:** Enables Spring's scheduling support.
- **@Transactional:** Defines transactional behavior for methods.

4. Spring Scheduling Annotations:

- **@Scheduled:** Configures scheduled tasks with fixed delay, fixed rate, or cron expressions.

5. Spring Data Annotations:

- **@Transactional**: Configures transactional behavior.
- **@NoRepositoryBean**: Marks a base repository interface to provide common methods without creating a bean.
- **@Param**: Passes named parameters to queries.
- **@Id**: Marks a field as the primary key.
- **@Transient**: Marks a field as transient (not persisted).
- **@CreatedBy, @LastModifiedBy, @CreatedDate, @LastModifiedDate**: Audit fields for model classes.

6. Spring Bean Annotations:

- **@Component**: Generic stereotype for any Spring-managed component.
- **@Service**: Indicates a service component.
- **@Repository**: Indicates a data access component.
- **@Controller**: Marks a class as a Spring MVC controller.
- **@Configuration**: Indicates a configuration class.
- **@Primary**: Gives a bean higher precedence when multiple candidates are available.