**Lab 4**

1. **What is Spring?**Spring is a lightweight, modular **Java application framework** that provides infrastructure support for building enterprise applications. It focuses on solving complexities like dependency injection, transaction management, AOP, and integrating with various data sources.

### ****What is Spring Boot?**** Spring Boot is an opinionated extension of Spring that simplifies application setup by providing defaults, auto-configuration, and an embedded server. It eliminates boilerplate (e.g., web.xml, XML config) and allows you to go from idea to production-ready app faster.

### ****Relation: Spring Platform vs. Spring Boot****

* The Spring Platform is the broader ecosystem (framework, projects like Spring Data, Spring Security, Spring Cloud, etc.).
* Spring Boot sits on top of the platform, streamlining how you bootstrap and configure those projects.

### ****Relation: Spring Platform vs. Spring Framework****

* The **Spring Framework** is the **core project** of the spring platform.
* The **platform** includes the framework + additional projects (Spring Data, Security, Cloud, Batch, etc.) as part of the ecosystem

### ****Dependency Injection (DI) in spring****

* **Concept**: Instead of a class creating its own dependencies, they are **injected externally** (constructor, setter, or field injection).
* **In spring**: The IoC container manages beans and injects dependencies based on configuration (XML, Java config via @Bean, or annotations like @Autowired).

### ****Inversion of Control (IoC) and Spring****

* **IoC**: The principle that control of object creation and wiring is handed over from the application to the framework/container.
* **In Spring**: The IoC container (ApplicationContext/BeanFactory) is responsible for creating, managing, and wiring beans.
* **Relation**: DI is the implementation mechanism of IoC in Spring.

In short: **Spring Framework = core DI + IoC container**,  
**Spring Platform = full ecosystem of projects**,  
**Spring Boot = fast-track way to build apps using Spring’s ecosystem with minimal setup**.